



Box: 9 of 10 - Depth: P\DH328_P 24.0m to 26.46m of 28.50m
 Date Drilled 13/10/2022 to 14/10/2022 - Date Photographed: 14/10/2022



Box: 10 of 10 - Depth: P\DH328_P 26.46m to 28.5m of 28.50m
 Date Drilled 13/10/2022 to 14/10/2022 - Date Photographed: 14/10/2022

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 411893.10mE 794990.00mN
 Orientation -90° Elevation 11.84m
 Location 29 Dulwich Place
 Feature Burswood Station

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	Relative Strength	Rock Weathering	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									DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
0.0m: Vacuum excavated		0 - 50									0.0m: Vacuum excavated, not logged.	
Vacuum extraction			VAC EX									
3.0m: Slightly weathered, dark grey, BASALT. Moderately strong; highly vesicular.			HQ3						100 [67]		3.35m: J, 10°, Pl, Ro 3.45m: J, 30°, Pl, Ro 4.05m to 4.70m: J, 85°, Un, Ro 4.87m: J, 30°, Pl, Ro	
4.7m: Slightly weathered, dark grey, BASALT. Strong; slightly vesicular.			HQ3						100 [87]			
6.0 to 6.1m: Moderately weathered, weak. 6.1m: ALLUVIUM comprised of silty clay.			HQ3						100		6.1m: Silty CLAY; light grey. Soft, moist, high plasticity.	
											DH-CPT328-D terminated at 6.7m Depth Criteria Achieved	
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH			WEATHERING			Date logged 26/01/2023		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 FK Checked MC		Started 26/01/2023	
Hand Held Shear Vane			Remarks No Groundwater level recorded.			Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016					Finished 26/01/2023	
vane shear strength per NZGS guideline											Drill Rig N119 Core Boxes 2	
											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 04.50m of 6.70m

Date Drilled 26/01/2023 to 26/01/2023 - Date Photographed: 26/01/2023



Box: 2 of 2 - Depth: 04.50m to 06.70m of 6.70m

Date Drilled 26/01/2023 to 26/01/2023 - Date Photographed: 26/01/2023

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412311.74mE 794652.50mN
 Orientation -90° Elevation 8.38m
 Location Reserve: 23R Kenwick Place
 Feature Retaining wall/slope design

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>	
FILL 0.0m: FILL comprising silty clay with some gravel.			HA						0		0.0m: Silty CLAY with some fine to coarse gravel (greywacke and basalt) and minor fine to coarse sand; orange. Stiff, moist, high plasticity. (Fill) 1.9m: Becomes bluish grey with light grey, dark grey and orange mottles/swirls. 3.0m: 114mm diameter HWT casing to 3.0m.	4.1 4.8 5.24
	SS 1,2,3, 2,3,3 N=11		SPT						100			
			HQ3						100			
	SS 0,2,2, 3,3,3 N=11		SPT	HWT					100			
			HQ3						100			
TAURANGA GROUP 5.4m: ALLUVIUM comprising silt, sand, clay and peat.			HQ3						100		5.4m: Fine to medium sandy SILT with some clay; brownish grey. Soft, moist, low plasticity. 5.8m: Silty fine to medium SAND; brownish grey. Loose, wet, uniformly graded. 6.45m: Becomes with some organics and fine to coarse gravel. 6.8m: Silty CLAY with trace organics; brownish grey with black specks. Firm, moist, high plasticity. 7.55m: Spongy PEAT; black. Firm, moist, high plasticity. 7.85m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity.	6.3
	0/0 SS 1,1,1, 2,2,2 N=7		SPT						100			
			HQ3						100			
	SS 0,1,0, 0,0,0 N=0		SPT						100			
			HQ3						100			
			PT						100			
	SS 1,1,1, 1,2,3 N=7		SPT						100			
			HQ3						100			
			PT						100			
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 9/02/2022		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 3/02/2022			
Date Time Drilled Depth Casing Depth Fluid Depth							Checked GP		Finished 9/02/2022			
03/02/2022 16:00 18.00 3.0 4.8									Drill Rig N119			
04/02/2022 08:00 18.00 3.0 6.3									Core Boxes 12			
04/02/2022 13:30 28.50 3.0 4.1									Page 1 of 10			
08/02/2022 08:30 28.50 3.0 4.82												
08/02/2022 13:30 36.00 3.0 5.24												
Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. CF's: A = 1.781, B = -11.22 vane shear strength per NZGS guideline			Remarks Hole backfilled with grout upon completion.		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016							

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412311.74mE 794652.50mN
 Orientation -90° Elevation 8.38m
 Location Reserve: 23R Kenwick Place
 Feature Retaining wall/slope design

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 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, 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	53/7 SS 0,0,1, 0,0,0 N=1	HQ3				11		100		7.85m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity. <i>(continued)</i> 10.6 to 11.0m: Grey, soft.	
		SPT						100		11.0m: Organic CLAY; dark brown. Soft, moist, high plasticity.	
		HQ3				12		100			
	SS 0,0,0, 0,0,0 N=0 SUOW	PT						100			
		SPT				13		100		12.8m: Silty CLAY; bluish grey with brown specks. Firm, moist, high plasticity.	
		HQ3				14		100			
	SS 0,0,1, 1,1,1 N=4	SPT						100			
		HQ3				15		100		15.1 to 15.6m: Stiff.	
	44/8 SS 1,3,2, 3,3,2 N=10	SPT						100			
		HQ3				16		100			
	SS 0,0,0, 0,1,1 N=2	SPT						100			
		HQ3				17		100		17.25m: Fine to coarse SAND, grey. Medium dense. 17.55m: Clayey SILT with trace fine sand; grey. Firm. 17.55 to 17.6m: Trace black organics.	
SS 0,0,0, 0,0,0 N=0 SUOW	SPT						100				
	HQ3				18		100				
SS 0,0,0, 0,1,1 N=2	SPT						100				
	HQ3				19		100				
	SPT						100				

For explanation of symbols and observations, see key sheet

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

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

Date logged 9/02/2022

Logged SK
 Checked GP

Driller

McMillan
 Started 3/02/2022
 Finished 9/02/2022

Drill Rig N119

Core Boxes 12

Remarks

Hole backfilled with grout upon completion.

