

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412015.64mE 794969.47mN
 Orientation -90° Elevation 11.261m
 Location 30 Heathridge
 Feature Ground conditions near Burswood Station

GEOLOGICAL DESCRIPTION		Test Records		Drilling Method	Core Loss/Lift	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES	Instrumentation
Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).		Shear Vane/ SPT	SPT N Values	Casing remarks	0-100%	MS MSW VW EW	SW MW HW CW				(mm)	Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc	
TAURANGA GROUP	0.1m: Alluvium comprising silty clay	87/22	0-50	HQ3				1		25		0.0m: Silty CLAY; brown. Soft, moist, high plasticity. 0.1m: Silty CLAY; light grey. Stiff, moist, high plasticity.	•••••
				PT							100		
AUCKLAND VOLCANIC FIELD	2.0m: Slightly weathered, dark grey, BASALT. Moderately strong, moderately vesicular.	1, 1, 1, 3, 3 for 67mm N>50		HQ3				2		100 [37]		1.6 to 1.75m: Mottled orange. 1.75m: Silty CLAY; light grey. Stiff, moist, high plasticity. Contains basalt fragments. 1.8m: End of basalt fragments.	•••••
	3.25m: Slightly weathered, dark grey, BASALT. Strong, slightly vesicular.			HQ3					4		100 [65]		
								5				DH-CPT315 terminated at 4.4m Depth Criteria Achieved	
								6					
								7					
								8					
								9					
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH		WEATHERING		Date logged 18/10/2022		Driller McMillan			
FLUID DEPTHS AND DRILLING PROGRESS (m)				VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak		UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered		Logged FK Checked MC		Started 18/10/2022			
Date Time Drilled Depth Casing Depth Fluid Depth				Remarks		Log of CPT pre drill.				Finished 18/10/2022			
Hand Held Shear Vane				No Groundwater level recorded.						Drill Rig N119			
GEOVANE1712: 19mm blade: Calibrated 08/22: Correction factor: 1.450				Horizontal / Vertical Survey Datums: NZGD2000 / Mount Eden		2000 / New Zealand Vertical Datum 2016				Core Boxes 2			
vane shear strength per NZGS guideline										Page 1 of 2			

2021 EB DRILLHOLE LOG 2023-06-09 MASTER.GPJ BASE.GDT 15/09/23



Box: 1 of 2 - Depth: 00.00m to 03.75m of 4.40m

Date Drilled 18/10/2022 to 18/10/2022 - Date Photographed: 18/10/2022



Box: 2 of 2 - Depth: 03.75m to 04.40m of 4.40m

Date Drilled 18/10/2022 to 18/10/2022 - Date Photographed: 18/10/2022

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412143.54mE 794924.72mN
 Orientation -90° Elevation 11.52m
 Location 14 Heathridge Place, Burswood
 Feature Noise wall and cycleway

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc.)</small>	Test Records		Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0-100%</small>	Relative Strength <small>MS, S, W, VW, EW</small>	Rock Weathering <small>SW, MW, HW, CW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	Instrumentation
	Shear Vane/ SPT	SPT N Values 0 - 50											
0.0m: VAC EX			VAC EX				1		0		0.0m: Vacuum excavation not witnessed.		
AUCKLAND VOLCANIC FIELD 1.3m: Moderately weathered dark grey highly vesicular BASALT. Moderately strong. Vesicles are 2-20mm and iron stained. 2.7m: Slightly weathered dark grey moderately vesicular BASALT. Strong. Vesicles 2-20mm 3.5m: Slightly weathered dark grey slightly vesicular BASALT. Very strong. Vesicles 1-5mm			HQ3				2		100 [55]		1.73 to 1.83m: J, 60°, Ud, Ro, P, Cl 1.88 to 2.02m: J, 60°, Ud, Ro, P, Cl 2.02 to 2.24m: Becomes brown CLAY with some basalt cobbles. 2.24 to 2.7m: Core Loss: 2.7 to 3m: J, 85°, Ud, Ro, VN, C, Cl, Sandy clay infill 2mm 2.76m: J, 0°, Ud, Ro, Vn, Fe 2.81m: J, 0°, Ud, Ro, Vn, Fe 2.9m: J, 0°, Ud, Ro, Vn, Fe 3.0 to 3.5m: J, 75°, Ud, Ro, P, Cl, Bluish grey clay infill 3.65 to 3.95m: J, 70°, Ud, Ro, P, Cl, Bluish grey clay infill 3.7 to 3.95m: J, 65°, Ud, Ro, P, Cl, Bluish grey clay infill 4.28 to 4.41m: J, 60°, Ud, Sm 4.33 to 4.48m: J, 60°, Ud, Ro, Cg, Qtz, White coating 4.4 to 4.48m: J, 60°, Ud, Sm. Possible handling break 4.5m: Silty CLAY with some fine sand, Dark brown. Firm, moist, high plasticity. 4.7m: Becomes orangish brown. 5.1m: Becomes light bluish grey and with minor pumice specks.	1.27	
			HQ3				3		55 [35]			1.62	
			HQ3				4		100 [94]			1.88	
TAURANGA GROUP 4.5m: ALLUVIUM comprising clay, sand, organics, and peat.			HQ3				5		100		6.6m: Spongy/plastic PEAT; Black. Soft, moist, high plasticity.		
		41/6	PT				6		100		7.5 to 7.95m: Partially decomposed wood.		
		ss 0,0,0, 0,0,1 N=1	SPT				7		100		9.0m: Becomes firm.		
		ss 0,0,0, 0,0,0 N=0 SUOW	HQ3				8		100				
		35/3	PT				9		100				
	ss 0,0,0, 0,0,0 N=0 SUOW	SPT						100					
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 22/11/2022		Driller McMillan				
FLUID DEPTHS AND DRILLING PROGRESS (m)			VS - Very strong		UW - Unweathered		Logged SK		Started				
Date Time Drilled Depth Casing Depth Fluid Depth			S - Strong		SW - Slightly weathered		Checked GP		18/10/2022				
21/11/2022 15:20 22.95 1.7 1.27			MS - Moderately strong		MW - Moderately weathered				Finished				
22/11/2022 09:45 22.95 1.7 1.88			W - Weak		HW - Highly weathered				22/11/2022				
22/11/2022 12:00 28.50 1.7 1.62			VW - Very weak		CW - Completely weathered				Drill Rig N119				
Hand Held Shear Vane			EW - Extremely weak						Core Boxes 10				
DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595			Remarks		Hole backfilled with grout upon completion. All shear vane readings are from the end of the core barrel.				Page 1 of 3				
vane shear strength per NZGS guideline			Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden		2000 / New Zealand Vertical Datum 2016								

