

2021 EB DRILLHOLE LOG 2022-06-02 MASTER.GPJ BASE.GDT 02/06/22



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

Co-ordinates 412270.62mE 794791.97mN

DH326

Ρ

Orientation -90° Elevation 10.02m

Location Reserve: 1R Burswood Drive

Feature Retaining wall/slope design

)E We Str	EOLOGICAL SCRIPTION Pathering, Colour, Fabric, ROCK NAME. ength, Discontinuities, Lithological Features adding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	SPT N Values	Drilling Method Casing remarks	Core Loss/Lift	MS Relative	w Rock WW Weathering	Depth	Graphic Log	(%)	500) Spacing of 100 B Natural 50 Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ar information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	tion description, subordinate dditional structures, additiona and Crush Zones, Foliation,	"" Instrumentation
	0.0m: TOPSOIL.							-	a a a a a a a a a a a a a a a a a a a			0.0m: Fine sandy SILT with some cl Soft, dry, low plasticity.	ay; dark brown. 🖞	。 。
	0.6m: ALLUVIUM comprising silty clay and peat.			HA				- - - 1 -		100		0.6m: Silty CLAY; light grey stained moist, high plasticity.	orange. Firm, ার মু	32 7
		ss 0,0,0, 1,1,1 N=3		SPT				2		100		1.4m: Orange staining ceases.		
				HQ3				- - - - - -		100		2.2 to 2.3m: Contains minor organics, t 2.5m: Becomes soft.	prownish grey.	
		10/0 ss 0,0,0, 0,0,1 N=1		SPT				- 3 		100		3.0m: Becomes whitish grey.		
				HQ3				4	▲ 1 1 1 1 1 1 1 1 1 1 1 1 1	100		4.05m: PEAT; black. Very soft, wet, amorphous.	high plasticity,	
		0/0 ss		PT				- - - - - - - 5	8 78 78 78 78 78 78 78 78 7 7 78 78 78 78 78 78 78 78 7 70 70 76 76	100				
		ss 0,0,0, 0,0,0 N=0 SUOW		SPT					20, 20, 20, 20, 20, 20, 20, 20, 20, 20,	100				
		0/0 ss 0,0,0, 0,0,0 N=0		HQ3 SPT				6	70 70 70 70 7 7 75 75 75 70 77 77 77 7 77 77 77 77 77 77 77 77 77 7	100				
		SUOW		HQ3					70 70 70 70 7 7 70 70 70 70 7 70 70 70 70	100		6.45 to 7.95m: Brownish dark grey, cor inorganic material.	ntains more	
		ss 0,0,0, 0,0,0 N=0 SUOW		SPT				- 8	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	100		7.95m: Fine to medium SAND; brow	unish arev	
		35/0		HQ3					***** ***** ***** ***** *****	100		Dense, dry, poorly graded. (Pumice) 8.2m: PEAT; dark grey to black. Sof plasticity.)	
		ss 0,0,1, 4,7,10 N=22		SPT				9 	자 자 자 자 자 자 자 자 가 자 자 전 자 자 자 자 전 자 자 자 자 자 자 자 자 가 가 가 가 가 가 가 가 가 가 가 가	100		9.2m: Fine to medium SAND; light g dense, dry, poorly graded, pumiceou 9.5m: PEAT; black. Soft, moist, high 9.6 to 11.1m: Brownish dark grey with t	n plasticity.	
L a /(r explanation of symbols and obs UID DEPTHS AND DRILLIN te Time Drilled Depth 02/2022 14:40 19.95 02/2022 07:40 19.95	NG PR Casing	OGRES	S (m)	epth	VS-V S-S MS-M W-V VW-V EW-E	IVE STI /ery stro Strong /oderate	ly strong k y weak	UW - U SW - S MW - M HW - H	VEATHE Jnweather Sightly we Noderately lighly wea Completely	ERING red eathered y weather athered	Chacked CP	Driller McMillan Started 1/02/2022 Finished	
	and Held Shear Vane					50 r Hor	nm si izonta	andpi al / Ve		ırvey [Datum	ulled on completion. ns: NZGD2000 - Mount Eden m 2016	2/02/2022 Drill Rig N119 Core Boxes	9
	R1980: 19mm (A). Calibrated 28/06/21 The shear strength per NZGS guid		= 1.781, B =	-11.22									Page 1 of	8



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DN DH326

Ρ

Co-ordinates 412270.62mE 794791.97mN

Orientation -90° Elevation 10.02m

Location Reserve: 1R Burswood Drive

Feature Retaining wall/slope design

BEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	SPT N Values 0 - 50		Core Loss/Lift	^s Relative ^{ws} Strength	sw Rock ^{MW} Weathering	Depth	Graphic Log	[RQD] (%)	500) Spacing of 100 B Natural 10 Defects	grading, bedding, plasticity, sensitivity, major fra fraction description, minor fraction description, a information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear	ction description, subordinate dditional structures, additional J and Crush Zones, Foliation,		
	12/0 ss 0,0,1, 1,0,0 N=2		HQ3 SPT					e se se se se se se s e se se se s	100		9.5m: PEAT; black. Soft, moist, high (continued)	n plasticity.	000	
	11-2		HQ3	- 			- - - - - - - - -		100		11.1m: Silty CLAY; light greenish gr high plasticity.	ey. Soft, moist,		
	ss 0.0.0, 2.1.2 N=5 1 1 1 1 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I II I I I I III I I I I III I I I I III I I I III III I I I III III I I I III IIII I I I III IIII I I I IIII IIII			- 		100				• • • • •				
			HQ3				 13 		100				· · · · · · · · · · · · · · · · · · ·	
CUDUPTION Test Records Image: space of the space		。 。 。												
	60/0		HQ3					e ve ve ve	100		plasticity. 14.2m: Silty CLAY; bluish grey. Firm plasticity.	/	• • • • • • •	
	ss 0,0,0, 1,2,2		SPT		1111		- 15 - - -		100					
	20/40		HQ3				 16		100				0 0 0 0 0 0 0 0 0 0	
	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			。 。 。										
			HQ3						100					
	ss 1,1,2, 1,2,2		SPT				— 18 		100				。 。 。	
			HQ3				- - - - - - - - -		100		19.1 to 19.4m: With minor fine sand.		, o o o o o	
	ss 2,3,3, 6,9,11		SPT				- - - -		100		19.4m: Silty fine to coarse SAND; gi dense, moist, well graded.	rey. Medium	• • • •	
LUID DEPTHS AND DRILLI	NG PR	OGRES	S (m)		VS-1 S-5 MS-1 W-1 VW-1 EW-1	/ery stro Strong Moderate Veak /ery wea Extremel	ng ely strong ek y weak	UW - SW - MW - HW -	Jnweather Slightly we Moderately Highly wea	ERING red eathered y weather athered	Logged SK	McMillan Started 1/02/2022	-19	
Hand Held Shear Vane					50 ı Hor	mm st izonta	tandpi al / Ve	rtical Si	urvey [Datum	s: NZGD2000 - Mount Eden	Drill Rig N119	9	
DR1980: 19mm (A). Calibrated 28/06/2 vane shear strength per NZGS gu		= 1.781, B =	-11.22									Page 2 of	8	



