

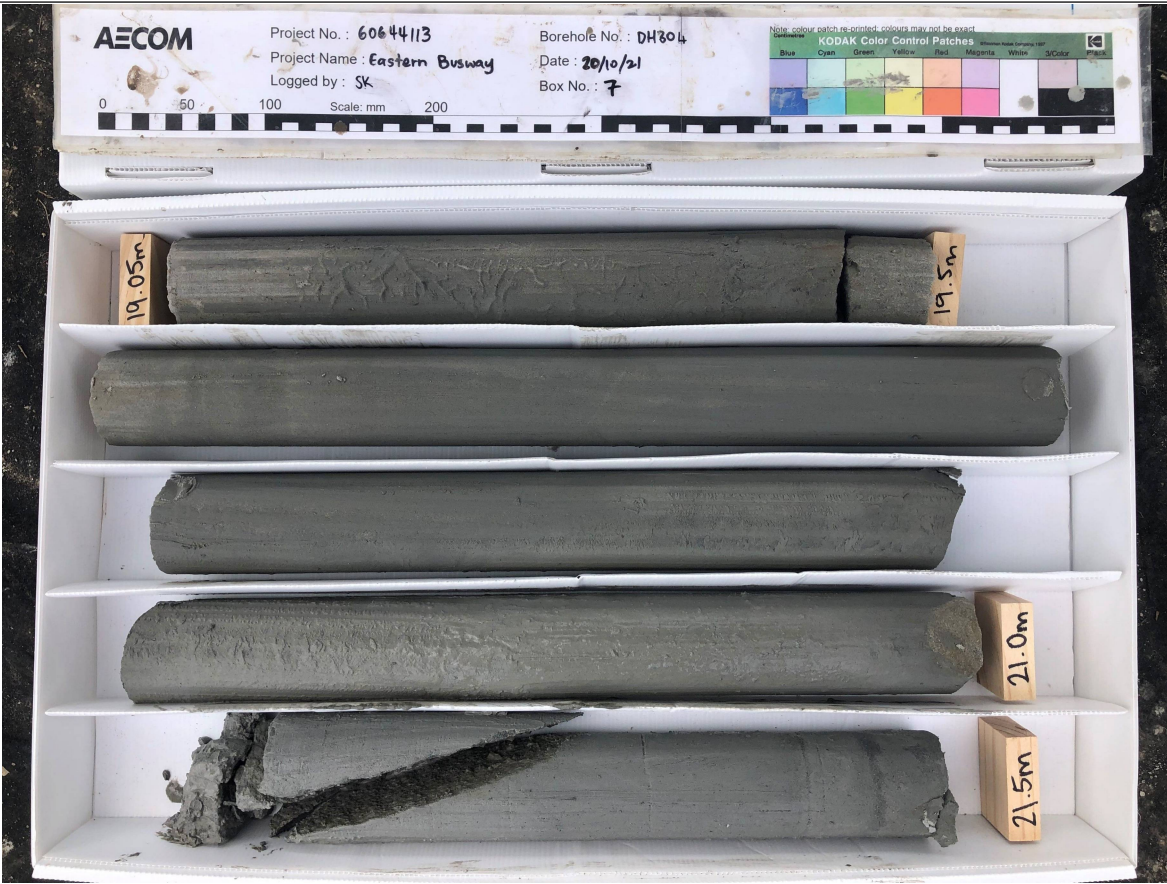
**Box: 5 of 8 - Depth: 13.35m to 16.50m of 24.00m**