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

Hand Held Shear Vane

DR1980: 19mm (A). Calibrated 28/06/21. CF's: A = 1.781, B = -11.22

vane shear strength per NZGS guideline

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412311.74mE 794652.50mN
 Orientation -90° Elevation 8.38m
 Location Reserve: 23R Kenwick Place
 Feature Retaining wall/slope design

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	Relative Strength	Rock Weathering	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 0 - 50									DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>	
EAST COAST BAYS FORMATION			HQ3								17.55m: Clayey SILT with trace fine sand; grey. Firm. (continued)	
	20.5m: Highly weathered, grey, SILTSTONE. Extremely weak.	ss 4,4,4, 4,4,8 N=20	SPT				21		100		20.5m: Silty CLAY; grey. Very stiff.	
	22.1m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak. 22.5 to 23.0m: Siltstone.	ss 4,6,7, 7,6,8 N=28	SPT				22		100		22.1m: Fine to coarse SAND. Medium dense.	
	23.0m: Moderately weathered, grey, SILTSTONE. Very weak.			HQ3			23		100		23.35m: DB, 25° 23.4m: Gently inclined, black carbonaceous lamination.	
	24.45 to 25.15m: Speckled with black organics.	ss 5,6,8, 9,11,11 N=39	SPT				24		100		24.45m: HJ, 60°	
	25.15m: Moderately weathered, grey, fine SANDSTONE. Very weak.	ss 10,13,20, 27,3 for 5mm N>50	SPT				25		100			
				HQ3			26		100 [92]			
		ss 7,10,9, 10,12,14 N=45	SPT				27		100			
				HQ3			28		100 [100]			
	28.55m: Moderately weathered, grey, SILTSTONE. Extremely weak.	ss 3,10,13, 13,14,10 for 50mm N>50	SPT				29		100		28.55m: Clayey SILT with trace fine sand; grey.	
			HQ3					100				
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH		WEATHERING		Date logged 9/02/2022		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 3/02/2022		
Hand Held Shear Vane DR1980: 19mm (A). Calibrated 28/06/21. CF's: A = 1.781, B = -11.22 vane shear strength per NZGS guideline				Remarks Hole backfilled with grout upon completion.		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016				Finished 9/02/2022		
										Drill Rig N119 Core Boxes 12		
										Page 3 of 10		

2021 EB DRILLHOLE LOG 2022-04-11 SBS MASTER.GPJ BASE.GDT 10/04/22



Box: 1 of 12 - Depth: 01.50m to 04.80m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 3/02/2022



Box: 2 of 12 - Depth: 04.80m to 07.95m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 3/02/2022



Box: 3 of 12 - Depth: 07.95m to 11.20m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 3/02/2022



Box: 4 of 12 - Depth: 11.20m to 14.50m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 3/02/2022



Box: 5 of 12 - Depth: 14.50m to 17.25m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 4/02/2022



Box: 6 of 12 - Depth: 17.25m to 19.95m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 4/02/2022



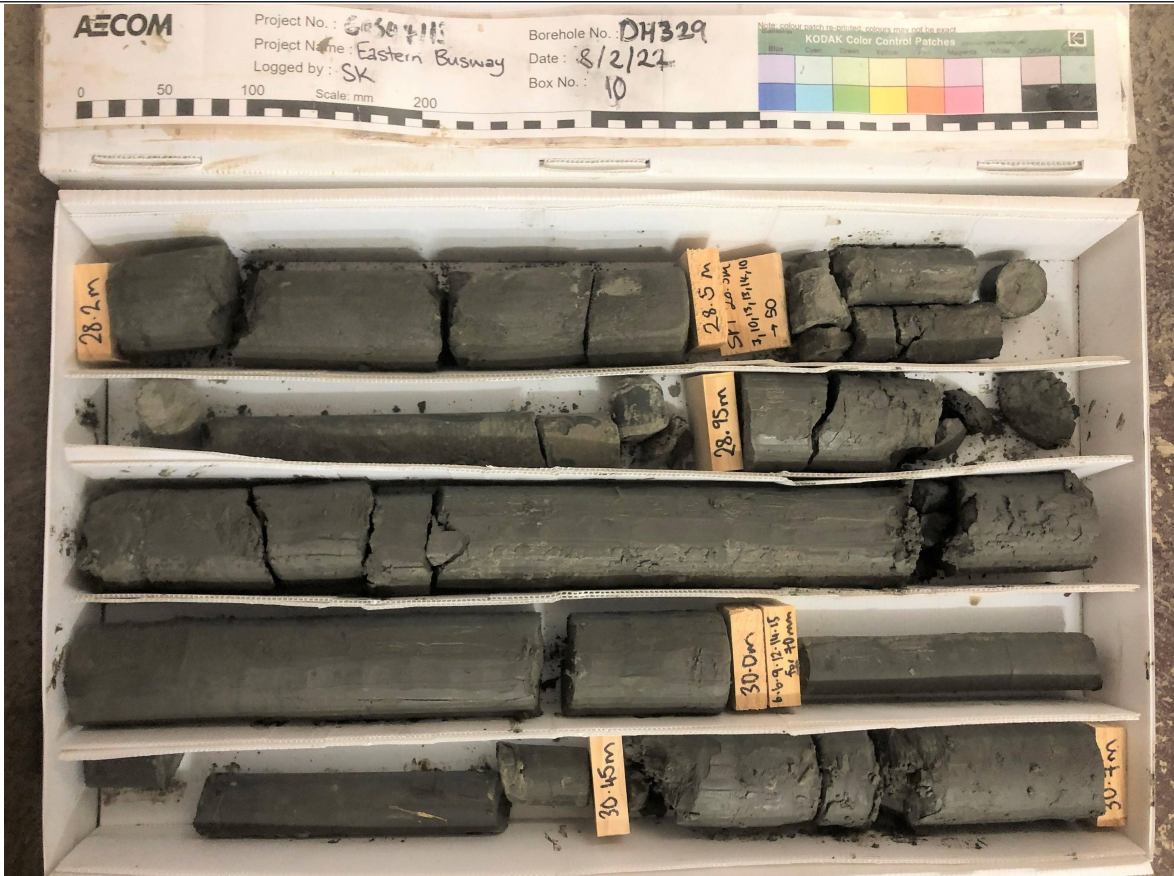
Box: 7 of 12 - Depth: 19.95m to 22.70m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 4/02/2022