2021 EB DRILLHOLE LOG 2022-08-23 MASTER.GPJ BASE.GDT 07/03/23

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412143.54mE 794924.72mN
 Orientation -90° Elevation 11.52m
 Location 14 Heathridge Place, Burswood
 Feature Noise wall and cycleway

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records <small>Shear Vane/ SPT N Values 0 - 50</small>	Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0 - 100%</small>	Relative Strength <small>MS MSW VW EW</small>	Rock Weathering <small>SW MW CW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
										DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
TAURANGA GROUP	ss 0,0,0 0,0,0 N=0 SUOW	HQ3						100		6.6m: Spongy/plastic PEAT; Black. Soft, moist, high plasticity. (continued)	
		SPT				11		100		11.05 to 11.25m: With some sand, brown.	
		HQ3						100		11.25m: Silty fine pumice SAND with some organics (decomposed wood); Light grey. Dense, moist, uniformly graded.	
	48/6 ss 0,0,1 2,7,10 N=20	SPT				12		100		11.6m: Organic CLAY with trace fine sand; Black. Firm, moist, high plasticity.	
		HQ3				13		100		12.25m: Silty fine pumice SAND with some organics and trace obsidian; Light grey. Very dense, moist, uniformly graded.	
	ss 0,0,0 1,0,0 N=1	SPT				14		100		13.1m: Organic CLAY with trace wood; Black. Soft, moist, high plasticity.	
		HQ3				15		100		14.05m: Silty CLAY with trace organics; Bluish grey. Stiff, moist, high plasticity.	
	ss 0,0,0 0,0,0 N=0 SUOW	SPT				16		100		16.0 to 16.95m: Becomes very stiff.	
		HQ3				17		100		16.95m: Organic CLAY with decomposed wood laminations; Dark brown. Soft, moist, high plasticity.	
	140/29 ss 0,1,2 1,1,2 N=6	SPT				18		100		17.35m: Silty CLAY with some fine to medium sand and trace organics; Bluish grey. Soft, moist, high plasticity.	
		HQ3				19		100		18.2m: Becomes stiff	
	ss 2,1,1 2,2,3 N=8	SPT						100		18.75 to 19.6m: Sand ceases.	
ss 0,0,0 0,1,1 N=2	SPT						100		19.6m: Spongy PEAT with some wood; Black. Firm, moist, low plasticity.		
For explanation of symbols and observations, see key sheet						RELATIVE STRENGTH	WEATHERING	Date logged 22/11/2022	Driller McMillan		
FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth						VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak	UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered	Logged SK	Started 18/10/2022		
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline						Remarks Hole backfilled with grout upon completion. All shear vane readings are from the end of the core barrel.		Checked GP	Finished 22/11/2022		
						Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016			Drill Rig N119		
									Core Boxes 10		
									Page 2 of 3		