Date Drilled 19/10/2021 to 20/10/2021 - Date Photographed: 19/10/2021



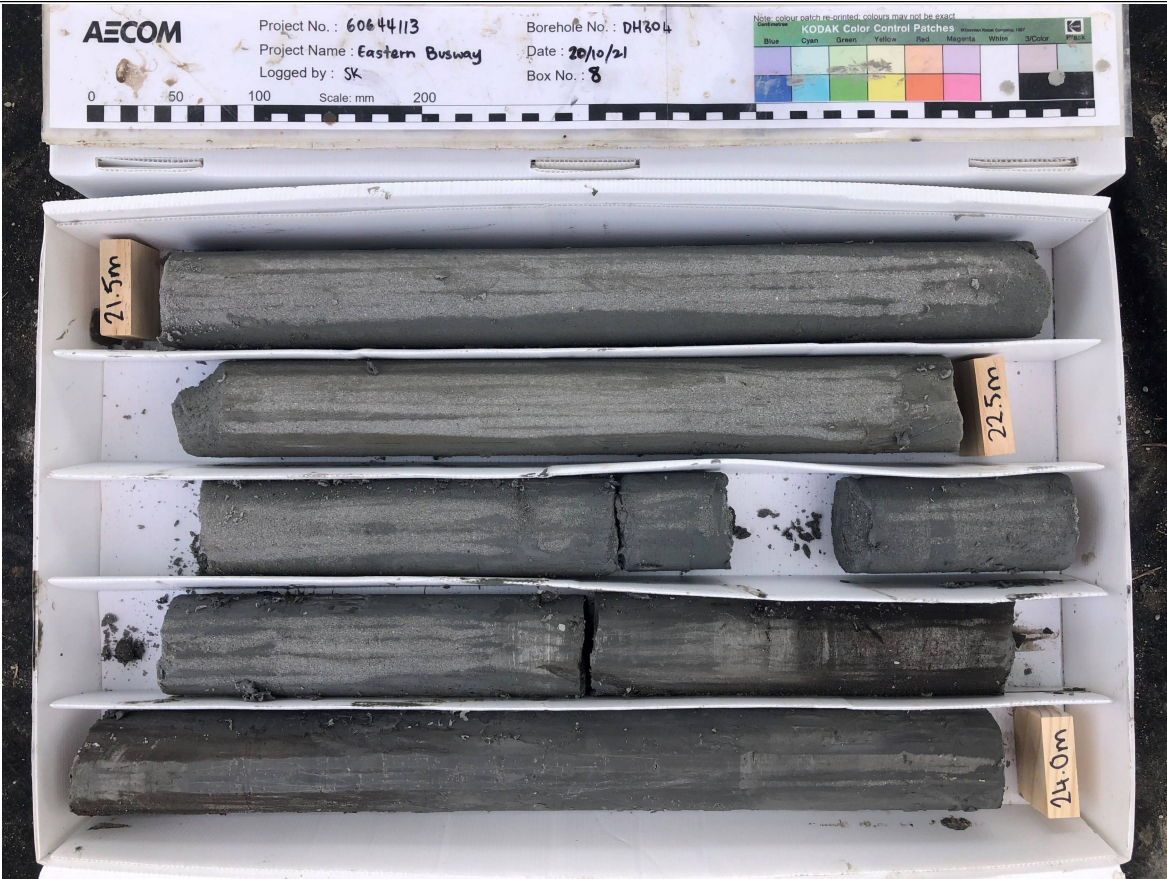
**Box: 6 of 8 - Depth: 16.50m to 19.05m of 24.00m**

