Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH322_P



Box: 5 of 9 - Depth: 12.90m to 15.50m of 27.00m

Date Drilled 20/01/2022 to 24/01/2022 - Date Photographed: 21/01/2022



Box: 6 of 9 - Depth: 15.50m to 18.75m of 27.00m

Date Drilled 20/01/2022 to 24/01/2022 - Date Photographed: 21/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH322_P



Box: 7 of 9 - Depth: 18.75m to 21.60m of 27.00m

Date Drilled 20/01/2022 to 24/01/2022 - Date Photographed: 24/01/2022



Box: 8 of 9 - Depth: 21.60m to 24.85m of 27.00m

Date Drilled 20/01/2022 to 24/01/2022 - Date Photographed: 24/01/2022

Project Eastern Busway

Reserve: 23R Kenwick Place

HOLE IDENTIFICATION

DH322_P



Box: 9 of 9 - Depth: 24.85m to 27.00m of 27.00m

Date Drilled 20/01/2022 to 24/01/2022 - Date Photographed: 24/01/2022



HOLE IDENTIFICATION

DH323_P

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412459.80mE 794673.53mN

Orientation -90° Elevation 6.81m

Location Reserve: 23R Kenwick Place

D	EOLOGICAL ESCRIPTION Veathering, Coolour, Fabric, ROCK NAME. trength, Discribinituities, Lithological Features bedding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	Records SPT N Values 0 - 50	Drilling Method	Core Loss/Lift	s Relative Strength	>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ac information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	tion description, subordin dditional structures, additio	strumen strumen
FILL	0.0m: FILL.			НА				- - - - - - - 1	X X X X X X X X X X X X X X X X X X X	100		O.0m: Fine sandy SILT with some ro Soft, dry, low plasticity. O.2m: Fine sandy SILT with some clorange staining. Soft, dry, low plastic	ay; grey with	
	1.5m: ALLUVIUM comprising clay, silt, sand and peat.	ss 1,1,1, 2,1,0 N=4		SPT	. 			- - - - - 2	* * * * * * * * * * * * * * * * * * *	100		1.5m: Silty fine to medium SAND wit grey with orange staining/mottling. D poorly graded. (Pumice).		1.65 <u>∑</u>
				HQ3	 	 	111	 - - -	X X	100				2.44 <u>V</u>
		ss		PT	 			- - - 3	× · · · × · · · × · · · × · · · · · · ·	100		2.75m: Silty fine to coarse SAND wit and trace fine gravel; Dark grey. Me		
		1,0,0, 1,1,2 N=4		SPT				- - - -	x	100		moist, well graded. 3.0m: 114mm diameter HWT casing		
				HQ3	 	 			******* ******* ******	100		3.6m: Silty CLAY; bluish grey. Firm, plasticity.	moist, high	
				HQ3				- 4 - -	- X - X - X - X - X - X - X - X - X - X	100				
		ss 0,0,0, 0,0,0 N=0		SPT			1111		*x *x *x	100				
ROUP		SUOW		HQ3	 			- 5 - - -	6 47 47 47 47 47 47 4 6 47 47 47 48 <u>48 48 48</u>	100		4.95m: Spongy PEAT; black. Firm, r plasticity.	moist, high	
IGA GI				PT				-	F 77 77 77 F 77 77 77 F 77 77 77 F 77 77 77 7	100				
TAURANGA GROUP		ss 0,1,2, 1,2,2 N=7		SPT	111			- - - - -		100	1111	6.0m: Silty CLAY with some fine mic and trace organics; bluish grey. Stiff plasticity.	, moist, high	
		99/10 ss		HQ3		HIII		- - - - - 7 - - -		100		6.25m. Sand becomes minor, organics	cease.	
		0,1,1, 1,2,2 N=6		SPT		Ш		- - - - - 8	* * * * * * * * * * * * * * * * * * *	100		7.7m: Silty fine micaceous SAND wi bluish grey. Dense, moist, uniformly		
				HQ3	 			- 0 - - - - - -	* - 4	100		8.1m: Silty CLAY with some fine mic and trace organics; bluish grey. Firm plasticity. 8.1 to 8.6m: Stiff.	aceous sand	
		44/3 ss 0,0,0, 0,1,0 N=1		SPT	. 		111	- - - - - -		100		8.9m: Wood chunk.		
				HQ3		1111		- - -		100				
F D: 18 19	Tor explanation of symbols and obs LUID DEPTHS AND DRILLIN tate Time Drilled Depth 1/01/2022 16:15 10.95 1/01/2022 07:45 10.95 1/01/2022 11:50 25:50	NG PR Casing	OGRES	S (m)		VS- S- MS- W- VW- EW-	Very stroi Strong Moderate Weak Very wea Extremely	ng Iy strong k y weak	UW - I SW - S MW - N HW - H	lighly wea	red eathered y weather	Chacked GP	Driller McMillan Started 18/01/2022 Finished	BOSSA KÖ
		,		0.0	_	Arto and inst	d drillir	water	gress ta	able). ⁻	Telem	negative reading in fluid depth etered vibrating wire piezomer 8176) and 12.15m (SN:	19/01/2022 Drill Rig N119	
	Hand Held Shear Vane PR1980: 19mm (A). Calibrated 28/06/21.	. CF's: A	= 1.781, B =	-11.22			,	al / Ve	rtical Si	ırvev Г	Datum	s: NZGD2000 - Mount Eden	Core Boxes	8
ν	ane shear strength per NZGS guid	deline				200	00 / Ne	ew Ze	aland V	ertical	Datur	m 2016	Page 1 o	f 7