2021 EB DRILLHOLE LOG 2022-08-23 MASTER.GPJ BASE.GDT 07/03/23

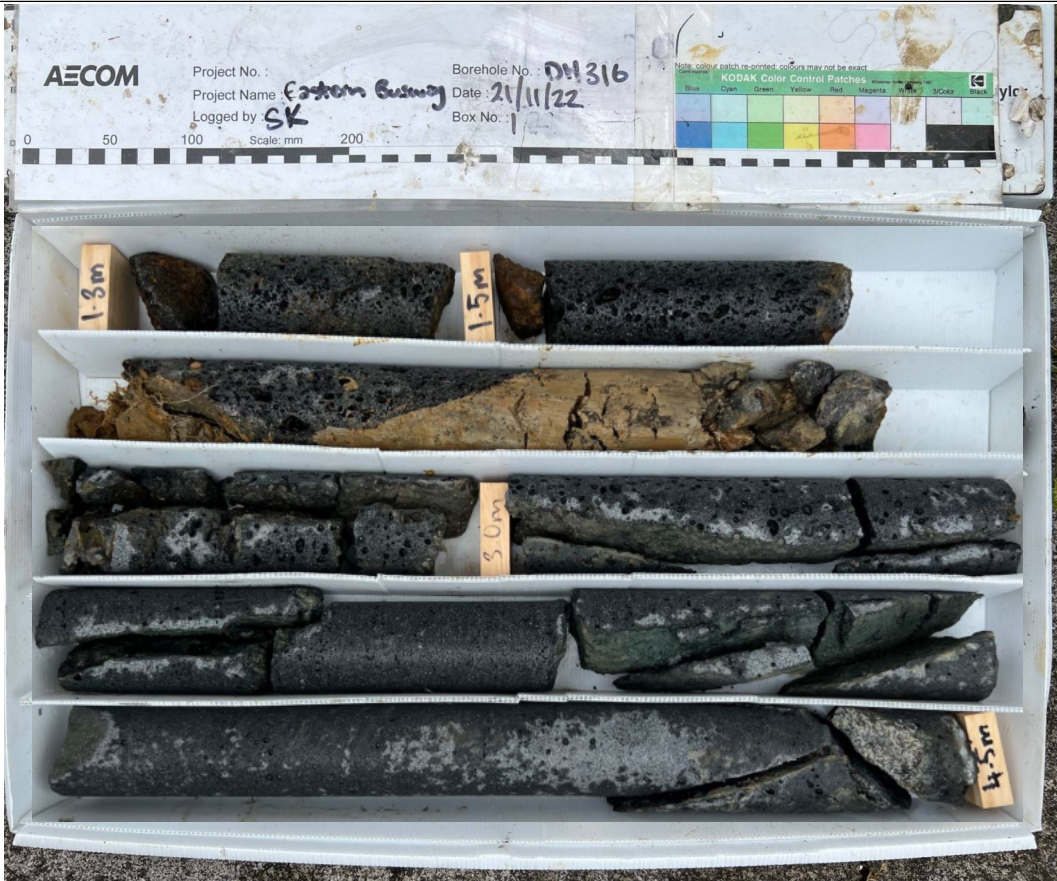
Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412143.54mE 794924.72mN
 Orientation -90° Elevation 11.52m
 Location 14 Heathridge Place, Burswood
 Feature Noise wall and cycleway

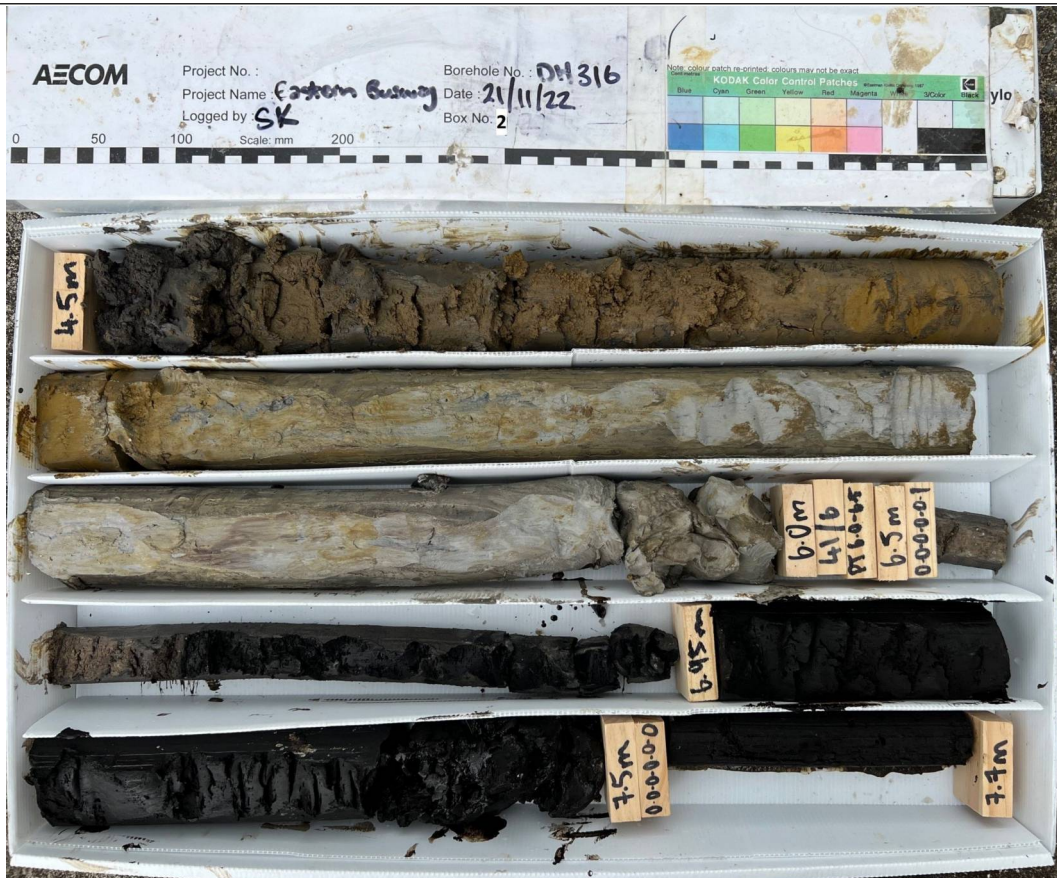
GEOLOGICAL DESCRIPTION		Test Records		Drilling Method	Core Loss/Lift	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES	Instrumentation
Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).		Shear Vane/ SPT	SPT N Values 0 - 50	Casing remarks	0 - 100%	MS MSW VW W EW	SW MW HW				(mm)	Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc	
TAURANGA GROUP		16/3 ss 0,0,0 0,0,0 N=0 SUOW		HQ3				21		100		20.0m: Silty CLAY with trace organics; Bluish grey. Soft, moist, high plasticity.	
		0,0,0 0,0,0 N=9 SUOW		SPT				22		100			
		0,0,0 0,0,0 N=9 SUOW		HQ3				23		100			
		0,0,0 0,0,0 N=9 SUOW		SPT				24		100		23.25m: Organic silty CLAY; Dark brown. Firm, moist, high plasticity. 23.45m: Becomes with some sand and banded.	
EAST COAST BAYS FORMATION		23.6m: Highly weathered, brownish grey, fine to medium grained, massive SANDSTONE. Extremely weak.	ss 3,4,6, 7,10,12 N=35	SPT				25		100 [71]		23.6m: Silty fine to medium SAND with trace organics; Brownish grey. Medium dense, moist, poorly graded. 23.7m: Becomes bluish grey. 24.3m: Becomes dense.	
		24.47m: Moderately weathered, grey, fine to coarse, massive SANDSTONE. Very weak. Well cemented. Trace shell flecks. 25.0 to 26.2m: Extremely weak	ss 5,9,10, 13,20,7 for 25mm N>50	SPT				26		100		24.55 to 24.68m: J, 60°, Ud, Sm 25.0 to 25.05m: J, 45°, Ud, Ro 25.0 to 25.3m: Very weakly cemented. Broken core. 25.2 to 25.29m: J, 60°, Ud, Ro 25.3m: weakly cemented.	
		26.2m: Slightly weathered, grey, indistinctly bedded SILTSTONE. Extremely weak.	ss 11,31,42, 8 for 15mm N>50	SPT				27		0		25.78m: DB 25.95m: DB 25.97m: DB 26.34m: DB	
		27.24m: Slightly weathered, grey, fine to coarse, moderately thinly bedded SANDSTONE. Weak.	sc 10,21,27, 20,3 for 5mm N>50	SPT				28		100 [100]		26.95 to 27.0m: Some calcareous banding.	
				HQ3				29				DH316 terminated at 28.5m Depth Criteria Achieved	