Box: 8 of 12 - Depth: 22.70m to 25.35m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 4/02/2022



Box: 9 of 12 - Depth: 25.35m to 28.20m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 4/02/2022



Box: 10 of 12 - Depth: 28.20m to 30.70m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 8/02/2022



Box: 11 of 12 - Depth: 30.70m to 33.75m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 8/02/2022



Box: 12 of 12 - Depth: 33.75m to 36.00m of 36.00m
 Date Drilled 3/02/2022 to 9/02/2022 - Date Photographed: 8/02/2022

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412454.56mE 794583.17mN
 Orientation -90° Elevation 9.66m
 Location 380 Ti Rakau Drive
 Feature Road realignment

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 W VW	SW HW PW				(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	
FILL		0-50										DEFECT DESCRIPTION	
												(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	
0.0m: FILL comprising asphalt surface over sandy gravel.												0.0m: Asphalt.	
0.6m: ALLUVIUM comprising clay, silt and organic clay.		207*		VAC EX				1		0		0.05m: Sandy fine to coarse GRAVEL with some silt; dark brownish black. Tightly packed, moist. Sand is fine to coarse. Gravel is subangular basalt.	0.5
		207*										0.6m: Clayey SILT with some fine to coarse sand; light brownish grey. Hard, moist, low plasticity.	0.9
		133/30 SS		SPT				2		100		1.2m: Silty CLAY with minor fine sand; bluish grey. Stiff, moist, high plasticity.	1.5
		0,0,0, 0,1,0 N=1		HQ3						100		1.7m: Organic silty CLAY; black. Soft, moist, high plasticity.	
				PT				3		100		1.95m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity.	
		0,1,0, 1,1,1 N=3		SPT						100		3.0m: 114mm diameter HWT casing to 3.0m.	
				HQ3				4		100		3.6m: Trace organics cease.	
		1,0,0, 0,1,1 N=2		SPT						100		4.8m: Organic silty CLAY; blackish brown. Very soft, moist, high plasticity.	
				HQ3				5		100		5.15m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity.	
		0,1,0, 1,1,1 N=3		SPT						100		5.9 to 8.0m: Some fine micaceous sand.	
				HQ3				6		100			
		0,0,1, 0,0,0 N=1		SPT						100		8.0 to 13.3m: Trace fine micaceous sand.	
				HQ3				7		100			
		72/13		HQ3				8		100			
				HQ3				9		100			
		44/5		PT						100			

For explanation of symbols and observations, see key sheet

FLUID DEPTHS AND DRILLING PROGRESS (m)			
Date Time	Drilled Depth	Casing Depth	Fluid Depth
28/10/2021 08:45	06.45	3.0	0.5
28/10/2021 15:45	19.95	3.0	0.9
29/10/2021 08:30	19.95	3.0	1.5
29/10/2021 11:00	24.00	3.0	1.5

RELATIVE STRENGTH	WEATHERING	Date logged	Driller
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	29/10/2021	McMillan
Remarks		Logged SK	Started
Hole backfilled with grout upon completion. 207 kPa is the shear vane limit		Checked GP	27/10/2021
Horizontal / Vertical Survey Datums: NZGD2000 / Mount Eden 2000 / New Zealand Vertical Datum 2016			Finished
			29/10/2021
Hand Held Shear Vane			Drill Rig
DR2272: 19mm blade: Correction Factor = 1.572			N118
vane shear strength per NZGS guideline			Core Boxes 8
			Page 1 of 7

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 412454.56mE 794583.17mN
 Orientation -90° Elevation 9.66m
 Location 380 Ti Rakau Drive
 Feature Road realignment