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

Co-ordinates 412270.62mE 794791.97mN

DH326

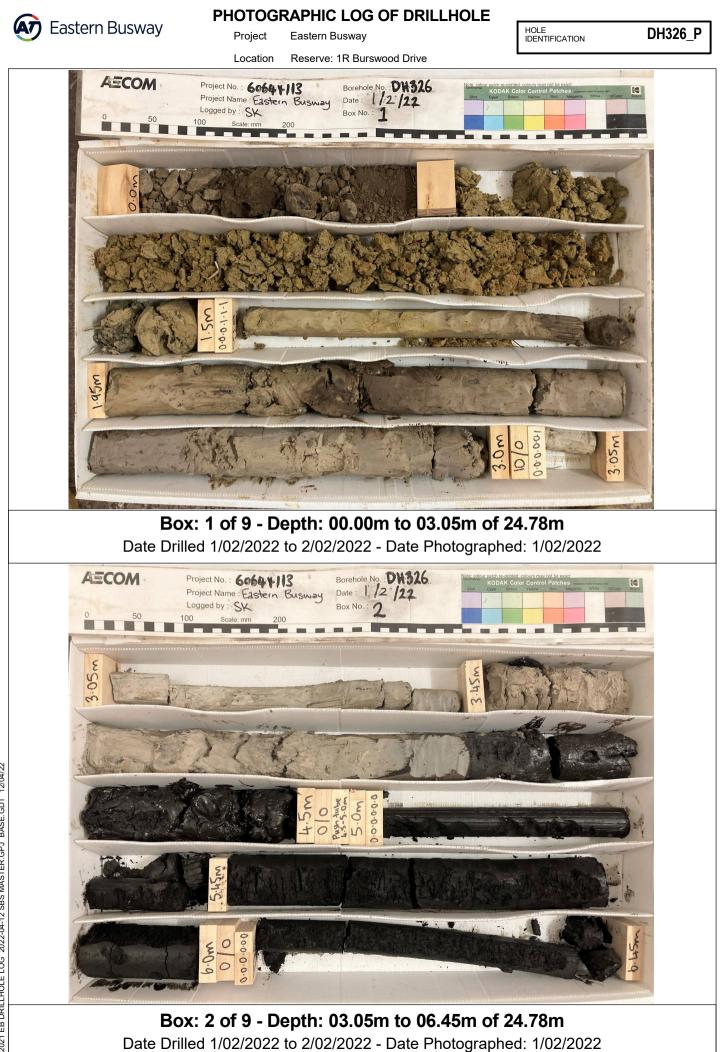
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Orientation -90° Elevation 10.02m

Location Reserve: 1R Burswood Drive

Feature Retaining wall/slope design

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Relative Strength W Rock W Veathering Depth	Graphic Log Graphic Log (%) [GD&] (%) [GD&] (%) Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Streng grading, bedding, plasticity, sensitivity, major fraction fraction description, minor fraction description, addi information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Schistosity, Attitude, Spacing, continuity, row	tional structures, additional
19.4m: Completely weathered, grey, fine to coarse SANDSTONE. Extremely weak. (continued) 20.7m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak. 20.7m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weathered. 21.75m: MWV, grey, SILTSTONE. EW. 22.1m: Moderately weathered, grey, fine to coarse SANDSTONE. Extremely weak. Moderately thickly bedded, poorly defined.	ss ss sp for for for for for sp sp sp sp	1 21 1 21 1 22 1 22 1 23 1 23 1 23 1 24 1 24 1 24 1 24 1 24 1 24 1 24 1 24 1 24 1 25 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 111 11 </td <td>x × × × 100 x × × × 100 x</td> <td> 19.4m: Silty fine to coarse SAND; grey. Mecmoist, well graded. (continued) 20.25 to 20.75m: Fracture zone, 60 degree 20.9 to 21.75m: Closely spaced drilling 21.75m: Clayey SILT; grey. Hard. 21.95 to 22.15m: Subvertical joint, planar infill or mineralisation. 22.1m: Silty fine to coarse SAND; grey DH326_P terminated at 24.8m Depth Criteria Achieved </td> <td>ee fractures.</td>	x × × × 100 x	 19.4m: Silty fine to coarse SAND; grey. Mecmoist, well graded. (continued) 20.25 to 20.75m: Fracture zone, 60 degree 20.9 to 21.75m: Closely spaced drilling 21.75m: Clayey SILT; grey. Hard. 21.95 to 22.15m: Subvertical joint, planar infill or mineralisation. 22.1m: Silty fine to coarse SAND; grey DH326_P terminated at 24.8m Depth Criteria Achieved 	ee fractures.
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth of Hand Held Shear Vane	· · · · · · · · · · · · · · · · · · ·	RELATIVE STRENGTI VS - Very strong S - Strong MS - Moderately strong W- Weak W- Very weak EW - Extremely weak Remarks 50 mm standpi Horizontal / Ve	UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered pe piezometer insta	lled on completion. s: NZGD2000 - Mount Eden	Driller McMillan Started 1/02/2022 Finished 2/02/2022 Drill Rig N119 Core Boxes 9