2021 EB DRILLHOLE LOG 2022-08-23 MASTER.GPJ BASE.GDT 07/03/23

For explanation of symbols and observations, see key sheet		RELATIVE STRENGTH		WEATHERING		Date logged 22/11/2022		Driller McMillan	
FLUID DEPTHS AND DRILLING PROGRESS (m)		VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak		UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered		Logged SK		Started 18/10/2022	
Date Time Drilled Depth Casing Depth Fluid Depth		Remarks		Hole backfilled with grout upon completion. All shear vane readings are from the end of the core barrel.		Checked GP		Finished 22/11/2022	
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Drill Rig N119	
								Core Boxes 10	
								Page 3 of 3	



Box: 1 of 10 - Depth: DH316 00.00m to 04.50m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 2 of 10 - Depth: DH316 04.50m to 07.70m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



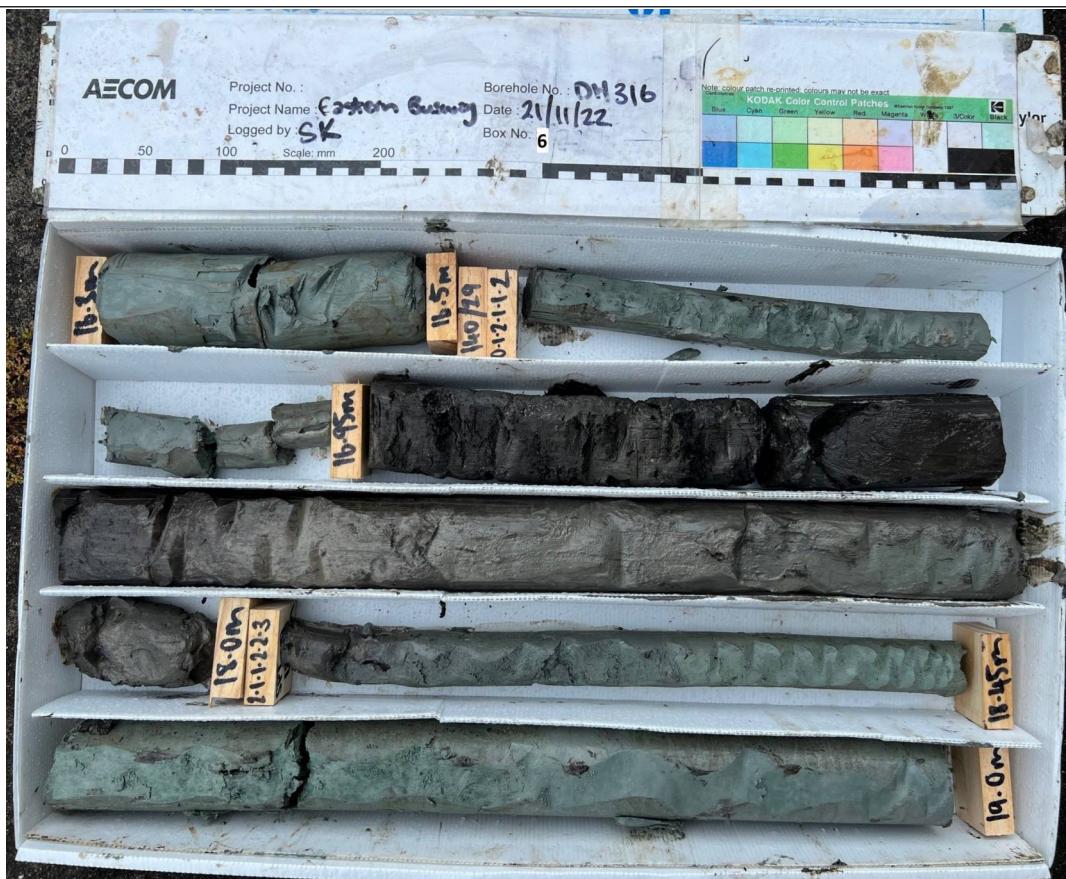
Box: 3 of 10 - Depth: DH316 07.70m to 10.70m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 4 of 10 - Depth: DH316 10.70m to 13.50m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 5 of 10 - Depth: DH316 13.50m to 16.30m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 6 of 10 - Depth: DH316 16.30m to 19.00m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 7 of 10 - Depth: DH316 19.00m to 21.80m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 21/11/2022