Date Drilled 19/10/2021 to 20/10/2021 - Date Photographed: 20/10/2021



**Box: 7 of 8 - Depth: 19.05m to 21.50m of 24.00m**

Date Drilled 19/10/2021 to 20/10/2021 - Date Photographed: 20/10/2021



**Box: 8 of 8 - Depth: 21.50m to 24.00m of 24.00m**

Date Drilled 19/10/2021 to 20/10/2021 - Date Photographed: 20/10/2021

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411475.31mE 795009.92mN  
 Orientation -90° Elevation 8.74m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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	SW		HW
FILL	0.0m: FILL comprising silty gravel, cobbles and boulders.			VAC EX							0		0.0m: Vacuum excavation 0.0 to 0.15m: Concrete (car park). 0.15 to 1.0m: Silty fine to coarse GRAVEL with some cobbles and boulders. Densely packed, moist. Gravel, cobbles and boulders are subangular basalt.			
	AUCKLAND VOLCANIC FIELD			HQ3							100		1.0 to 4.4m: No flush return in basalt 1.25m: J, 45°, Ud, Ro, NF 1.66m: J, 45°, Ud, Ro, Sn, orange 2.14 to 2.29m: J, 65°, Ud, Ro, NF 2.4 to 2.54m: Returned as gravel. 2.42m: J, 45°, Ud, Ro, NF 2.73 to 2.81m: J, 60°, Ud, Ro, NF 2.8m: 114mm diameter HWT casing to 2.8m. 3.49 to 3.59m: J, 60°, Ud, Ro, Cg, orange/white coating 3.9 to 4.4m: J, 85°, Ud, Ro, Sn, orange			
TAURANGA GROUP	1.0m: Slightly weathered, dark grey speckled light grey, stained brown on joint surfaces and occasional vesicles, BASALT. Strong. Highly vesicular (<20%), vesicles typically 2 to 10mm. 1.5 to 2.3m: Vesicular (<10%), vesicles 2-40mm. 2.3 to 2.4m: Slightly vesicular (<5%), vesicles 1-10mm. 2.4 to 2.8m: Vesicular (<10%), vesicles 1-2mm. 2.8 to 4.2m: Rare vesicles (<1%), vesicles 1-2mm.			HQ3							100		4.4m: Organic CLAY; black. Firm, moist, high plasticity.			
	4.2 to 4.4m: Slightly vesicular (<5%), vesicles 1-2mm.			SPT							100		5.0m: Silty CLAY; light grey with some orange staining. Firm, moist, high plasticity.			
	4.4m: ALLUVIUM comprising clay, silt and peat.	48/18		PT							100		5.75 to 6.0m: Bluish grey in push tube with trace organics. Trace organics don't persist. 6.25 to 7.5m: Light bluish grey. 6.5 to 7.5m: Stiff, mottled green.			
		SS 0,0,0, 1,1,1 N=3		SPT								100		7.45 to 7.5m: With some fine sand. 7.5m: Fine sandy CLAY; bluish grey. Firm, moist high plasticity. 7.95 to 8.05m: Core Loss:		
		SS 1,2,2, 3,2,2 N=9		HQ3								100		8.25 to 8.9m: Dark grey, mottled brownish grey. Trace organics.		
		SS 0,0,1, 1,1,1 N=4		SPT								100		8.9m: Silty CLAY with minor fine sand; bluish grey. Firm, moist, high plasticity.		
				HQ3								100				
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH				WEATHERING				Date logged 15/06/2022		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 13/06/2022		
Date Time Drilled Depth Casing Depth Fluid Depth												Checked GP		Finished 15/06/2022		
13/06/2022 16:35 13.50 2.8 3.3																
14/06/2022 08:00 13.50 2.8 3.97																
Hand Held Shear Vane				Remarks										Drill Rig N119		
DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595				50 mm standpipe piezometer installed upon completion of drilling. Piezometer developed by air lift.										Core Boxes 10		
vane shear strength per NZGS guideline				Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016										Page 1 of 8		

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411475.31mE 795009.92mN  
 Orientation -90° Elevation 8.74m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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	
TAURANGA GROUP  12.4m: CW, grey, SILTSTONE. EW. 12.6m: MW, grey, fine to coarse SANDSTONE with some shells. Very weak. 12.95m: Highly weathered, grey, SILTSTONE. Extremely weak. 13.95m: Slightly weathered, grey, SILTSTONE. Extremely weak.  EAST COAST BAYS FORMATION  16.8m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak.	85/8		HQ3						100		10.35m: Plastic PEAT; black. Firm, moist, high plasticity. 10.45m: Silty CLAY with minor fine sand and trace organics; bluish grey. Stiff, moist, high plasticity.  12.4m: Silty CLAY; grey. Stiff, moist, high plasticity. 12.6 to 12.65m: With thin dark grey laminations. 12.95m: Silty CLAY, grey. Very stiff, moist, high plasticity.	
			PT						100			
	ss 0.1,2,2,2 N=8		SPT						100			
			HQ3						100			
	56/6 ss 1,2,2,3,4,7 N=16		SPT						100			
			HQ3						100			
	35/3 ss 3,3,4,5,7,9 N=25		SPT						100			
			HQ3						93			
			HQ3						100			
	9,18,32,18 for 45mm N>50		SPT						100			
		HQ3						33				
		HQ3						0				
17,33 for 55mm N>50		SPT						0				
		HQ3						100				
		HQ3						0				
		HQ3						100				
		HQ3						0				
		HQ3						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 15/06/2022

Logged SK

Checked GP

Driller McMillan  
 Started 13/06/2022  
 Finished 15/06/2022

Drill Rig N119  
 Core Boxes 10

Remarks  
 50 mm standpipe piezometer installed upon completion of drilling. Piezometer developed by air lift.