2021 EB DRILLHOLE LOG 2022-04-12 SBS MASTER.GPJ BASE.GDT 12/04/22

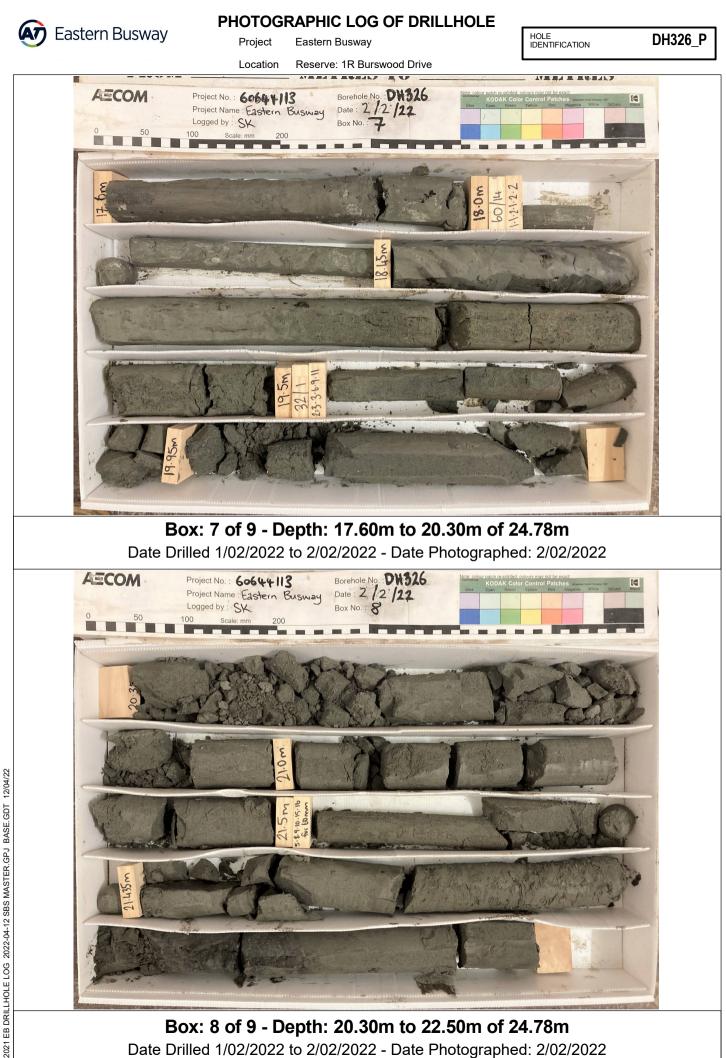
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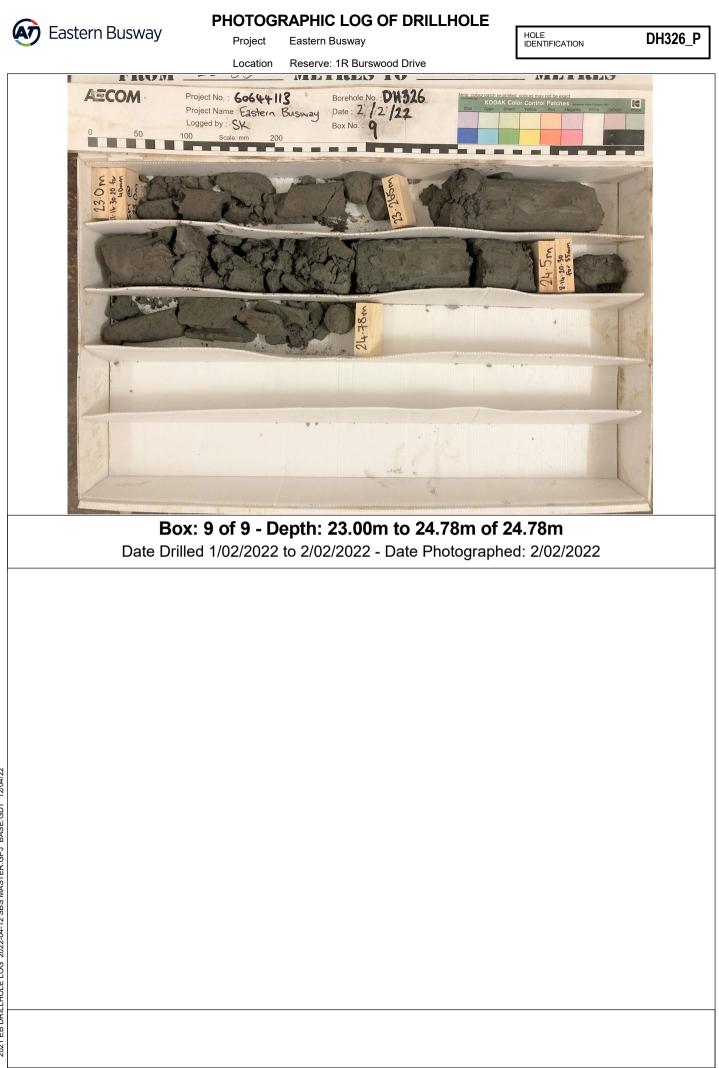


Date Drilled 1/02/2022 to 2/02/2022 - Date Photographed: 1/02/2022



Date Drilled 1/02/2022 to 2/02/2022 - Date Photographed: 2/02/2022

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Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH32

Co-ordinates 412274.22mE 794839.80mN

Orientation -90° Elevation 9.08m Location

Burswood Reserve

Feature Busway through Burswood Reserve

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Shear	Records SPT N Values 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	s Relative W Strength	>	Depth	Graphic Log	TCR [RQD] (%)	-500 Spacing of -100 Matural -50 Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Strength, moisture condit grading, bedding, plasticity, sensitivity, major fraction description, subo fraction description, minor fraction description, additional structures, ac information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foli Schistosity, Attifude, Spacing, continuity, roughness, infilling, etc	dinate ditional strumen strumen
0.0m: Alluvium comprising clay, silt, sand and organic soil	128/23 144/30 146/41 135/51 152/43 128/28		HA				- 1		100		0.0m: Topsoil 0.1m: Silty CLAY; yellowish brown, very stiff, moist, high plastcity	
	ss 0,0,0, 0,0,1 N=1		HQ3			1	- - - - - 2	5 - X - X - X - X 5 - X 5 - X - X 5 - X 5 - X - X 5	100		1.45m: Silty CLAY some organics; brown. Soft, moist, high plasticity. 1.95m: Silty CLAY trace organics; light brown mottled orange. Soft, moist, high plasticity 1.5 to 25.5m: Using water	
	14/6		PT				-	* * * * * * * *	100		1.5 to 25.5th. Using water	
	ss 0,0,0, 0,0,0 N=0 SUOW		SPT				- 3 - - -		100		3.0 to 3.3m: Organics cease, greyish brown mottled orange 3.2 to 3.3m: Becomes Very Soft.	
م			HQ3				- - - - - - 4	·····································	100		3.6m: Organic CLAY with trace fibrous peat; black. Soft, moist, high plasticity. 3.85m: Fibres approximately 30 mm 4.2m: Becomes stiff 4.4m: Fibres approximately 60 to 80 mm	
TAURANGA GROUP	32/6		HQ3				5	市 市 市 市 市 市 市 市 市 市 市 市 市	100		 4.5m: Organic CLAY; black. Firm, moist, high plasticity. 4.5m: Shear vane push back 0,0 result 	-
	ss 0,0,0, 0,0,0		PT SPT						100			
	N=0 SUOW					1	- - 7 - -	新·示学派 於 家 深 读 茶 示 参示 示学术 参 读 茶 页 整 读 流 页 一			6.9m: Organic Silty SAND trace clay; black. moderately packed, moist, moderate plasticity. Sand, fine. 7.5m: Shear vane push back 0,0 result	
			SPT					<u>86.0586.5</u> 6-46.74-75 74.07-75 74.07-75			7.6m: Organic CLAY; black. Firm, moist, high plasticity.	
			HQ3				- 8 - - - - - -	<u> </u>			7.85m: Organic sandy SILT; black. Firm, moist, low plasticity. Sand, fine to medium 8.2m: Organic SILT; black - brown. Firm, moist, low plasticity. 8.75m: Organic CLAY; black. Soft, moist, high	
	ss 0,0,0, 0,0,0 N=0 SUOW		SPT				- 9 - -		100		9.0 to 9.45m: Becomes firm.	
	3000							× × × × × × × × × × × × × × × × × × ×			9.45m: SILT with trace sand; Light grey. Stiff, moist, low plasticity. 9.0m: Shear vane push back 0,0 result	
For explanation of symbols and ob FLUID DEPTHS AND DRILLI Date Time Drilled Depth 03/01/2023 08:00	NG PRC	GRESS	(m) luid D	epth	RELAT VS- S- MS- W- VW- EW-	TIVE ST Very stro Strong Moderat Weak Very we	ely strong ak ely weak	UW - 1 SW - 3 MW - 1 HW - 1	VEATHE Slightly we Moderatel Highly we Completel	ERING red eathered y weather athered	Date logged 2/02/2023 Logged SK Chocked CP	
					She	ear va	ane rea	d with g adings o om the	done d		ole for top 1.5m. Below 1.5m Drill Rig	
Hand Held Shear Vane GEOVANE1712: 19mm blade: Calibrate	d 08/22: Co	orrection fac	tor: 1.4	50				ertical Su aland V			ns: NZGD2000 - Mount Eden Core Boxes	; 9
vane shear strength per NZGS gui	ideline						0				Page 1	of 8