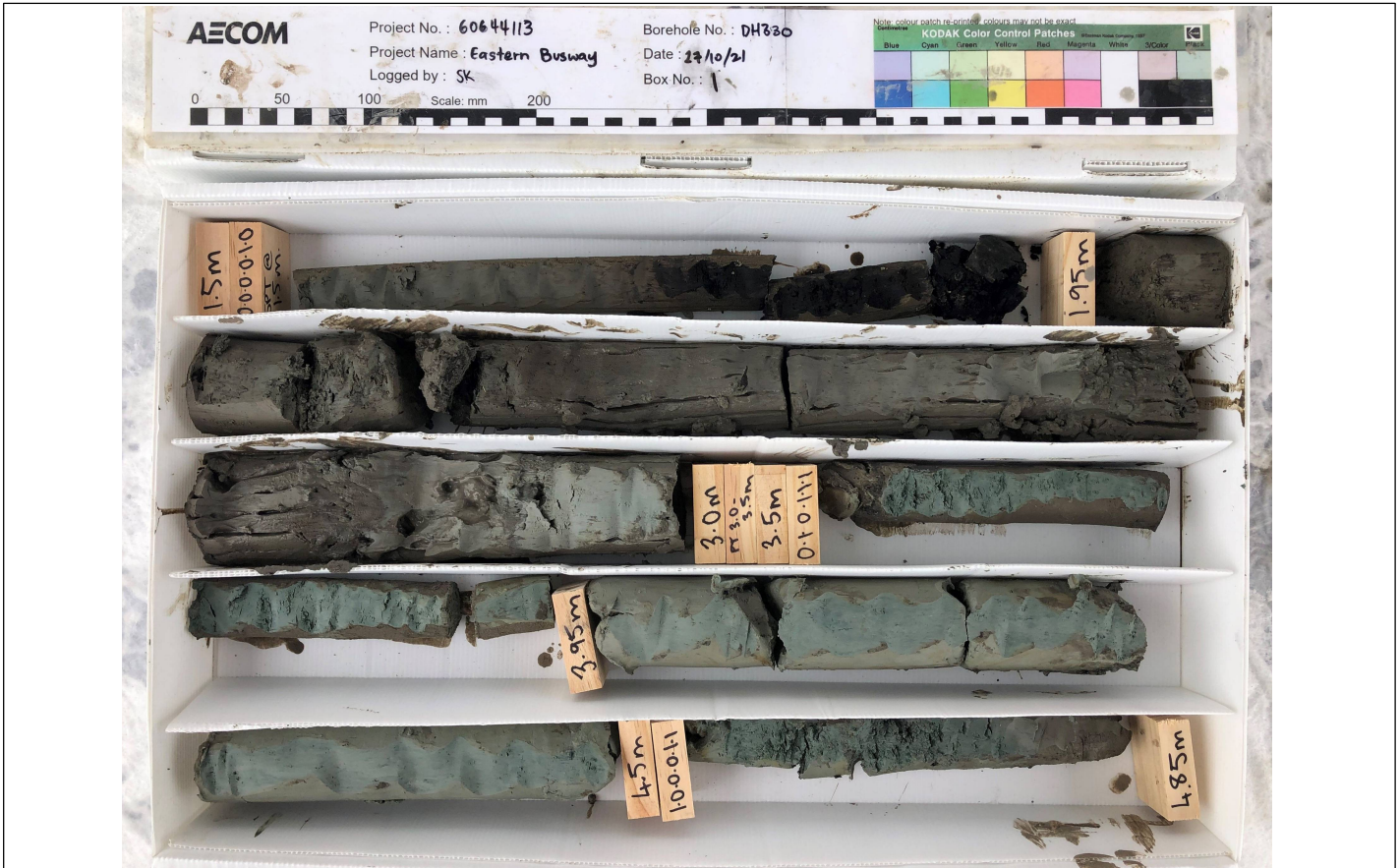
GEOLOGICAL DESCRIPTION <small>Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).</small>	Test Records <small>Shear Vane/ SPT SPT N Values 0 - 50</small>	Drilling Method <small>Casing remarks</small>	Core Loss/Lift <small>0 - 100%</small>	Relative Strength <small>MS MS W VW W- Weak</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	
										DEFECT DESCRIPTION <small>(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)</small>		
TAURANGA GROUP	44/9 SS 0,0,1, 1,2,3 N=7	HQ3				11		100		5.15m: Silty CLAY with trace organics; bluish grey. Firm, moist, high plasticity. (continued) 11.0 to 15.45m: Stiff.		
		SPT						100				
EAST COAST BAYS FORMATION	12.6m: Highly weathered, grey, fine SANDSTONE. Extremely weak.	HQ3				12		100		12.6m: Silty fine SAND with trace clay; grey. Dense, moist. 13.3 to 15.45m: Some fine micaceous sand.		
		SPT						100				
	15.45m: Moderately weathered, grey, SILTSTONE. Extremely weak.	HQ3					13		100	15.45m: Silty CLAY; grey. Very stiff. 15.45 to 15.65m: Recovered as gravel. 15.65 to 15.75m: J, 70°, Ud, Sm 15.82 to 15.88m: J, 65°, Ud, Sm 15.88 to 15.98m: J, 60°, Ud, Sm		
		SPT						100				
	19.0m: Moderately weathered, grey, fine to medium SANDSTONE. Extremely weak.	HQ3					14		100	19.0m: Fine to medium SAND; grey. Very dense.		
		SPT						100				
		4,5,7, 9,10,11 N=37	HQ3				15		100			
			SPT						100			
	1,3,7, 9,10,9 N=35	HQ3				16		100 [0]				
		SPT						100				
	4,6,6, 6,8,9 N=29	HQ3				17		100 [0]				
		SPT						100				
	3,6,11, 12,12,15 N=50	HQ3				18		100				
		SPT						100				
	8,10,18, 16,14,2 for 5mm	HQ3				19		100 [0]				
		SPT						100				