HOLE IDENTIFICATION

DH323_P

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412459.80mE 794673.53mN

Orientation -90° Elevation 6.81m Location Reserve: 23R Kenwick Place

					,				Г	eature Retaining waii		Τ-
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	Drilling Method Casing remarks	Core Loss/Lift	S Relative W Strength	sw Rock hw Weathering	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of 100 Matural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major fract fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, I	tion description, subordinate iditional structures, additional descriptional structures, additional and Crush Zones, Foliation,	Instrumentation
TAUKANGA GROUP	23/0	PT SPT				- - - - - - - 11		100		8.1m: Silty CLAY with some fine micand trace organics; bluish grey. Firm plasticity. (continued)		
11.55m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak.	ss 4,6,8, 6,6,7	HQ3				- - - - - 12	- x - x x x	100	 	11.55m: Silty fine to coarse SAND; g dense.		
12.25m: Highly weathered, grey, SILTSTONE. Extremely weak.	N=27	HQ3				- - - - - - 13	× × × × × × × × × × × × × × × × × × ×	100		12.25m: Clayey SILT; grey. Very stiff 12.6 to 12.7m: Fine to coarse SAND. Ca		
13.55m: Highly weathered, grey, fine to coarse SANDSTONE. EW.	ss 4,7,8, 9,12,13 N=42	SPT	 			- - - - - - - 14	x x x x x x x x x x x x x x x x x x x	100	 	13.55m: Silty fine to coarse SAND; g	grey. Dense.	
14.1m: Highly weathered, grey, SILTSTONE. EW. 14.55m: Highly weathered,		HQ3				- - - - -	****** ****** ****** *******	100		14.1m: Clayey SILT; grey. Very stiff. 14.55m: Silty fine to coarse SAND; g	grey. Dense.	
grey, fine to coarse SANDSTONE. EW. 15.25m: Highly weathered, grey, SILTSTONE. Extremely	ss 5,7,10, 11,10,10 N=41	SPT	 			- - 15 - - - -	x x x x x x x x x x x x x x x x x x x	100	 	15.25m: Clayey SILT; grey. Very stiff	f.	
weak.		HQ3	 			- - - 16 - - -	****** ****** ****** ****** ******* ******	100	 			
16.9m: Highly weathered, grey, fine to coarse SANDSTONE. EW.	3,4,6, 8,10,12 N=36	SPT				- - - - 17 - -	******* ******* ******* ******* *******	100	 	16.9m: Silty fine to coarse SAND; gro	ey. Dense.	
17.5m: Highly weathered, grey, SILTSTONE. Extremely weak.	ss 5,6,10, 8,12,13 N=43	HQ3 SPT				- - - - - - 18	* · · · · · · · · · · · · · · · · · · ·	100	 	17.5m: Clayey SILT; grey. Very stiff.		
18.5m: MW, grey, fine to coarse SANDSTONE. VW. 18.85m: Moderately weathered, grey, SILTSTONE. Very weak. Bedding imperceptible.	SS 6,8,10, 11,14,15 N=50	HQ3 SPT				- - - - - - 19 - - - - -	X X X X X X X X X X X X X X X X X X X	71 [71]		18.95m: J, 45°, Ud, Sm, N, Cc		
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth	servations, see ke	S (m)	epth	VS - V S - S MS - M W - V	Very strong Noderatel Veak Very weak	ig y strong	UW - 1 SW - 3 MW - 1 HW - 1	⊣ighly wea	ERING red eathered y weathere	Chacked GP	Driller McMillan Started 18/01/2022 Finished	
Lland Hald Character				Arte and insta	drillin	g pro	gress ta	able). ⁻	Γeleme	negative reading in fluid depth etered vibrating wire piezomer 1176) and 12.15m (SN:	19/01/2022 Drill Rig N119	
Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. vane shear strength per NZGS guid		-11.22		Hor	izonta	I / Ve w Ze	rtical Su aland V	urvey [ertical	Datum: Datun	s: NZGD2000 - Mount Eden n 2016	Core Boxes Page 2 of	7