Client Auckland Transport

Project

2021 EB DRILLHOLE LOG 2023-05-15 MASTER.GPJ BASE.GDT 17/05/23

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH327

Co-ordinates 412274.22mE 794839.80mN

Orientation -90° Elevation 9.08m

Location Burswood Reserve

Feature Busway through Burswood Reserve

Project number 60644 i											Feature	Busway through B	urswood Reserve	;
GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Shear	Records SPT N Values 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	s Relative W Strength	>	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of 50 Matural 50 Defects	Subordinate grading, bedu fraction desc information, o DE (Join	ROPERTIES MAJOR minor; colour, structure. Str ing, plasticity, sensitivity, major fra ription, minor fraction description, a etc FECT DESCRIPTION Fs. Bedding Seams, Shatter, Shear stosity, Attitude, Spacing, continuity,	ction description, subordinate dditional structures, addition and Crush Zones, Foliation,	Instrumentation
	ss 1,0,0, 0,0,0 N=0		HQ3 SPT				- - - - - - - - - - - - - - - - - - -	유규·신· · · · · · · · · · · · · · · · · · ·	100		_ moist. Org 10.5m: Or high plasti	orous PEAT with trace SIL anics, bark. Friable ganic CLAY; brownish bla city. n: Shear vane UTP		
	49/9		HQ3				- - - -	******* ******* ******* ******* *******	100			ty CLAY trace organics; g	reyish brown.	
	49/9 ss 0,0,0, 0,0,0 N=0 SUOW		SPT				_ 12 _ _ _ _	× × ×	100			ilty CLAY; bluish grey. Stil	ff moist, high	
			HQ3				- - 	8 _ X _ X 8 _ X _ X	100		plasticity.			
	ss 0,1,1, 2,1,2 N=6		SPT				 14	F_X_X	100			n: Shear vane twisting material 4.2m: trace organics turns dar		
A GROUP			HQ3				- - - - -	* * * * * * * * * * * * * * * * * * *	100		14.11014	.2m. trace organics turns dai	k giey	
TAURANGA GROUP	ss 0,0,2, 1,2,1 N=6		SPT				15 	F _ X _ X	100		15.0m	n: Shear vane can't reach mate	rial from tube	
	142/17	 	HQ3				16 16 	주 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전	100		15.9 to 16 plasticity.	5.7m: Organic CLAY; black. S	tiff, moist, high	
	ss 1,0,1, 0,0,2 N=3		SPT				- - - - - 17 -		100		16.7m: Sili plasticity.	ty CLAY; bluish grey. Stiff	moist, high	
	SS		HQ3				 		100					
	0,0,0, 0,1,1 N=2		SPT	 			- - - -		100		18.2m: Or plasticity.	n: Shear vane pushed through ganic CLAY; black. Firm, i ilty CLAY; greenish grey.	/	
	17/6 ss	 	HQ3				19 19 		100		nigh plasa	ony.		
	0,0,0, 0,1,2 N=3		SPT				- - -	× × ·	100					
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth		OGRES	S (m)	epth	VS - \ S - S MS - M W - V VW - \ EW - E	/ery stro Strong Moderate Veak /ery wea Extremel	ely strong ak ly weak	UW - 1 SW - 3 MW - 1 HW - 1	WEATHI Unweathe Slightly w Moderatel Highly we Complete	ered eathered ly weathe athered	Logg		Driller McMillan Started 2/02/2023 Finished	
					Hole She	ear va	k filleo ne rea	d with g adings o om the	done d			1.5m. Below 1.5m	2/02/2023 Drill Rig N119	
Hand Held Shear Vane GEOVANE1712: 19mm blade: Calibrated vane shear strength per NZGS guid		orrection fa	actor: 1.4	50	Hor 200	izonta 0 / No	al / Ve ew Ze	rtical Su aland V	urvey l ertical	Datum I Datu	ns: NZGD2 m 2016	000 - Mount Eden	Core Boxes Page 2 of	9 8