Box: 8 of 10 - Depth: DH316 21.80m to 24.85m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 22/11/2022



Box: 9 of 10 - Depth: DH316 24.85m to 27.65m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 22/11/2022



Box: 10 of 10 - Depth: DH316 27.65m to 28.50m of 28.50m
 Date Drilled 18/11/2022 to 22/11/2022 - Date Photographed: 22/11/2022

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412237.66mE 794896.33mN
 Orientation -90° Elevation 10.82m
 Location 26 Burswood Drive
 Feature Retaining Walls

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records <small>Shear Vane/ SPT N Values</small>	Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0-100%</small>	Relative Strength <small>MS MSW VW W</small>	Rock Weathering <small>SW MW HW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
										DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
0.0m: TOPSOIL										0.0m: Silty CLAY with trace rootlets; brown. Stiff moist, high plasticity.	
0.3m: Alluvium comprising clay, silt, sand and organic soil TAURANGA GROUP	83/19 SS 0,0,0 1,0,1 N=2	HQ3				1		100		0.3m: Silty CLAY with some fine to coarse sand and minor fine to coarse gravels; Brown with orange and blue mottling. Stiff, moist, high plasticity.	1.7
		SPT				2		100		1.8m: Silty CLAY with trace organics; Bluish grey. Firm, moist, high plasticity.	2.92
		HQ3	114			3		100			
	29/3	PT				3		90			
	SS 0,0,0 1,0,1 N=2	SPT				4		100		3.6m: Plastic PEAT with some wood fragments; Black. Very soft, moist, high plasticity.	
		HQ3				4		100			
		HQ3				5		100			
		HQ3				6		100		5.75 to 6.0m: Silty clay band, brownish grey, trace organics, soft.	
	SS 0,0,0 0,0,0 N=0 SUOW	SPT				8		100		7.9 to 7.91m: Pumice band.	
	HQ3				7		100				
SS 1,3,7 6,4,3 N=20	SPT				9		100		9.0m: Silty fine to medium SAND; Light grey. Medium dense, moist, uniformly graded.		
									9.55m: Spongy PEAT; Black. Firm, moist, high plasticity.		

For explanation of symbols and observations, see key sheet

FLUID DEPTHS AND DRILLING PROGRESS (m)			
Date Time	Drilled Depth	Casing Depth	Fluid Depth
20/02/2023 16:15	24.20	1.3	2.92
21/02/2023 11:30	24.20	1.3	1.7

RELATIVE STRENGTH	WEATHERING
VS - Very strong	UW - Unweathered
S - Strong	SW - Slightly weathered
MS - Moderately strong	MW - Moderately weathered
W - Weak	HW - Highly weathered
VW - Very weak	CW - Completely weathered
EW - Extremely weak	

Date logged	20/02/2023
Logged	SK
Checked	GP

Driller	McMillan
Started	20/02/2023
Finished	20/02/2023
Drill Rig	N119
Core Boxes	9
Page	1 of 8

Hand Held Shear Vane
 DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595
 vane shear strength per NZGS guideline

Remarks
 Standpipe piezometer installed. Shear vane readings are from the end of the barrel.
 Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412237.66mE 794896.33mN
 Orientation -90° Elevation 10.82m
 Location 26 Burswood Drive
 Feature Retaining Walls

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records <small>Shear Vane/ SPT SPT N Values 0 - 50</small>	Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0 - 100%</small>	Relative Strength <small>MS MSW VW W</small>	Rock Weathering <small>SW MW HW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
										DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
TAURANGA GROUP	ss 4,10,13,15,17,5 for 25mm N>50	HQ3				11	[Symbol]	100		10.2m: Silty, fine to medium pumice SAND; Light grey. Very dense, moist, uniformly graded.	
		SPT								10.93m: Plastic PEAT with some wood fragments; Black. Soft, moist, high plasticity.	
	16/3 ss 0,0,0,0,1,1 N=2	HQ3				12	[Symbol]	100		12.25m: Silty CLAY with minor organics; Brownish grey. Soft, moist, high plasticity. (Changed in tube)	
		PT									
		SPT									
	ss 0,0,0,0,0,0 N=0 SUOW	HQ3				13	[Symbol]	100			
		SPT								13.6 to 16.5m: Becomes bluish grey and organics become trace.	
		HQ3				14	[Symbol]	100			
	ss 0,0,0,0,1,2 N=3	SPT								15.0 to 15.7m: Some fine sands.	
		HQ3				15	[Symbol]	100			
ss 0,1,1,2,1,2 N=6	SPT								16.5m: Spongy PEAT; Black. Firm, moist, high plasticity.		
	HQ3				16	[Symbol]	100				
ss 0,0,0,0,0,0 N=0 SUOW	SPT								17.15m: Silty CLAY; Bluish grey. Stiff, moist, high plasticity.		
	HQ3				17	[Symbol]	100				
	SPT										
ss 1,2,2,2,2,4 N=10	SPT									19.5m: Silty fine to coarse SAND; Grey. Medium dense, moist, well graded.	
	HQ3				18	[Symbol]	100				
	SPT										
	HQ3				19	[Symbol]	100				
	SPT										