For explanation of symbols and observations, see key sheet

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

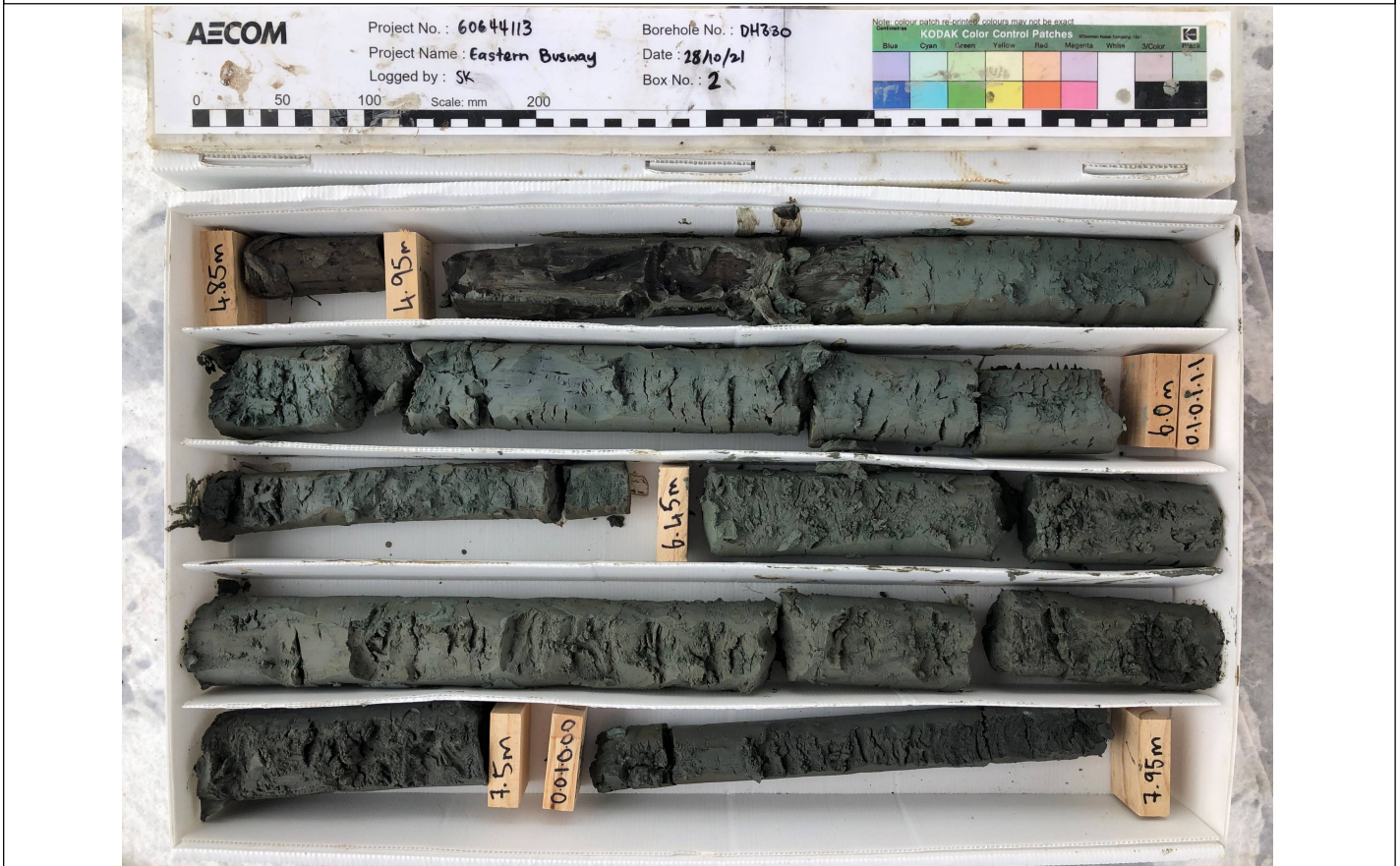
RELATIVE STRENGTH VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak	WEATHERING UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered	Date logged 29/10/2021 Logged SK Checked GP	Driller McMillan Started 27/10/2021 Finished 29/10/2021 Drill Rig N118 Core Boxes 8
Remarks Hole backfilled with grout upon completion. 207 kPa is the shear vane limit Horizontal / Vertical Survey Datums: NZGD2000 / Mount Eden 2000 / New Zealand Vertical Datum 2016			

Hand Held Shear Vane
 DR2272: 19mm blade: Correction Factor = 1.572
 vane shear strength per NZGS guideline



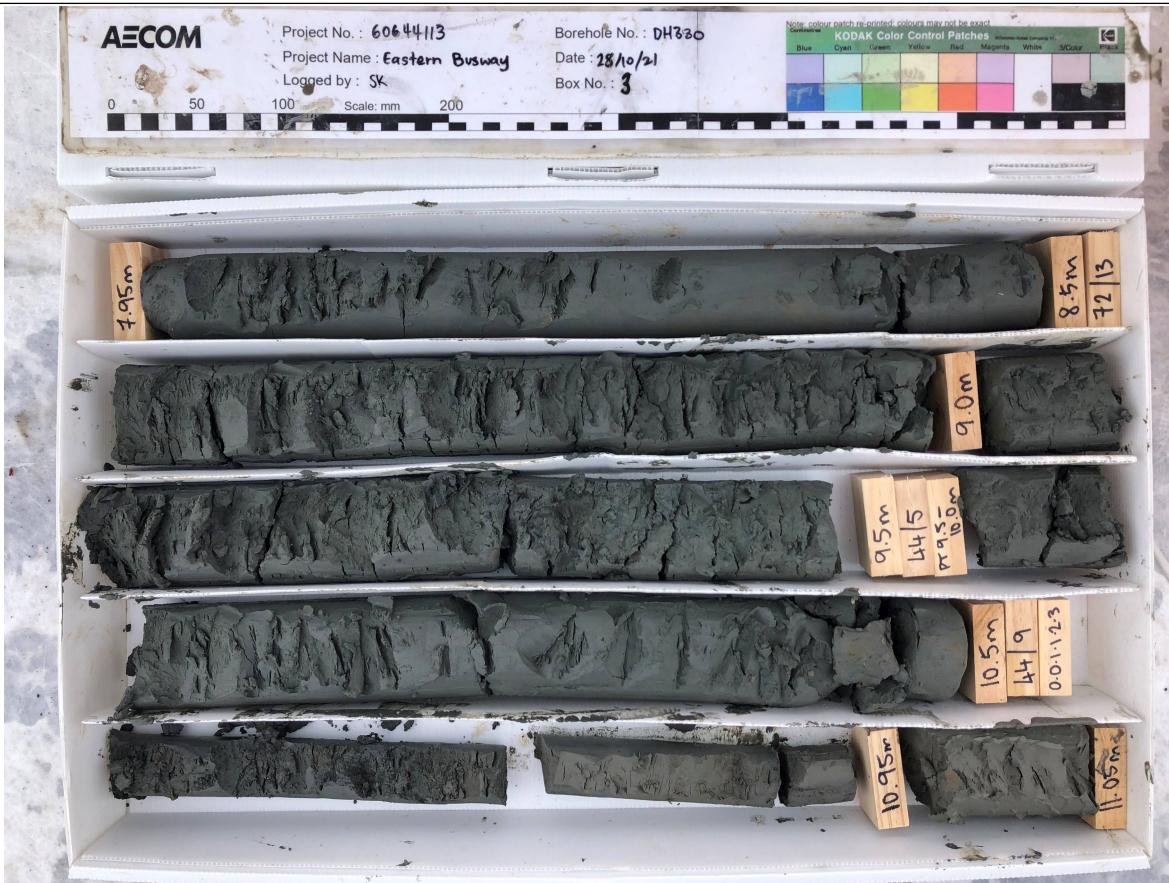
Box: 1 of 8 - Depth: 01.50m to 04.85m of 24.00m

Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 27/10/2021



Box: 2 of 8 - Depth: 04.85m to 07.95m of 24.00m

Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 28/10/2021



Box: 3 of 8 - Depth: 07.95m to 11.05m of 24.00m
 Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 28/10/2021

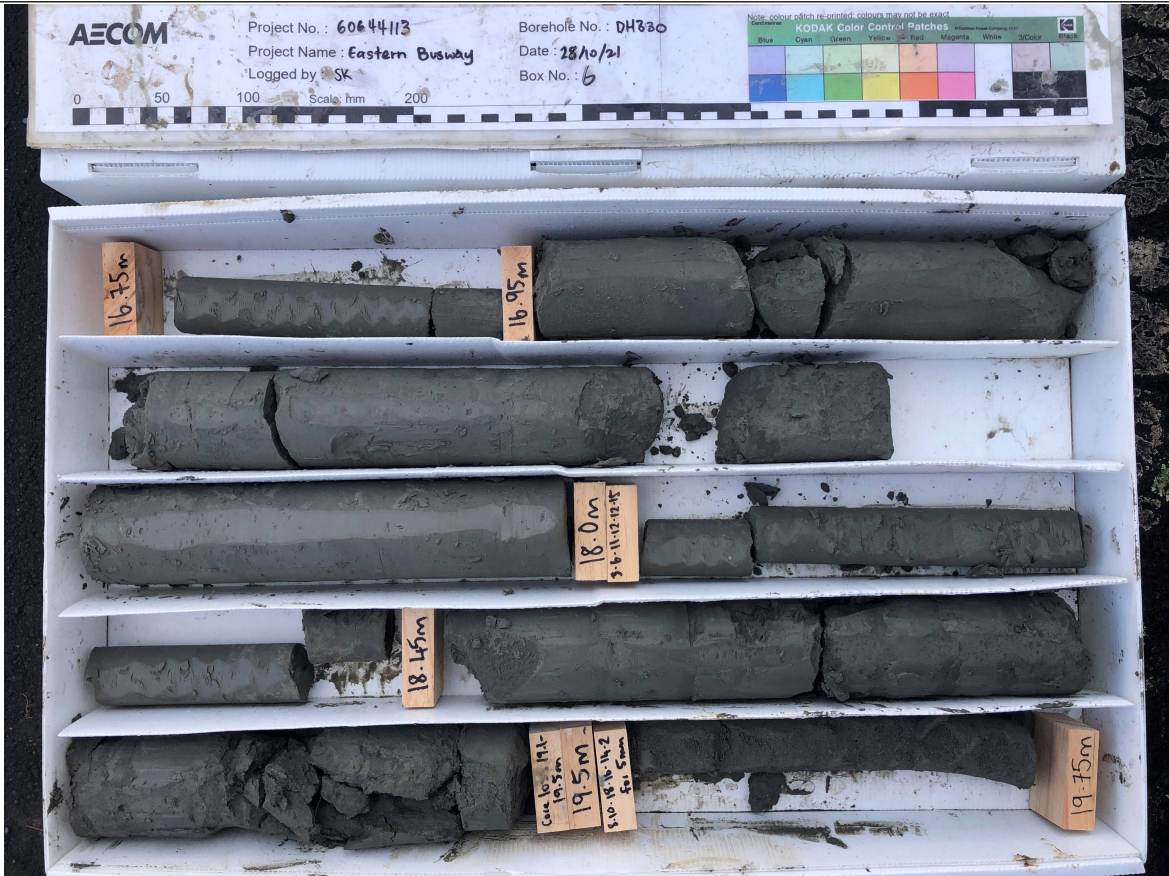


Box: 4 of 8 - Depth: 11.05m to 13.95m of 24.00m
 Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 28/10/2021



Box: 5 of 8 - Depth: 13.95m to 16.75m of 24.00m

Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 28/10/2021



Box: 6 of 8 - Depth: 16.75m to 19.75m of 24.00m

Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 28/10/2021



Box: 7 of 8 - Depth: 19.75m to 22.50m of 24.00m
 Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 29/10/2021



Box: 8 of 8 - Depth: 22.50m to 24.00m of 24.00m
 Date Drilled 27/10/2021 to 29/10/2021 - Date Photographed: 29/10/2021

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 411399.55mE 795077.19mN
 Orientation -90° Elevation 6.75m
 Location 35 Davington Way
 Feature China Town Bridge