HOLE IDENTIFICATION

DH323_P

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412459.80mE 794673.53mN

Orientation -90° Elevation 6.81m

Location Reserve: 23R Kenwick Place

DI W Si	EOLOGICAL ESCRIPTION // Jeathering, Colour, Fabric, ROCK NAME. trength, Discontinuities, Lithological Features pedding, foliation, mineralogy, cement, etc).	Test Records Shear SPT Vane/ N Values SPT 0-50	Drilling Method	Core Loss/Lift	S Relative W Strength	>		Graphic Log	TCR [RQD] (%)	Spacing of Natural Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major fract fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding, Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, r	tion description, subordinate ditional structures, additional nd Crush Zones, Foliation,	Instrumentation
	18.85m: Moderately weathered, grey, SILTSTONE. Very weak. Bedding imperceptible. (continued)		HQ3				- - - - - -	X X X X X X X X X X X X X X X X X X X	100 [100]		19.93 to 21.0m: Drilling breaks: 0°, at 20.76m.	1 20.08, 20.52 &	
z		ss 5,5,9, 13,12,13 N=47	SPT	 			- 21 - - - - - - -	X X X X X X X X X X X X X X X X X X X	100	 	21.45 to 22.5m: Drilling breaks: 0°, at 22.22, 22.34 & 22.43m.	t 21.65, 22.13,	
S FORMATION	22.05m: Moderately weathered, grey, fine to medium SANDSTONE. Very		HQ3				- - 22 - - - -	× × × × × × × × × × × × × × × × × × ×	100 [100]	 	21.76m: J, 45°, Ud, Sm, NF		
ST BAYS	weak. Bedding imperceptible.	7,7,10, 12,13,15 N=50	SPT	 			_ _ _ _ 23		100	 	22.95 to 24.0m: Drilling breaks: 0°, at	t 23.14, 23.23,	
EAST COAST BAYS			HQ3				- - - - - - - - 24		43 [43]	 	23.32 & 23.35m. 23.4 to 24.0m: Core Loss:		
		ss 6,9,10, 12,12,16 N=50	SPT HQ3				- 24 		100 76	 	24.45 to 25.5m: Drilling breaks: 0°, at 24.9m. 24.77 to 24.88m: J, 65°, Ud, Sm, NF		
							- 25 - - - -		[76]	弾 	25.04 to 25.2m: J, 60°, Ud, Sm, Cc 25.2 to 25.5m: Core Loss:		
FC FI Da							26				DH323_P terminated at 25.5m Depth Criteria Achieved		
For Fluid Point Po	or explanation of symbols and obs LUID DEPTHS AND DRILLIN ate Time Drilled Depth		S (m)	epth	VS- S- MS- W- VW- EW-	Very strong Strong Moderat Weak Very we Extreme marks	tely strong ak ely weak s water	UW - SW - MW - HW - CW -	Highly wea	ed vathered vweathere thered vweathere vweathere	Chacked GP	Driller McMillan Started 18/01/2022 Finished 19/01/2022 Drill Rig	
"	land Held Shear Vane R1980: 19mm (A). Calibrated 28/06/21 ane shear strength per NZGS guid		-11.22		inst S8	talled 175).	with t	ips at 5.	65m (S	SN: S8	: NZGD2000 - Mount Eden	N119 Core Boxes Page 3 of	8 7 3/04/2022

Project Eastern Busway

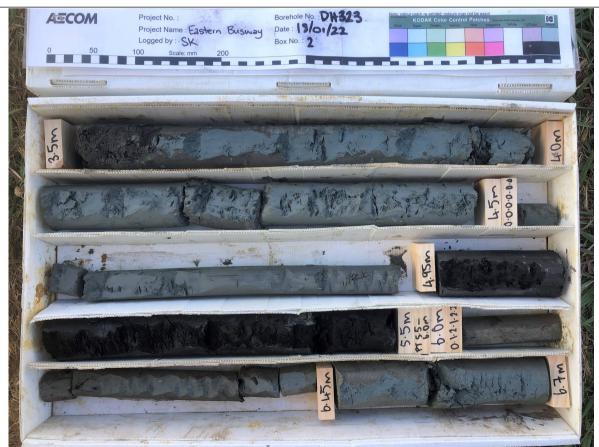
Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH323_P



Box: 1 of 8 - Depth: 00.00m to 03.50m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 18/01/2022



Box: 2 of 8 - Depth: 03.50m to 06.70m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 18/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH323_P



Box: 3 of 8 - Depth: 06.70m to 09.45m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 18/01/2022



Box: 4 of 8 - Depth: 09.45m to 12.70m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 18/01/2022



Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH323_P



Box: 5 of 8 - Depth: 12.70m to 15.50m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 19/01/2022



Box: 6 of 8 - Depth: 15.50m to 18.50m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 19/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH323_P



Box: 7 of 8 - Depth: 18.50m to 21.65m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 19/01/2022