2021 EB DRILLHOLE LOG 2023-04-06 MASTER.GPJ BASE.GDT 17/04/23

For explanation of symbols and observations, see key sheet

FLUID DEPTHS AND DRILLING PROGRESS (m)
 Date Time Drilled Depth Casing Depth Fluid Depth

Hand Held Shear Vane
 DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595
vane shear strength per NZGS guideline

RELATIVE STRENGTH
 VS - Very strong
 S - Strong
 MS - Moderately strong
 W - Weak
 VW - Very weak
 EW - Extremely weak

WEATHERING
 UW - Unweathered
 SW - Slightly weathered
 MW - Moderately weathered
 HW - Highly weathered
 CW - Completely weathered

Remarks
 Standpipe piezometer installed. Shear vane readings are from the end of the barrel.

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

Date logged 20/02/2023
 Logged SK
 Checked GP

Driller McMillan
 Started 20/02/2023
 Finished 20/02/2023
 Drill Rig N119
 Core Boxes 9
 Page 2 of 8

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412237.66mE 794896.33mN
 Orientation -90° Elevation 10.82m
 Location 26 Burswood Drive
 Feature Retaining Walls

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records <small>Shear Vane/ SPT N Values</small>	Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0-100%</small>	Relative Strength <small>VS MS MW VW EW</small>	Rock Weathering <small>SW MW HW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
										DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
EAST COAST BAYS FORMATION 20.0m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak.		HQ3				21		100		20.0m: Recovered as silty, fine to coarse SAND; Grey. Very dense, moist, well graded. 20.3 to 20.5m: Light brown. 20.5 to 20.7m: With trace organics; brown.	
	ss 8,10,13,14,18,5 for 25mm N>50	SPT				22		100			
		HQ3				23		0			
	sc 10,22,27,23 for 45mm N>50	SPT				24		100			
		HQ3				24		0			
	sc 4,7,22,28 for 60mm N>50	SPT				25		0		DH318_P terminated at 24.29m Depth Criteria Achieved	
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH		WEATHERING		Date logged 20/02/2023		Driller McMillan	
FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth				VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak		UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered		Logged SK Checked GP		Started 20/02/2023 Finished 20/02/2023 Drill Rig N119 Core Boxes 9	
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline				Remarks Standpipe piezometer installed. Shear vane readings are from the end of the barrel.		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016				Page 3 of 8	

2021 EB DRILLHOLE LOG 2023-04-06 MASTER.GPJ BASE.GDT 17/04/23



Box: 1 of 9 - Depth: 00.00m to 03.95m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 2 of 9 - Depth: 03.95m to 06.50m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 3 of 9 - Depth: 06.50m to 09.45m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



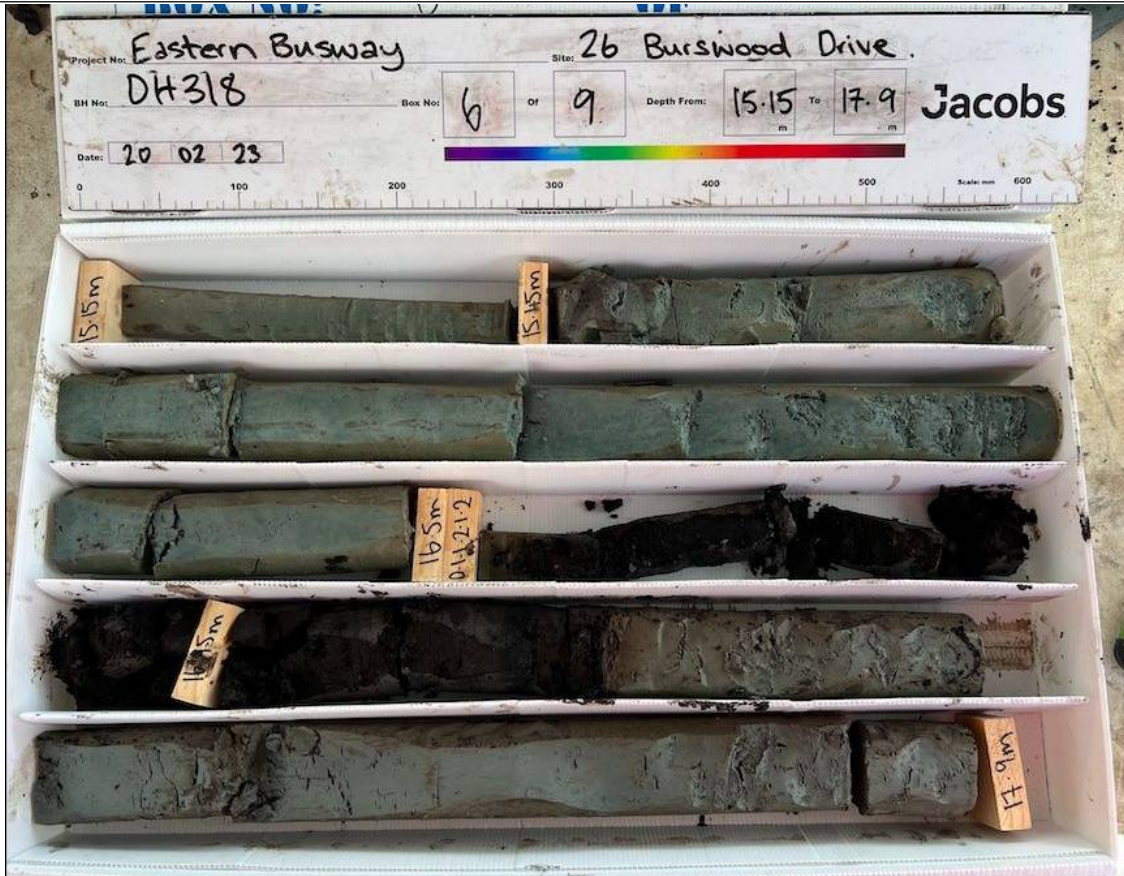
Box: 4 of 9 - Depth: 09.45m to 12.00m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 5 of 9 - Depth: 12.00m to 15.15m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 6 of 9 - Depth: 15.15m to 17.90m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 7 of 9 - Depth: 17.90m to 20.80m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 8 of 9 - Depth: 20.80m to 23.85m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023