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

Co-ordinates 412274.22mE 794839.80mN

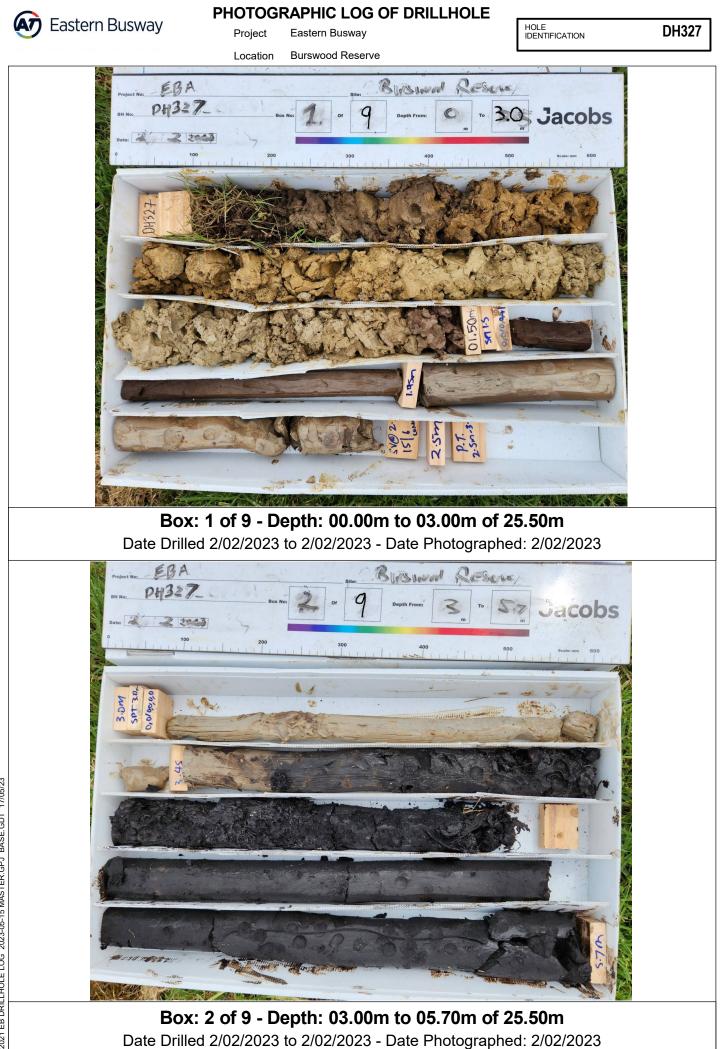
Orientation -90° Elevation 9.08m

Location Burswood Reserve

Feature Busway through Burswood Reserve

DH32

roject number 606441				Feature	Busway through B	urswood Reserve	
SEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	s Relative W Strength W Reck W Weathering Depth	ی ۳ (%) (۳	E SUbordinate grading, bed fraction desc information, v DE 00000000000000000000000000000000000	ROPERTIES MAJOR minor; colour, structure. Str ding, plasticity, sensitivity, major frac ription, minor fraction description, a etc FECT DESCRIPTION ts, Bedding Seams, Shatter, Shear a tostiy, Attitude, Spacing, continuity,	ction description, subordinate dditional structures, additiona	_ Instrumentation
20.15m: Highly weathered, light grey, massive SANDSTONE. Extremely weak. 20.4m: Slightly weathered, light grey, massive SANDSTONE. Very weak.	SS 6,7,10, 12,14,14 N>50 N			cemen	22.5m: DB, 0°, 10 drill break ted Sandstone 23.16m: Becomes coarser	ks weakly	
	sc 9.16,22, 25,3 for 5mm N>50		78	 22.95 t 23.2 to	o 23.05m: J, 45°, Ud, Sm 23.4m: J, 0°, 7 drill breaks, v	weakly cemeted	
23.65m: Moderately Weathered, light grey,			100 [67]	Sandst 23.16 to 2		xtremely weak	
24.55m: Moderately weathered light grey, fine SANDSTONE. Extremely weak.	л. 19,24, for 5mm N>50 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I		77 	111 111 111 24.48 to 2 111 24.7 to 2 111 disturbed 111	24.55m: Carbonaceous layer, 5.0m: Weakly cemented SAN by drilling		
		1111 111 -27 1111 111 -27 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - 1111 111 - <		Depth Crit 	minated at 25.5m eria Achieved		
For explanation of symbols and obs FUID DEPTHS AND DRILLIN ate Time Drilled Depth (ervations, see key sheet	RELATIVE STRENGTH VS - Very strong S - Strong WS - Woderately strong W - Veak VW - Very weak EW - Extremely weak Remarks	WEATHERI UW - Unweathered SW - Slightly weath MW - Moderately w HW - Highly weathe CW - Completely w	nered eathered ered Chec		Driller McMillan Started 2/02/2023 Finished 2/02/2023	
Hand Held Shear Vane	109/20: Correction factor 4.452	_ readings are from Horizontal / Vert	lings done dov m the end of th ical Survey Da	ne barrel. htums: NZGD2	1.5m. Below 1.5m 000 - Mount Eden	Drill Rig N119 Core Boxes	9
GEOVANE1712: 19mm blade: Calibrated vane shear strength per NZGS guid		2000 / New Zea				Page 3 of	8