Box: 8 of 8 - Depth: 21.65m to 25.50m of 25.50m

Date Drilled 18/01/2022 to 19/01/2022 - Date Photographed: 19/01/2022



HOLE IDENTIFICATION

DH324

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412529.92mE 794646.59mN

Orientation -90° Elevation 7.73m

Location Reserve: 23R Kenwick Place

D w s	EOLOGICAL ESCRIPTION //eathering, Colour, Fabric, ROCK NAME. trength, Discontinuities, Lithological Features redding, foliation, mineralogy, cement, etc).	Test f Shear Vane/ SPT	Records SPT N Values 0 - 50	Drilling Method	Core Loss/Lift	s Relative	.>	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of 100 3 Natural 50 3 Defects	SOIL PROPERTIES Subordinate MAJOR minor, colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ai information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	ction description, subordinate dditional structures, additional l and Crush Zones, Foliation,	Instrumentation
FILL	0.0m: TOPSOIL 0.22m: FILL 0.7m: ALLUVIUM comprising clay, silt and sand.			НА			111	- - - - - - 1	######################################	67		0.0m: Silty CLAY with minor fine sar brown. Stiff, moist, moderate plastic 0.22m: Silty fine SAND with minor cl rootlets; light greyish brown. Loosely 0.7m: Silty fine SAND with minor cla mottled orange. Dense, moist.	ay and trace y packed, dry.	200 7
		ss 1,1,2, 2,2,2 N=8		SPT			 	 - - -	X X X X X X X X X X	100				
			²⁴	HQ3				_ 2 _ _ _ _		100		1.95m: Silty CLAY with minor fine sa indistinct organics.; light grey mottler speckled black. Very stiff, moist, hig 2.2 to 2.5m: Some fine sand.	d orange and	
		SS		PT			 	- - - - - 3	× · · · × · · · ×	100	 	2.75m: Silty fine SAND; light grey sp	peckled brown.	i.0 ∇
		0,0,0, 1,1,1 N=3		SPT	 			- - - -		100		3.0m: CLAY with trace indistinct org: speckled black. Stiff, moist, high pla: 3.1 to 3.4m: Minor fine sand.		
				HQ3				- - 4 -		95		4.15 to 4.4m: Minor indistinct organics		
OUP				PT	• • • • • • • • • • • • • • • • • • • •			<u> </u>		100		4.4 to 4.5m: Some highly decomposed	wood fragments.	
TAURANGA GROUP				HQ3			 	_ 5 _ _ _ _ _ _ _		100	 	5.0 to 6.45m: Trace fine sand lenses ar organics. Speckled light grey and black		
TAI		57/60 ss 1,0,1, 1,1,2 N=5		SPT	 			- - - -		100	 			
		81/19	2 	HQ3		 	 	_ - - - - - 7	F X X X X X X X X X X X X X X X X X X X	91	1111	6.45m: Fine sandy CLAY; light grey. moderate plasticity. Micaceous.	Stiff, moist,	
		ss 0,0,0,		PT				- - -	F_X_X F_X_X F_X_X	100				
		0,0,2 N=2		SPT	 			- - - 8 -	F_X_X F_X_X F_X_X	100	 	7.6m: Silty CLAY with trace fine mica and indistinct organics; grey. Stiff, m plasticity.		
				HQ3	 	1111	 	<u>-</u> - -	F_X_X F_X_X F_X_X F_X_X	100	 			
		69/21 ss 0,0,0, 0,0,1 N=1		SPT	 		 	- 9 - - - -	F X X	100	 			
_								Ē	- x - x - x - x - x - x - x - x - x - x		1111			
FI Da	or explanation of symbols and obs LUID DEPTHS AND DRILLIN hate Time Drilled Depth 101/2022 08:00 06.00	NG PRO	OGRESS	S (m)	•	VS - V S - S MS - I W - V	Very stro Strong	ely strong	UW - SW - MW - HW -	Highly we	red eathered ly weather	Chacked GP	Driller McMillan Started 14/01/2022	
17/	701/2022 17:00	-		1.00 3.06)	Rer	marks	ely weak					Finished 18/01/2022	
Н	land Held Shear Vane					Hor	izont	al / Ve	•	urvey l	Datum	mpletion. s: NZGD2000 - Mount Eden n 2016	Drill Rig N119 Core Boxes	8
	R1980: 19mm (A). Calibrated 28/06/21. ane shear strength per NZGS guid		1.781, B =	-11.22									Page 1 of	7