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 VW EW</small>	Rock Weathering <small>SW MW HW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm) <small>400 300 200 100 0</small>	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>	
0.0m: Hand auger clearance	84/36										0.0m: Hand auger clearance to 1.5m. Not logged. Natural ground noted.	
1.5m: Alluvium comprising Clay, silt, sand and organic soil. TAURANGA GROUP	154/45		HA				1					
	128/71											
	159/75											
	154/71											
	173/71		SPT				2		100		1.5m: Silty CLAY with trace fine sand lenses; Brownish grey with bluish grey mottling. Firm, moist, high plasticity.	
	SS 0,1,1,1,1,2 N=5		HQ3						86			
				114								
	SS 0,0,0,0,0,0 N=0 SUOW		SPT				3		100		3.5m: Organic fine to medium sandy CLAY with some bands of wood fragments; brown. Very soft, moist, high plasticity.	
			HQ3						100			
SS 0,0,0,0,0,0 N=0 SUOW		SPT				5		100		4.55m: Silty CLAY with some fine sand; bluish grey. Soft, moist, high plasticity.		
		HQ3						100				
8/3 SS 0,1,0,0,1,1,1 N=2		SPT				6		100		5.7 to 7.85m: Becomes sandy CLAY; very soft. Sand, fine to medium.		
		HQ3						100				
18/5 SS 0,0,0,0,0,0 N=0 SUOW		SPT				8		100		7.85 to 8.2m: Sand ceases. Contains trace organics.		
		HQ3						100		8.2m: Spongy PEAT; black. Firm, moist, high plasticity.		
										8.5m: Organic CLAY; dark brown. Firm, moist, high plasticity.		
30/13 SS 0,1,1,1,2,2 N=6		SPT				9		100		8.9m: Silty CLAY with minor fine sand; bluish grey. Stiff, moist, high plasticity.		
										9.7 to 9.9m: Becomes sandy clay. Sand, fine to medium		

For explanation of symbols and observations, see key sheet

FLUID DEPTHS AND DRILLING PROGRESS (m)			
Date Time	Drilled Depth	Casing Depth	Fluid Depth
07/02/2023 16:00	25.50	2.8	5.1
08/02/2023 08:00	25.50	2.8	4.9

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	8/02/2023
Logged	SK
Checked	GP

Driller	McMillan
Started	7/02/2023
Finished	8/02/2023
Drill Rig	N119
Core Boxes	11
Page	1 of 10

Hand Held Shear Vane
 DR1980: 19mm (A). Calibrated Jun 2022: Correction Factor: 1.876
 vane shear strength per NZGS guideline

Remarks
 Hole back filled with grout. 50mm PVC grouted in hole for downhole seismic testing.
 Shear vane readings are downhole in top 1.5m. Below 1.5m shear vanes were performed in 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 411399.55mE 795077.19mN
 Orientation -90° Elevation 6.75m
 Location 35 Davington Way
 Feature China Town Bridge

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	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES	Instrumentation
	Shear Vane/ SPT	SPT N Values									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	
EAST COAST BAYS FORMATION			HQ3						100		10.1 to 10.2m: Organic banding.	
	10.25m: Highly weathered, grey, fine SANDSTONE; extremely weak.	ss 2,5,6,7,9,10 N=32	SPT				11		100		10.25m: Recovered as Silty, fine to coarse SAND; grey. Dense, moist, well graded.	
	11.65m: Highly weathered, bluish grey, indistinctly bedded SILTSTONE; extremely weak.	ss 2,2,3,4,6,6 N=19	SPT				12		100		11.5 to 11.65m: Recovered as sandstone gravels. 11.65m: Recovered as Silty CLAY; bluish grey. Very stiff, moist, high plasticity.	
	12.5m: Moderately weathered, grey, massive SANDSTONE; extremely weak.			HQ3			13		100		12.5m: Recovered as Silty fine to coarse SAND; grey. Very dense, moist, well graded.	
		ss 5,8,9,11,7,17 N=44	SPT				14		100		12.6 to 12.85m: J, 60°, Ud, Sm 13.02 to 13.3m: J, 60°, Ud, Sm	
				HQ3			15		100			
	14.55m: Slightly weathered, grey, fine SANDSTONE; weak. Concretion.			SPT			15		100			
	14.7m: Slightly weathered, grey, fine to coarse, SANDSTONE; very weak, weakly cemented.	ss 8,13,21,19,10 for 45mm N>50					16		100 [23]		15.85 to 16.15m: Non-intact, recovered as coarse gravel to cobble size irregular fragments	
	15.2m: Slightly weathered, grey, indistinctly bedded SILTSTONE; extremely weak.			HQ3			17		0			
	15.55m: Slightly weathered, grey, fine to coarse, massive SANDSTONE; very weak, weakly cemented. Trace carbonaceous material.	sc 9,29,37,13 for 35mm N>50	SPT				17		100 [100]		17.12 to 17.38m: Thin Siltstone bed; very weak	
	17.12 to 17.38m: SILTSTONE band.			HQ3			18		0		17.8 to 17.9m: J, 45°, Ud, Ro	
	17.9m: Slightly weathered, grey, indistinctly bedded SILTSTONE; extremely weak.	sc 10,39,50 for 70mm N>50	SPT				18		100 [91]		18.57 to 18.62m: , 30°, Ud, Sm 18.63 to 18.69m: , 45°, Ud, Sm	
				HQ3			19				19.55 to 19.7m: J, 60°, Ud, Sm	
	For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 8/02/2023		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 7/02/2023 Finished 8/02/2023 Drill Rig N119 Core Boxes 11		
	Hand Held Shear Vane DR1980: 19mm (A). Calibrated Jun 2022: Correction Factor: 1.876 vane shear strength per NZGS guideline			Remarks Hole back filled with grout. 50mm PVC grouted in hole for downhole seismic testing. Shear vane readings are downhole in top 1.5m. Below 1.5m shear vanes were performed in the end of the barrel.		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016		Page 2 of 10				

2021 EB DRILLHOLE LOG 2023-05-15 MASTER.GPJ BASE.GDT 18/05/23

Client Auckland Transport
 Project Eastern Busway
 Project number 60644113

Co-ordinates 411399.55mE 795077.19mN
 Orientation -90° Elevation 6.75m
 Location 35 Davington Way
 Feature China Town Bridge