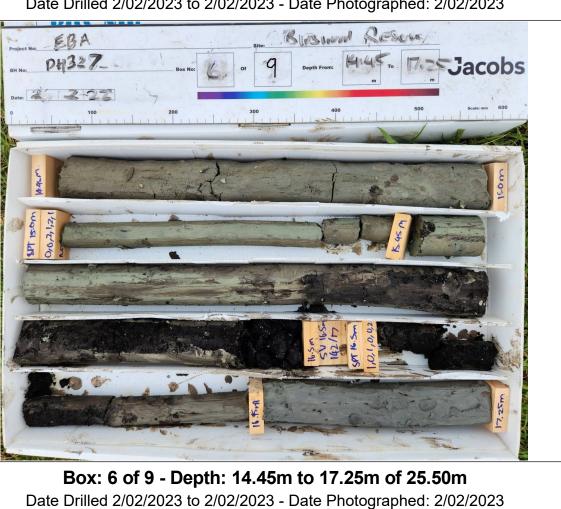
Eastern Busway

Project

HOLE IDENTIFICATION

DH327







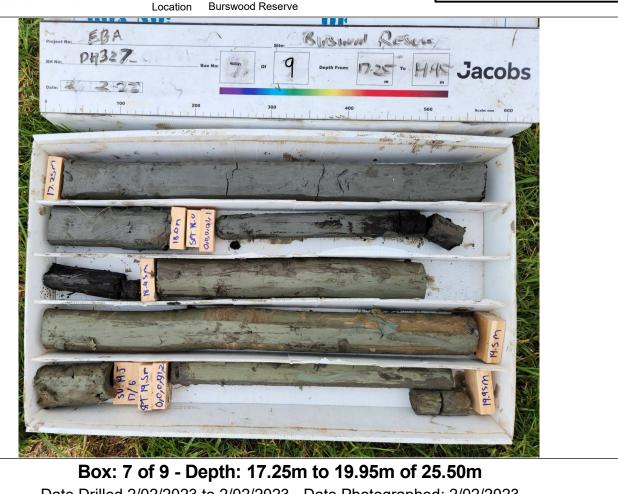
PHOTOGRAPHIC LOG OF DRILLHOLE

Eastern Busway

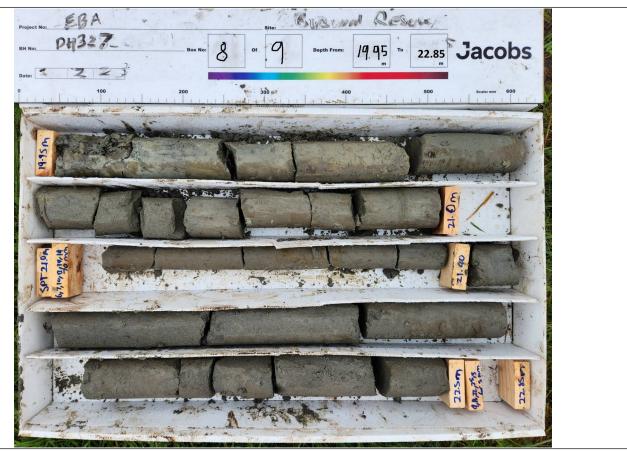
Project

DH327

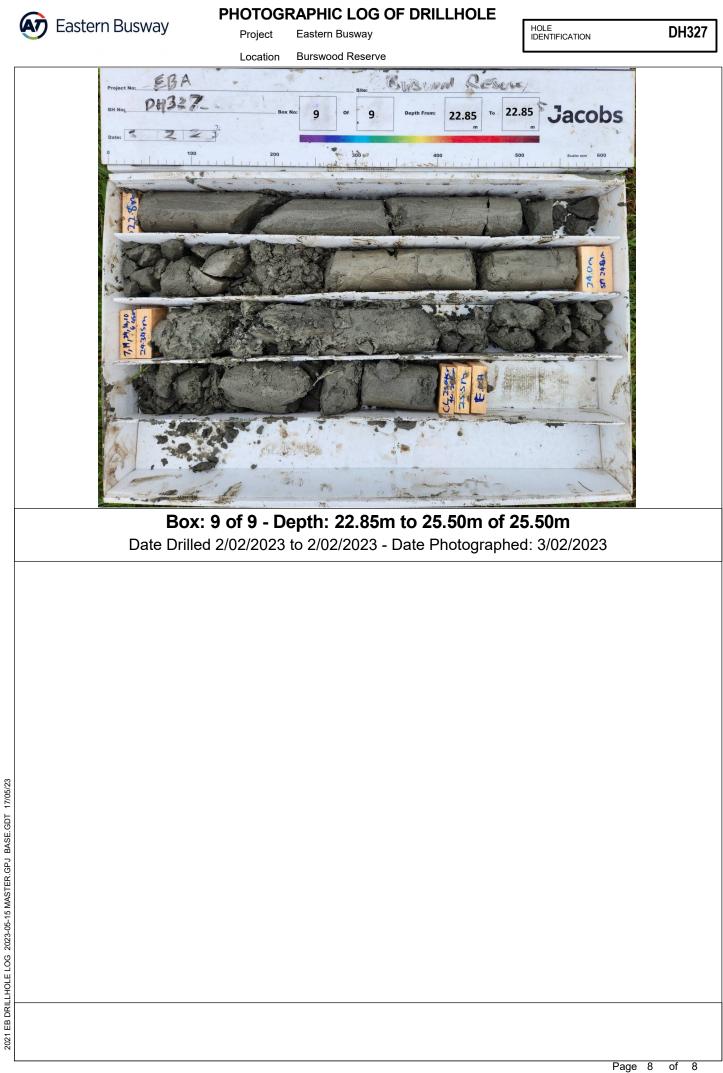
HOLE IDENTIFICATION



Date Drilled 2/02/2023 to 2/02/2023 - Date Photographed: 2/02/2023

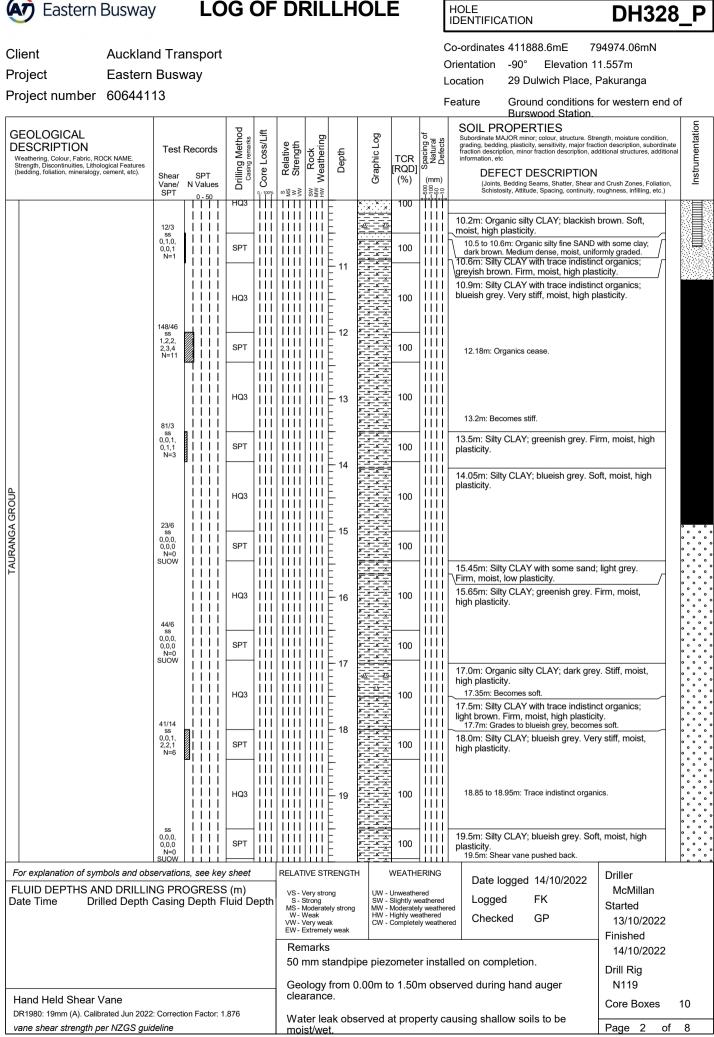


Box: 8 of 9 - Depth: 19.95m to 22.85m of 25.50m Date Drilled 2/02/2023 to 2/02/2023 - Date Photographed: 3/02/2023