HOLE IDENTIFICATION

DH324

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412529.92mE 794646.59mN

Orientation -90° Elevation 7.73m

Location Reserve: 23R Kenwick Place

D w s	EOLOGICAL ESCRIPTION /eathering, Colour, Fabric, ROCK NAME, trength, Discontinuities, Lithological Features edding, foliation, mineralogy, cement, etc).	Test Record Shear SPT Vane/ N Value SPT 0-50	S Drilling N Casing re	Core Loss/Lift		sw Rock hw Weathering	Depth	Graphic Log	(%)	500 Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor, colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, at information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	tion description, subordinate dditional structures, additiona	Instrumentation
NGA GROUP		151/33	HQ3 PT 	 			- - - - - - - - - - 111	*	100		7.6m: Silty CLAY with trace fine micaceou indistinct organics; grey. Stiff, moist, high (continued) 10.15 to 10.5m: Mottled light grey.		
TAURANGA	12.1m: Residual soil.	UTP	HQ3	 			- - - - - - - 12	*	100		12.1m: Fine sandy SILT with trace c		
	12.3m: Highly weathered, grey, silty fine SANDSTONE. Extremely weak.	N=24	HQ3	 			- - - - - - 13		100		\fragments; grey speckled black. Har 12.3m: Silty fine SAND; grey. Mediu moist.		
		ss 4,6,8, 10,10,15 N=43	SPT				- - - - - - 14		100	 			
7			 HQ3 	 			- - - - - - - - - - - 15		100				
FORMATION	15.3m: Moderately weathered, grey, silty fine SANDSTONE. Extremely	7,10,15, 23,12 for 45mm N>50	SPT I				- · · · · · · · · · · · · · · · · · · ·		100		15.42 to 16.5m: DB, 5°, 6 No.		
EAST COAST BAYS F	weak.		HQ3 HQ3				- - - - - - - -		97				
EAST CO		8,10,13, 17,16,4 for 20mm N>50	SPT I				- - - - - 17		100		16.9 to 17.25m: Returned as silty fine s	and.	
		111	HQ3		_		- - - - - - - - 18		90	 	17.25 to 17.53m: Calcareous concretio 17.53 to 19.05m: Returned as silty fine		
		ss 10,13,20, 25,5 for 10mm N>50					- - - - - - -		100				
F	19.05m: Moderately weathered, grey SILTSTONE. Very weak. Very thickly bedded.	sc 8,12,18, 20,12	: 1				- - - - - - - - - -	* * * * * * * * * * * * * * * * * * *	88	1111	19.35 to 19.5m: Sandy partings.		
Da	or explanation of symbols and obs LUID DEPTHS AND DRILLIN ate Time Drilled Depth (for 1 1 1 1 ervations, see I	SS (m)	epth	S-S MS-M W-V VW-V EW-E	ery stror trong loderate	ng ly strong k / weak	UW - 1 SW - 3 MW - 1 HW - 1	WEATHE Unweathe Slightly we Moderatel Highly we Completel	red eathered y weather athered	Chacked GP	Driller McMillan Started 14/01/2022 Finished 18/01/2022	
	land Held Shear Vane				Hole Hori	e bacl zonta	kfilled al / Vei	rtical Su	ırvey [Datum	mpletion. ss: NZGD2000 - Mount Eden m 2016	Drill Rig N119 Core Boxes	8
	R1980: 19mm (A). Calibrated 28/06/21. ane shear strength per NZGS guid		B = -11.22									Page 2 of	7



HOLE IDENTIFICATION

DH324

Client Auckland Transport

Project Eastern Busway

Project number 60644113

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

Co-ordinates 412529.92mE 794646.59mN

Orientation -90° Elevation 7.73m

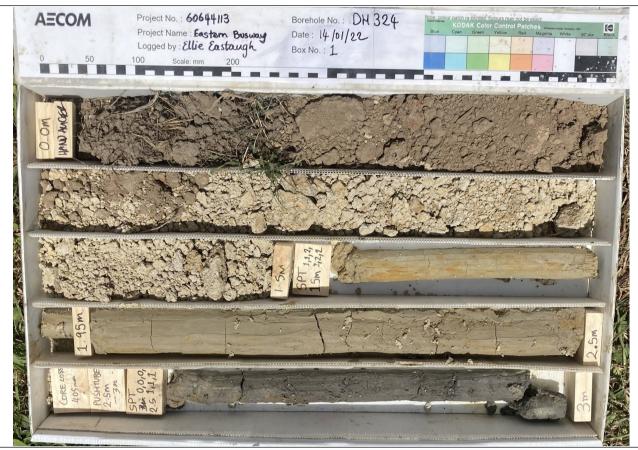
Location Reserve: 23R Kenwick Place

	BEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	Records SPT N Values 0 - 50	Drilling Method Casing remarks	Core Loss/Lift	s Relative w Strength	.>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, i	tion description, subordinate iditional structures, additional structures, additional	Instrumentation
COAST BAYS FORMATION	GANDSTONE. Exacility weak.	sc 12,19,26, 24 50mm N>50		HQ3 SPT				- 21	X X X X X X X X X X X X X X X X X X X	100		20.78 to 20.85m: Silty fine SAND; grey. moist. 20.85 to 21.9m: DB, 5°, 5 No.	Very dense,	
EAST					 			- 22 	X X X X X X X X X X X X X X X X X X X			21.9 to 22.5m: DB, 5°, 2 No. DH324 terminated at 22.5m Depth Criteria Achieved		
								- 24 						
								- - - 26 - - - - - - - - - - - - - - - -						
								- 28 - 28 						
F	For explanation of symbols and obs EUID DEPTHS AND DRILLIN ate Time Drilled Depth	NG PR	OGRESS	S (m)		VS- S- MS- W- VW- EW-	Very str Strong Moderat Weak Very we	FRENGTI ong tely strong ak ely weak	UW - I SW - I MW - I HW - I	Highly we	red eathered ly weather	Chacked GP	Driller McMillan Started 14/01/2022 Finished 18/01/2022	
	Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. vane shear strength per NZGS guid		= 1.781, B =	-11.22		Hol Hoi	le bad rizont	ckfilled al / Ve		ırvey l	Datum	npletion. s: NZGD2000 - Mount Eden n 2016	Drill Rig N119	8