Box: 9 of 9 - Depth: 23.85m to 24.29m of 24.29m

Date Drilled 20/02/2023 to 20/02/2023 - Date Photographed: 20/02/2023

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412289.50mE 794690.06mN
 Orientation -90° Elevation 6.67m
 Location Reserve: 1R Burswood Drive
 Feature Retaining Wall

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records		Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0-100%</small>	Relative Strength <small>MS VS W VW EW</small>	Rock Weathering <small>SW MW HW CW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, subordinate information, etc</small>	Instrumentation
	Shear Vane/ SPT	SPT N Values <small>0 - 50</small>									DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
0.0m: FILL comprising clay, silt, sand, gravel and cobbles.			HA				0		0		0.0m: Fine sandy SILT with some basalt gravel and cobbles; dark brown. Soft, dry, low plasticity.	
			HQ3				1		100		0.5m: Silty CLAY with some fine to medium sand and minor basalt gravel; brown with orange mottling. Stiff, moist, high plasticity.	0.9
		SS 2,2,2, 3,4,3 N=12	SPT				2		100			
2.8m: ALLUVIUM comprising clay, silt, sand, organics and peat.			HQ3				3		100		2.8m: Silty CLAY with minor fine sand; bluish grey with orange mottling. Stiff, moist, high plasticity. 3.0m: 114mm diameter HWT casing to 3.0m.	2.94
		SS 99/32 1,0,1, 2,1,2 N=6	SPT				4		100		3.6 to 4.1m: Becomes with some fine to medium sand.	
			HQ3				5		100		4.1m: Silty fine to medium SAND; brown with orange mottling. Loose, wet, poorly graded.	
		SS 78/3 1,1,1, 1,1,0 N=3	SPT				6		100		4.3m: Organic CLAY; black. Stiff, moist, high plasticity.	
			HQ3				7		100		4.5m: Silty fine SAND; light grey. Medium dense, wet, uniformly graded.	
		SS 13,15,13, 8,5,3 N=29	SPT				8		100		4.6m: Spongy PEAT; black. Soft, moist, high plasticity.	
			HQ3				9		100		5.2m: Silty fine SAND with minor organics; light grey. Very dense, moist, well graded. (Pumice) 5.8 to 6.45m: Sand becomes fine to coarse, with some coarse black grains.	
		SS 67/24 0,0,2, 1,2,2 N=7	SPT				10		100		6.45m: Spongy PEAT; black. Soft, moist, high plasticity.	
			HQ3				11		100		6.6m: Organic CLAY; brown. Soft, moist, high plasticity.	
	SS 110/18 0,0,0, 0,0,1 N=1	SPT				12		100		6.8m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity. 7.3 to 9.0m: Stiff.		
		HQ3				13		100		8.5 to 8.8m: Contains minor fine sand lenses		
						14		100		9.6m: Becomes soft 9.8 to 10.45m: With some organics and brownish grey.		

For explanation of symbols and observations, see key sheet

FLUID DEPTHS AND DRILLING PROGRESS (m)			
Date Time	Drilled Depth	Casing Depth	Fluid Depth
26/04/2022 16:45	15.45	3.0	3.12
27/04/2022 07:55	15.45	3.0	0.9
27/04/2022 13:40	28.50	3.0	2.94

RELATIVE STRENGTH	WEATHERING
VS - Very strong	UW - Unweathered
S - Strong	SW - Slightly weathered
MS - Moderately strong	MW - Moderately weathered
W - Weak	HW - Highly weathered
VW - Very weak	CW - Completely weathered
EW - Extremely weak	

Date logged 28/04/2022
 Logged SK
 Checked GP

Driller McMillan
 Started 26/04/2022
 Finished 27/04/2022
 Drill Rig N118
 Core Boxes 9

Remarks
 50 mm standpipe piezometer installed on completion.
 Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016

Hand Held Shear Vane
 DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595
 vane shear strength per NZGS guideline

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412289.50mE 794690.06mN
 Orientation -90° Elevation 6.67m
 Location Reserve: 1R Burswood Drive
 Feature Retaining Wall