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 VS W 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, subordinate 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 29.7m: Slightly weathered, grey indistinctly bedded SILTSTONE; extremely weak. (continued) 30.42m: Slightly weathered, grey, fine to coarse, SANDSTONE; weak. 31.1m: Slightly weathered, grey, indistinctly bedded SILTSTONE; extremely weak. Contains very thin carbonaceous beds. 31.85m: Slightly weathered, dark grey, coarse, massive VOLCANICLASTIC SANDSTONE; weak.										30.6 to 30.8m: J, 60°, Ud, Sm 30.68 to 30.71m: J, 25°, Ud, Sm	
			HQ3			31		100 [93]		31.57 to 31.67m: J, 60°, Ud, Sm 31.7 to 31.74m: J, 30°, Ud, Sm	
			HQ3			32		100 [37]		31.96 to 32.9m: J, 90°, Ud, Sm, Cl, Curved, 60 degrees at ends, 90 degrees down middle, fracture zone on one side of joint.	
						33				32.88 to 33m: J, 85°, Ud, Sm	
						34				DH332 terminated at 33m Depth Criteria Achieved	
						35					
						36					
						37					
						38					
						39					

For explanation of symbols and observations, see key sheet

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

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

Date logged 8/02/2023

Logged SK
 Checked GP

Driller McMillan
 Started 7/02/2023
 Finished 8/02/2023

Drill Rig N119
 Core Boxes 11

Remarks

Hole back filled with grout. 50mm PVC grouted in hole for downhole seismic testing.
 Shear vane readings are downhole in top 1.5m. Below 1.5m shear vanes were performed in the end of the barrel.

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

Hand Held Shear Vane
 DR1980: 19mm (A). Calibrated Jun 2022: Correction Factor: 1.876
 vane shear strength per NZGS guideline



Box: 1 of 11 - Depth: 00.00m to 04.50m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 2 of 11 - Depth: 04.50m to 07.40m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 3 of 11 - Depth: 07.40m to 10.20m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 4 of 11 - Depth: 10.20m to 12.90m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



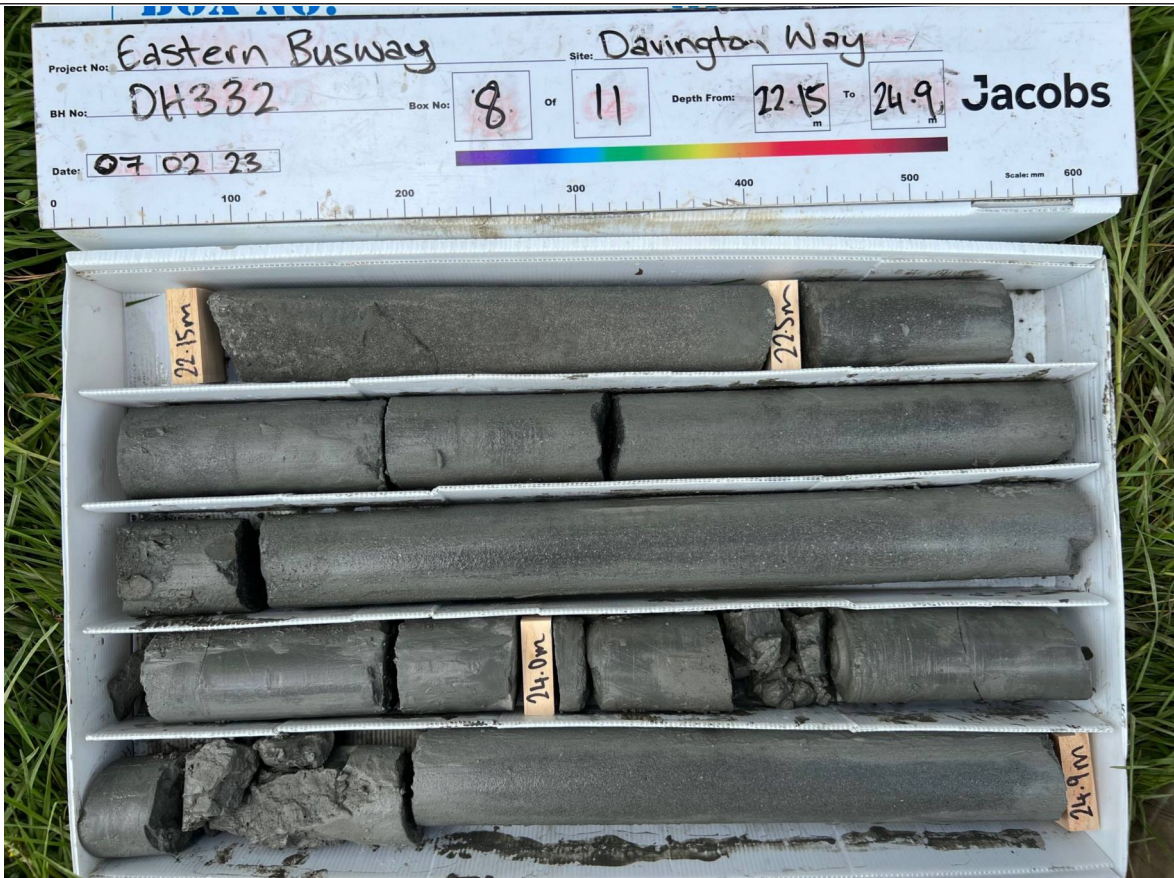
Box: 5 of 11 - Depth: 12.90m to 15.75m of 33.00m
Date Drilled 7/02/2023 to 8/02/2023



Box: 6 of 11 - Depth: 15.75m to 19.10m of 33.00m
Date Drilled 7/02/2023 to 8/02/2023



Box: 7 of 11 - Depth: 19.10m to 22.15m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 8 of 11 - Depth: 22.15m to 24.90m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 9 of 11 - Depth: 24.90m to 27.95m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 10 of 11 - Depth: 27.95m to 31.00m of 33.00m
 Date Drilled 7/02/2023 to 8/02/2023



Box: 11 of 11 - Depth: 31.00m to 33.00m of 33.00m
Date Drilled 7/02/2023 to 8/02/2023