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH324



Box: 1 of 8 - Depth: 00.00m to 03.00m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 14/01/2022

Project Name: Eastern Dusuous Logged by: Ellie Eastaugh

0 50 100 Scale: mm 200

Borehole No.: DM324

Date: 147/01/2021

Box No.: 2

Date: 147/01/2021

Box No.: 2

Box: 2 of 8 - Depth: 03.00m to 06.65m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022

65 m

Project Eastern Busway

Reserve: 23R Kenwick Place

HOLE IDENTIFICATION **DH324**



Box: 3 of 8 - Depth: 06.65m to 09.80m of 22.50m Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022



Box: 4 of 8 - Depth: 09.80m to 12.95m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH324



Box: 5 of 8 - Depth: 12.95m to 16.50m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022



Box: 6 of 8 - Depth: 16.50m to 19.35m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022

Project Eastern Busway

Reserve: 23R Kenwick Place

HOLE IDENTIFICATION **DH324**



Box: 7 of 8 - Depth: 19.35m to 21.90m of 22.50m Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022



Box: 8 of 8 - Depth: 21.90m to 22.50m of 22.50m

Date Drilled 14/01/2022 to 18/01/2022 - Date Photographed: 17/01/2022



HOLE IDENTIFICATION

DH325

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412548.34mE 794609.81mN

Orientation -90° Elevation 8.64m Location Reserve: 23R Kenwick Place

ב י	SEOLOGICAL SESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features bedding, foliation, mineralogy, cement, etc).	Test Reco	Drilling N	Casing remarks	s Relative W Strength	>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ac information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	tion description, subordin dditional structures, additional dditional structures, additional and Crush Zones, Foliation	istrume
FILL	0.0m: FILL comprising clay, silt, sand and gravel.	11					- - - - - - - - - - 1		100		0.0m: Silty fine to coarse GRAVEL v sand, minor cobbles and rootlets. G subangular greywacke and basalt.		1.0 \(\frac{1}{2}\)
	1.2m: ALLUVIUM comprising silt, clay and sand.	ss 1,1,1, 1,2,1 N=5		 	1111		- - - - - - - 2	F - X - X - X - X - X - X - X - X - X -	100		1.2m: Silty CLAY with some medium lensoidal sand and trace roots; light mottled orange. Firm, moist, modera	brownish grey	
			HQ3	3 111 111 			- - - -	F X X	100	1111		2	2.3 5 ⊈ Z
			III PT				- - - - - 3		100	1111 1111 1111	2.75m: Sandy CLAY; light brownish orange. Soft, moist, low plasticity.	grey mottled	3.1 \(\sum_{\text{\tint{\text{\tin}\text{\ti}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin}\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinit}\\ \tittt{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\}\titt}}\\ \tittt{\text{\text{\text{\text{\text{\text{\text{\text{\te}\tittt{\text{\text{\text{\texi}\text{\text{\texi}\text{\text{\titt{\texi}\tittt{\text{\til\titt{\texi}\text{\text{\texit{\text{\texi}\tittt{\texi}\text{\texit{\texi}\text{\text{\texi}\til\titt
							- - - - - -		100		3.0m: 114mm diameter HWT casing 3.25 to 3.4m: Clayey SAND; light grey shomogenous. Loosely packed, moist, n plasticity, dilatant.	speckled orange,	3.5 \(\sum_{\text{\text{\$\subset\$}}} \)
		1 1 1 1		i i i 111	1111		- 4		100				
GROUP					1111		- - - - - - - 5	유 선생	100		4.5m: Sandy SILT with some clay; liggrey mottled orange and speckled be moist, low plasticity. Lenticles of orgading the solution of the sol	lack. Soft, anic peat. rous peat; dark	
TAURANGA GROUP		24/7 1 1 1 1 1 1 1 1 1	III PT					* * * * * * * * * * * * * * * * * * *	100		5.5m: Silty CLAY with trace sand an indistinct organics; bluish grey speckmoist, low plasticity. Micaceous.	d trace	
TAUF		N=7	II SPI		1111		- 6 - - -	x x x x x x x x x x x x x x x x x x x x	100		most, low plasticity. Inicaceous.		
				;;;			 - - - - - - - -	x x x x x x x x x x x x x x x x x x x	100				
		69/21	II PT		1111		<u>-</u> - - -	* ^ * ^ * ^ * * * * * * * * * * * * * *	100				
							- 8 	^ × ^ × ^ × × × × × × × × × × × × × × ×	100				
				- 	 		9 - - - - - - -	x x x x x x x x x x x x x x x x x x x	100		9.5 to 10.95m: Black fibrous organics le	ensoids.	
-	or explanation of symbols and obs		e key shee	ш	RELAT	لسلا	RENGTH	+	WEATHE	RING	Date logged 14/01/2022	Driller	
D 13	EUID DEPTHS AND DRILLIN ate Time Drilled Depth 9/01/2021 16:10 28.50 2/01/2022 16:15 13.50			Depth	S- MS- W- VW-	Very stror Strong Moderate Weak Very wea Extremely	ly strong	SW - I MW - I HW - I	Highly wea	eathered y weather	Logged EE	McMillan Started 12/01/2022	
13 13	\(\frac{1}{2022} \ 08:00 \ \ 13.50 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-	2.3 3.4 1.0	37 5	Re Hol	marks e bac	kfilled		·		mpletion. s: NZGD2000 - Mount Eden	Finished 14/01/2022 Drill Rig N119	
1	Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. Vane shear strength per NZGS guid		1, B = -11.22	2	200	00 / Ne	ew Zea	aland V	ertical	Datur	n 2016	Core Boxes Page 1 o	9 f 8