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records		Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0 - 100%</small>	Relative Strength <small>MS S W VW EW</small>	Rock Weathering <small>SW MW HW CW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
	Shear Vane/ SPT	SPT N Values <small>0 - 50</small>									DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
TAURANGA GROUP	37/5		HQ3						100		6.8m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity. (continued)	
			PT						100		10.45m: Organic CLAY; Dark brown. Soft, moist, high plasticity.	
	SS 0,0,0 0,0,0 N=0 SUOW		SPT						100		11.15m: Silty CLAY with minor fine sand; bluish grey. Soft, moist, high plasticity. 11.5 to 12.9m: Firm. 11.5m: Fine sand ceases.	
	SS 1,1,2 2,2,2 N=8		SPT						100		12.85m: Becomes with some fine to medium sand. 12.9m: Silty fine to coarse SAND; bluish grey. Medium dense, moist, well graded.	
	SS 2,3,4 4,3,3 N=14		SPT						100		13.95m: Organic CLAY; brown. Firm, moist, high plasticity. 14.25m: Silty CLAY; bluish grey. Firm, moist, high plasticity. 14.5 to 15.6m: With some fine to coarse sand lenses.	
	SS 61/13 0,0,0 0,1,0 N=1		SPT						100		15.6m: Silty fine to coarse SAND; grey. Loose, moist, well graded.	
	SS 2,2,4 4,8,7 N=23		SPT						100		16.1m: Clayey SILT; grey. Very stiff. 16.17m: J, 45°, Ud, Sm 16.37m: J, 30°, Ud, Sm	
	SS 3,3,3 4,5,7 N=19		SPT						100		17.2 to 17.35m: Fine SAND. Medium dense.	
	SS 3,5,6 7,8,9 N=30		SPT						100		18.45m: Silty fine to medium SAND; grey. Medium dense. 18.75m: Clayey SILT; grey. Very stiff.	
	SS 3,3,3 4,5,7 N=19		SPT						100			
15.6m: Completely weathered, fine to coarse SANDSTONE. Extremely weak.			HQ3						86			
16.1m: Highly weathered, grey, SILTSTONE. Extremely weak.			SPT						100			
17.2 to 17.35m: Highly weathered fine SANDSTONE bed.			HQ3						100			
18.45m: MW, grey, fine to medium SANDSTONE. EW			SPT						100			
18.75m: Moderately weathered, grey, SILTSTONE. Extremely weak.			HQ3						100			
			SPT						100			

2021 EB DRILLHOLE LOG 2022-05-23 MASTER.GPJ BASE.GDT 23/05/22

For explanation of symbols and observations, see key sheet		RELATIVE STRENGTH		WEATHERING		Date logged 28/04/2022		Driller McMillan	
FLUID DEPTHS AND DRILLING PROGRESS (m)		VS - Very strong		UW - Unweathered		Logged SK		Started	
Date Time	Drilled Depth Casing Depth Fluid Depth	S - Strong		SW - Slightly weathered		Checked GP		26/04/2022	
		MS - Moderately strong		MW - Moderately weathered					
		W - Weak		HW - Highly weathered					
		VW - Very weak		CW - Completely weathered					
		EW - Extremely weak		Remarks					
		50 mm standpipe piezometer installed on completion.						Finished 27/04/2022	
Hand Held Shear Vane		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Drill Rig N118	
DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595								Core Boxes 9	
vane shear strength per NZGS guideline								Page 2 of 8	

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412289.50mE 794690.06mN
 Orientation -90° Elevation 6.67m
 Location Reserve: 1R Burswood Drive
 Feature Retaining Wall

GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records		Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0 - 100%</small>	Relative Strength <small>MS S W VW EW</small>	Rock Weathering <small>SW MW HW CW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES <small>Subordinate MAJOR minor: colour, structure, Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional information, etc</small>	Instrumentation
	Shear Vane/ SPT	SPT N Values <small>0 - 50</small>									DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
20.0m: Slightly weathered, grey, SILTSTONE. Very weak.			HQ3						100 [95]			
20.7m: Slightly weathered, grey, fine to coarse SANDSTONE. Very weak.	ss 8,11,16,22,12 for 40mm N>50		SPT				21		100			
21.5m: Slightly weathered grey SILTSTONE. Very weak.			HQ3				22		100 [100]			
	sc 7,14,20,24,6 for 20mm N>50		SPT				23		100			
23.4m: Slightly weathered, grey, fine to medium SANDSTONE. Very weak.			HQ3				24		100 [100]			
23.9m: Slightly weathered, grey, SILTSTONE. Very weak. Indistinct thick bedding.	sc 11,21,40,10 for 25mm N>50		SPT				25		100 [100]			
			HQ3				26		100 [100]		25.27m: J, 30°, Ud, Sm	
			HQ3				27		100 [100]			
			HQ3				28		100 [100]		27.26 to 27.41m: Fine to medium SANDSTONE bed. 27.66 to 27.71m: Fine to medium SANDSTONE bed.	
							29				DH319_P terminated at 28.5m Target Depth	
For explanation of symbols and observations, see key sheet					RELATIVE STRENGTH		WEATHERING		Date logged 28/04/2022		Driller McMillan	
FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth					VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak		UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered		Logged SK Checked GP		Started 26/04/2022	
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline					Remarks 50 mm standpipe piezometer installed on completion.						Finished 27/04/2022	
					Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Drill Rig N118 Core Boxes 9	
											Page 3 of 8	

2021 EB DRILLHOLE LOG 2022-05-23 MASTER.GPJ BASE.GDT 23/05/22



Box: 1 of 9 - Depth: 01.30m to 04.25m of 28.50m
 Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 26/04/2022



Box: 2 of 9 - Depth: 04.25m to 07.50m of 28.50m
 Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 26/04/2022



Box: 3 of 9 - Depth: 07.50m to 10.25m of 28.50m

Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 26/04/2022



Box: 4 of 9 - Depth: 10.25m to 13.50m of 28.50m

Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 26/04/2022



Box: 5 of 9 - Depth: 13.50m to 16.40m of 28.50m

Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 27/04/2022



Box: 6 of 9 - Depth: 16.40m to 19.30m of 28.50m

Date Drilled 26/04/2022 to 27/04/2022 - Date Photographed: 27/04/2022