6	Eastern	Busway	/	LC)G (OF	D	RI	LLŀ	IOL	Ε			HOLE DENTIFICATION	DH328	3_	Ρ
Pr	ient oject oject number	Aucklar Eastern 606441	Busw	•									Oi Lc	rientation -90° Elevation 1 ocation 29 Dulwich Place,	Pakuranga	. (
_			1		1	-	1			1			Fe	eature Ground conditions Burswood Station.	for western end		<u> </u>
D v s	EOLOGICAL ESCRIPTION Veathering, Colour, Fabric, RC trength, Discontinuities, Lithol pedding, foliation, mineralogy,	ogical Features	Test R Shear Vane/ N SPT	SPT N Values	Drilling Method Casing remarks	Core Loss/Lift	S Relative			Graphic Log	TCR [RQD] (%)	500 Spacing of 100 Watural		SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ar information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear Schistosity, Attlude, Spacing, continuity,	tion description, subordinat ditional structures, addition	e al	Instrumentation
-	0.0m: TOPSOIL		38/15	0 - 50					!-				Τh	0.0m: Silty CLAY; light brown mottle moist, high plasticity.	d orange. Soft,		
Π	0.1m: FILL compris and silt.	• •	34/11											0.1m: Silty CLAY; brownish grey mo	ttled orangey	•	
TAURANGA GROUP	0.6m: ALLUVIUM c clay, silt, fine sand a organics.		51/23 60/17 83/43 71/30		HA				_ 1 _ 1 _ 1 _ 1 _ 1 _ 1		100			0.6m: Silty CLAY; brown. Firm, mois plasticity.	t, high	87	
TAUR			ss 1,2,1, 2,1 for 30mm		PT SPT				- - 2 -		50 100			1.75m: Silty CLAY with some sand; Soft, moist, moderate plasticity.	mottled orange.	Z	
	2.33m: Moderately weathered, dark gro BASALT. Moderate Highly vesicular. Ve	ly strong.	- N>50		HQ3						100		Ì	2.51 to 2.75m: DB, 2 No.			
C FIELD	up to 30mm.								- 3 - -					3.03 to 3.26m: J, 80°, Ud, Ro, VN, \	/n, Slt		
AUCKLAND VOLCANIC FIELD	3.53m: Slightly wea dark grey, BASALT Moderately strong. Moderately vesicula Vesicles of up to 15	ar.			HQ3						96 [69]						
AUCKLA	4.5m: Slightly weatl dark grey, BASALT Slightly vesicular. V up to 5mm.	. Strong.	-		наз				5		88 [76]			4.39 to 4.5m: J, 75°, PI, Ro, VN, Vn, 4.61 to 5.2m: DB, 3 No. 5.45 to 5.7m: J, 80°, Ud, Ro, N, Vn,	5	.5	
	5.65m: ALLUVIUM comprising clay, silt	, sand			HQ3			4 			100		iЬ	5.65m: Alluvium washed away at bo (Drillers remarks)	ttom of run.		
	and organics.				HQ3						100			5.8m: Silty CLAY with trace indistinc grey. Firm, moist, high plasticity. 6.0m: Pushed back. 6.3m: Silty CLAY; blueish grey. Firm plasticity. 6.85m: Organic silty CLAY; black. Fi plasticity.	, moist, high		
ROUP			38/3 ss					 	İΕ								
TAURANGA GROUP			1,0,0, 1,1,0 N=2		PT SPT						0			7.75m: Silty CLAY with trace indistin brownish dark grey. Soft, moist, high		80	100
TAI									1 <u></u>	F_X_X							
			ss 0,0,1,		HQ3				1 - 9	x x x x x x x x x x x x x x x x x x x	100			8.7m: Organic SILT with some clay; moist, slow dilatancy. 9.0m: Pushed back.	black. Soft,		
			5,5,4 N=15		SPT	 				x x	100			9.25m: Silty fine to medium micaced brown. Homogeneous, medium den graded.			
F	or explanation of sym	bols and obs	servations	, see kej	/ sheet		RELA		STRENG		I WEATHI	ERING	⊥⊥ ;	Date logged 14/10/2022	Driller	[2%]	
Da 13	LUID DEPTHS AN ate Time Dril /10/2022 16:19 /10/2022 11:18	ND DRILLIN Iled Depth 21.00 25.50	NG PRO Casing I 2. 2.	Depth F 4	6 (m) Fluid D 1.87 5.5		S - MS - W - VW - EW -	Weak Very v Extrer	g rately stron weak mely weak	ig SW - MW - HW -	Unweathe Slightly w Moderatel Highly we Complete	eathere y weath athered	hereo 1	Logged FK	McMillan Started 13/10/2022 Finished		
							50		standp					ed on completion.	14/10/2022 Drill Rig N119		
	land Held Shear \				075			arar		0.00111	5 1.30	00 11	,3el	rved during hand auger	Core Boxes	10	
	R1980: 19mm (A). Calib ane shear strength p			n ⊢actor: 1	.876			ater bist/v		served a	at prop	erty	ca	using shallow soils to be	Page 1 of	8	

Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016



Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016

2021



Client Auckland Transport

Project

Eastern Busway

Project number 60644113

HOLE IDENTIFICATION

DH328 794974.06mN

Co-ordinates 411888.6mE Orientation -90° Elevation 11.557m

29 Dulwich Place, Pakuranga Location

Bit Route, Male, Subject with a construction of the construction of synchronic matrices. The construction of synchronic matrixes. The construction of syncheles. Theopereffection of synchronis matrixes. Theopereficient o	,	ber 606441	1								-1	eature	Ground conditions Burswood Station.	for western end	
23.7m +HV defined, gro, 	DESCRIPTIO Weathering, Colour, Fal Strength, Discontinuities	N bric, ROCK NAME. s, Lithological Features	Shear SPT Vane/ N Value SPT <u>0-50</u>		Core Loss/Lift	°ã≶≷§	WS WW HW	Depth		[]	500 Spacing 100 3 Natura 50 3 Defects	Subordinate grading, bedo fraction desc information, e DE (Joint	MAJOR minor; colour, structure. Str ding, plasticity, sensitivity, major frac ription, minor fraction description, ar etc FECT DESCRIPTION ts, Bedding Seams, Shatter, Shear a	tion description, subordina Iditional structures, additio	
21.7m: HW, dark grey, reversionalist firs to care and grey specialist first specialist grey first first special				I HQ3				- - - - - -	を示示示示 <u>空空空空</u> 	100		moist, low 20.52m: A	plasticity. morphous PEAT; dark bro		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21.7m: HW, dark grey, reversionalist firs to care and grey specialist first specialist grey first first special			1,2,2,	SPT				21 21 	<u>* * * *</u>	100		21.0m: Silt blueish gre	ty CLAY with trace indistin ey. Stiff, moist, high plastic		° ° ° ° °
- volcandasis for b come SANDSTONE. View weak. Image: Sandstone diagonal program weakered, and order in the come SANDSTONE. With some fine grave, and noted in grave, used noted in the come SANDSTONE. With some fine grave, and noted in grave, used noted in the come SANDSTONE. With some fine grave, and noted in grave, used noted in the come SANDSTONE. We weak. Image: Sandstone diagonal program weakered grave, used noted in grave, used noted in the come SANDSTONE. View weak. Image: Sandstone diagonal program weakered grave, used noted in the come SANDSTONE. View weak. Image: Sandstone diagonal program weakered grave, used noted in the come sandstone diagonal program weakered grave, the come diagonal program weakered grave the come diagona dinter the come diagonal program weakered grav		ark grev		i					<u> </u>						•
Z5 Sm: Some coarsening toward IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	volcaniclastic SANDSTONE [PARNELL GF 22.0m: Slightly grey speckled grey and redd volcaniclastic SANDSTONE gravel, subrou up to medium Moderately str bedded. [PAR	fine to coarse VW. RIT] y weathered, light grey, dark ish grey, fine to coarse with some fine unded, in places gravel. orag. Thickly		 				- - - - - - - - - - - - - - - - - - -)))))))))))))))))))	100		23.35 t 23.7 to 23.84 t	o 23.55m: J, 60°, Ud, Ro 23.8m: J, 50°, Ud, Ro, VN, V o 24.03m: J, 90°, Ud, Ro, VN	- /n, Cc	
25.9m: Some coarsening toward base. 26.3m: Moderately weathered, grey, fine SANDSTONE. Very weak. 26.3m: Moderately weathered, grey, fine Sightly weathered, grey, fine for explanation of symbols and observations, see key sheet 27.35m: Moderately weathered, grey, fine Sightly weathered, grey, fine for explanation of symbols and observations, see key sheet 28.3m: 12.2m: 12				 HQ3 				 25 25) & 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						
27.35m: Moderately weathered, grey, SILTSTONE. Very weak. 1111 1111 1111 27.35m: Moderately weathered, grey, SILTSTONE. Very weak. 28.31m: J.207: Ud. Ro 27.0 to 28.3m: DB, 9 No. 27.35m: Slighty weathered, grey, fine to medium SANDSTONE. Very weak. 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 28.3 to 28.5m: Core Loss: Washed out. 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111 1111	25.9m: Some base. 26.3m: Moder weathered, gr	ately ey, fine		 				26 26 	6 6 6 6 8 6						° ° ° ° ° ° ° °
For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Date logged 14/10/2022 Driller For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Date logged 14/10/2022 Logged FK CLUID DEPTHS AND DRILLING PROGRESS (m) VS · Very strong WV · Unweathered Date logged 14/10/2022 Logged FK Checked GP Driller MS · Moderately weak WV · Very weak WV · Completely weathered WV · Unweathered Started 11/10/2022 Driller MS · Moderately storng WV · Very weak WV · Unweathered WV · Unweathered Started 11/10/2022 Finished Hand Held Shear Vane Geology from 0.00m to 1.50m observed during hand auger Drill Rig N119 Core Boxes 10/119/119/119/119/119/119/119/119/119/1	weathered, gr SILTSTONE. 27.85m: Sligh grey, fine to m	ey, Very weak. tly weathered, iedium		 HQ3 				- - - - - - -	X X X X X X X X X X X X X X X X X X X			26.91n 27.0 to	n: J, 20°, Ud, Ro 28.3m: DB, 9 No.		° ° ° ° ° ° ° ° °
For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Date logged 14/10/2022 Driller For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Date logged 14/10/2022 Driller McMillan Cate Time Drilled Depth Casing Depth Fluid Depth VS - Very strong UW - Unweathered UW - Unweathered Checked GP Started 13/10/2022 Weak VW - Very weak CW - Completely weathered WW - Moderately strong CW - Completely weathered Checked GP Started 14/10/2022 Hand Held Shear Vane Geology from 0.00m to 1.50m observed during hand auger Core Boxes 10		very weak.						- - - - - - - - - - - - - - - - - - -				DH328_P	terminated at 28.5m		<u> </u>
50 mm standpipe piezometer installed on completion. Drill Rig Mand Held Shear Vane Seelogy from 0.00m to 1.50m observed during hand auger N119 Core Boxes 10		S AND DRILLII	NG PROGRE	SS (m)		RELATI VS-V S-S MS-M W-V VW-V EW-E	VE STI VE STI Strong Noderate Veak Very wea Streme!	ng Ily strong Ik y weak	UW - SW - MW - I HW - I	Jnweathe Slightly we Moderatel Highly we	ERING red eathered y weather athered	ed Logg	ed FK	McMillan Started 13/10/2022 Finished	
CUE DOXES 10	Hand Held Sho	ear Vane				50 n Geo	nm st ology	tandpi from (•	Drill Rig N119	10
Water leak observed at property causing shallow soils to be moist/wet.			2: Correction Facto	r: 1.876		Wat	er lea	ak obs	erved a	at prop	ertv ca	ausina sha	llow soils to be		_

HA'S).GPJ BASE.GDT 02/12/22 NHU. Ц Ē ġ 5 g Ċ ШСH £ 2021

> Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016



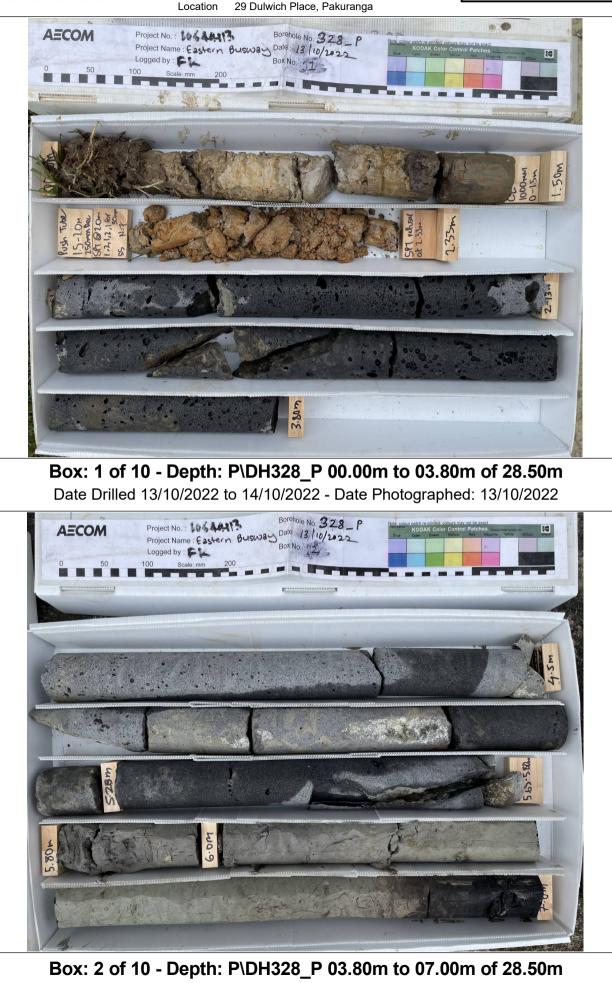
PHOTOGRAPHIC LOG OF DRILLHOLE

Project Eastern Busway

29 Dulwich Place, Pakuranga

HOLE IDENTIFICATION

DH328 P



Date Drilled 13/10/2022 to 14/10/2022 - Date Photographed: 13/10/2022

2021 EB DRILLHOLE LOG 2022-06-27 IR FIELD FILE (DH'S, HA'S).GPJ BASE.GDT 02/12/22



2021 EB DRILLHOLE LOG 2022-06-27 IR FIELD FILE (DH'S, HA'S).GPJ BASE.GDT 02/12/22