HOLE IDENTIFICATION

DH325

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412548.34mE 794609.81mN

Orientation -90° Elevation 8.64m

Location Reserve: 23R Kenwick Place

•	10						Г	eature Retaining Wall			
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	Drilling Method Casing remarks		SW Rock HW Weathering Depth	Graphic Log	(%)	Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, i		Instrumentation	
ROUP	33/10	HQ3			* * * * * * * * * * * * * * * * * * *	100		5.5m: Silty CLAY with trace sand and trace organics; bluish grey speckled black. Firm plasticity. Micaceous. (continued)	e indistinct i, moist, low		
TAURANGA GROUP		HQ3		- 11 - 11 - 11 - 11 - 11 - 11	X X X X X X X X X X X X X X X X X X X	100		11.25 to 11.65m: White blotches.			
12.1m: Residual soil. 12.2m: Highly weathered,	ss 4,5,8, 7,8,8 N=31			- - 12	x x	100		11.8m: CLAY with minor fine sand are organics; brown. Hard, moist, moder \\12.1m: Silty fine SAND; grey. Dense \\12.2m: Silty CLAY with minor fine sa	rate plasticity.		
grey SILTŠTONE. Extremely weak. 12.83m: Highly weathered, grey, fine SANDSTONE.		HQ3		- - - 13	* * * * * * * * * * * * * * * * * * *	76	1111	moist, moderate plasticity. 12.83m: Silty fine SAND; grey. Dens	e, moist.		
Extremely weak. 13.7m: Highly weathered,	ss 5,7,5, 6,7,7 N=25	SPT II		- - - - -	* · · · · · · · · · · · · · · · · · · ·	100		13.1 to 13.5m: Core Loss: Infer sand wadrilling.13.7m: Silty CLAY; grey. Hard, moist			
grey SILTŠTONE. Extremely weak.		HQ3		- 14 - 14 		100	 	plasticity.			
RMATION	UTP ss 2,4,5, 7,7,9 N=28	SPT		- - - - - - - - - - -		100					
COAST BAYS FORMATION		HQ3	I <i> </i>	- - - 16	F X X	100	 	15.9 to 15.91m: DB, 5°			
4 Honor Moderately Weathered, silty, fine SANDSTONE. Extremely	ss 6,9,11, -11,15,13 for 60mm N>50	SPT		- - - - - 17	x x x x x x x x x x x x x x x x x x x	100		16.75m: Silty fine SAND; grey. Very	dense, moist.		
weak.	ss 7,10,13, 17,20 for	HQ3				99					
	65mm	HQ3		- - - - - - -		93		18.55m: DB, 5°			
	sc 14,33,44, 6 for	SPT			* * * *	0		19.74 to 20.16m: Core Loss: Infer sand drilling.	washed away by		
For explanation of symbols and ob FLUID DEPTHS AND DRILLII Date Time Drilled Depth	servations, see ke	S (m)	VS - Ve S - St MS - M W - W VW - Ve	oderately stror	UW - SW - NW - HW - CW -	Highly we:	red eathered y weathere	Chacked GP	Driller McMillan Started 12/01/2022 Finished		
Hand Held Shear Vane	Hand Held Shear Vane					Remarks Hole backfilled with grout upon completion. Horizontal / Vertical Survey Datums: NZGD2000 - Mount Ed 2000 / New Zealand Vertical Datum 2016					
DR1980: 19mm (A). Calibrated 28/06/21 vane shear strength per NZGS gui	Core Boxes Page 2 of							 }			



HOLE IDENTIFICATION

DH325

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 412548.34mE 794609.81mN

Orientation -90° Elevation 8.64m
Location Reserve: 23R Kenwick Place

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 Cote Poss/Lift Cote Description	Sww Strength Sww Strength Sww Rock Www Weathering Depth Graphic Log	LCR Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major first fraction description, minor fraction description, ad information, etc DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attifude, Spacing, continuity, r	tion description, subordinate ditional structures, additional struct
16.75m: Moderately weathered, silty, fine SANDSTONE. Extremely weak. (continued)	N>50		66	16.75m: Silty fine SAND; grey. Very dense (continued) 20.16 to 20.38m: Calcareous concretion	
24 F7m Clinkh washood	SC SPT SPT SPT SPT SOMM N>50	21 0 0 0	0	20.25m: J, 45°, Ud, Ro 21.13 to 21.57m: Core Loss: Infer wash drilling.	ed away by
21.57m: Slightly weathered, grey SILTSTONE. Very weak.			68 [68] 	21.58 to 22.5m: DB, 5°, 9 No.	
	sc 15,35 For 70mm	-	0	22.65 to 22.75m: Silty fine SANDSTONI 22.65 to 24m: DB, 5°, 5 No. 22.98 to 23.15m: Silty fine SANDSTONI	
ORMATION			87 [87] 	23.15m: J, 5°, Ud, Sm, N	
EAST COAST BAYS FORMATION			1111	23.95 to 24.0m: Carbonaceous laminati 24.0 to 25.5m: DB, 5°, 5 No.	ions.
EAST CO			76	24.7m: J, 15°, PI, Ro 25.14 to 25.5m: Core Loss: Infer washe drilling. 25.5 to 27m: DB, 5°, 10 No.	d away by
25.6m: Slightly weathered, grey, silty fine SANDSTONE. Very weak. Trace carbonaceous fragments.			83 [77]	26.75 to 27.0m: Core Loss: Infer sand v	vashed away by
27.2m: Slightly weathered, grey SILTSTONE. Very weak. Trace carbonaceous fragments.			73 73	drilling. 27.0 to 28.5m: DB, 5°, 15 No.	
				laminations. 28.1 to 28.5m: Core Loss: Infer washed	
				Depth Criteria Achieved	
FOUR ENDING AND DESIGNATION OF SYMBOLS AND DESIG	•	VS - Very strong UW - S - Strong SW - MS - Moderately strong W - Weak HW - IW -	WEATHERING Unweathered Slightly weathered Moderately weathered Completely weathere	Chackad GP	Driller McMillan Started 12/01/2022 Finished
Hand Hald Object V		Remarks Hole backfilled with gr Horizontal / Vertical St 2000 / New Zealand V	urvey Datums	s: NZGD2000 - Mount Eden	14/01/2022 Drill Rig N119
Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. vane shear strength per NZGS guid			Jacan Datum		Core Boxes 9 Page 3 of 8

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH325



Box: 1 of 9 - Depth: 00.00m to 03.75m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 12/01/2022



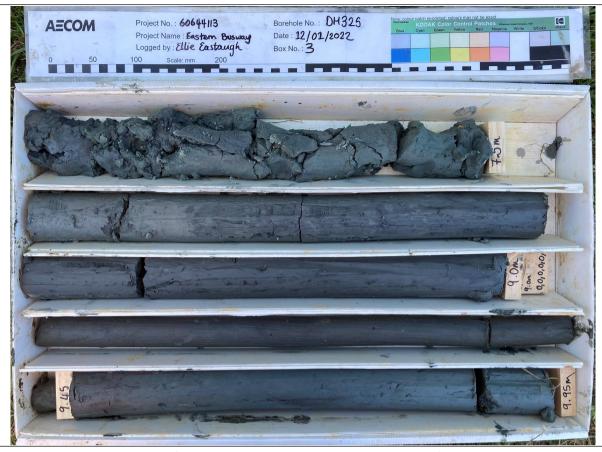
Box: 2 of 9 - Depth: 03.75m to 07.00m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 12/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH325



Box: 3 of 9 - Depth: 07.00m to 09.95m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 12/01/2022



Box: 4 of 9 - Depth: 09.95m to 12.60m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 12/01/2022

Project Eastern Busway

Location

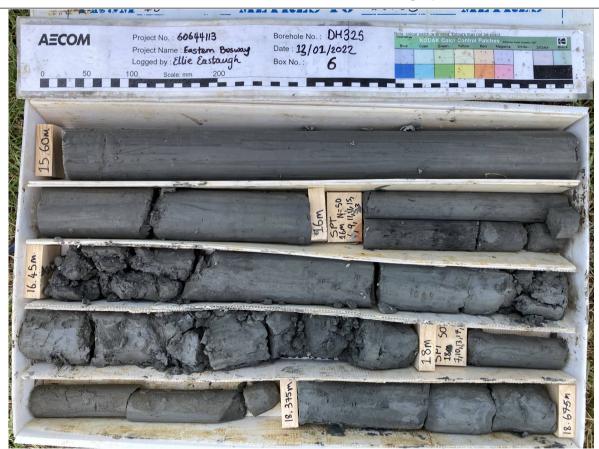
Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH325



Box: 5 of 9 - Depth: 12.60m to 15.60m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 13/01/2022



Box: 6 of 9 - Depth: 15.60m to 18.67m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 13/01/2022

Project Eastern Busway

Location Reserve: 23R Kenwick Place

HOLE IDENTIFICATION DH325



Box: 7 of 9 - Depth: 18.67m to 22.50m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 13/01/2022



Box: 8 of 9 - Depth: 22.50m to 25.70m of 28.50m

Date Drilled 12/01/2022 to 14/01/2022 - Date Photographed: 13/01/2022