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 411475.31mE 795009.92mN  
 Orientation -90° Elevation 8.74m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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 W VW</small>	Rock Weathering <small>SW MW HW</small>	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Defects (mm) <small>0 50 100 150 200</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>	
EAST COAST BAYS FORMATION 16.8m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak. (continued)			HQ3				21		100			
			HQ3				22		100			
			HQ3				23		100			
			HQ3				24		100			
	24.45m: Slightly weathered, grey, SILTSTONE. Very weak.		HQ3				25		100			
25.55m: Slightly weathered, grey, fine to coarse SANDSTONE. Very weak.	sc 19,31 for 35mm N>50		SPT				26		0			
26.1m: Slightly weathered, grey, SILTSTONE. Very weak.			HQ3				27		100			
27.0m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak.			HQ3				28		100		27.0 to 27.1m: Dicing of drill core. 27.1 to 27.7m: Weakly cemented and extremely weak.	
			HQ3				29		100			
DH305_P terminated at 30.0m Depth Criteria Achieved												
For explanation of symbols and observations, see key sheet					RELATIVE STRENGTH		WEATHERING		Date logged 15/06/2022		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 13/06/2022	
					Remarks				Checked GP		Finished 15/06/2022	
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline					50 mm standpipe piezometer installed upon completion of drilling. Piezometer developed by air lift.						Drill Rig N119	
					Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Core Boxes 10	
											Page 3 of 8	

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22



**Box: 1 of 10 - Depth: 01.00m to 03.60m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 13/06/2022



**Box: 2 of 10 - Depth: 03.60m to 06.50m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 13/06/2022



**Box: 3 of 10 - Depth: 06.50m to 09.45m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 13/06/2022



**Box: 4 of 10 - Depth: 09.45m to 12.70m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 13/06/2022



**Box: 5 of 10 - Depth: 12.70m to 15.27m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022



**Box: 6 of 10 - Depth: 15.27m to 19.25m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022





**Box: 7 of 10 - Depth: 19.25m to 22.20m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022



**Box: 8 of 10 - Depth: 22.20m to 25.00m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022



**Box: 9 of 10 - Depth: 25.00m to 27.80m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022



**Box: 10 of 10 - Depth: 27.80m to 30.00m of 30.00m**  
 Date Drilled 13/06/2022 to 15/06/2022 - Date Photographed: 14/06/2022

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411477.08mE 795012.75mN  
 Orientation -90° Elevation 8.82m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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 V	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	
			0 - 50									DEFECT DESCRIPTION	
												(Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	
FILL	0.0m: FILL.			VAC EX						0		0.0m: Vacuum excavation not witnessed.	
AUCKLAND VOLCANIC FIELD	0.75m: Slightly weathered, grey speckled light grey, BASALT. Moderately strong. Highly vesicular, up to 60mm. Iron staining in some vesicles. 1.2 to 4.3m: Strong. Moderately vesicular, vesicles up to 30mm. 1.5 to 4.1m: Slightly vesicular, vesicles up to 7mm.			HQ3				1		100 [100]		0.85m: DB, 0° 0.99m: J, 45°, Ud, Ro, Sn, Fe 1.03 to 1.16m: J, 60°, Ud, Ro, Sn, Fe	
				HQ3				2		100 [100]		1.98m: J, 45°, Ud, Ro, N, P, Fe & Cl	
				HQ3				3				2.45m: J, 30°, Ud, Ro, MW, P, Slt & Fe, Subangular fine gravel. 2.76 to 2.81m: J, 60°, Ud, Ro, Sn, Fe, Moderately vesicular along joint surface.	
				HQ3				4		100 [87]		3.83m: J, 0°, Ud, Ro, Sn, Fe 3.9 to 4.06m: J, 90°, Ud, Ro, Sn, Fe 3.95 to 4.11m: J, 70°, Ud, Ro, Sn, Fe 4.25m: J, 0°, Ud, Ro, Sn, Fe	
TG	4.1 to 4.3m: Moderately vesicular, vesicles up to 50mm. 4.3m: ALLUVIUM comprising organic clay.							5				4.3m: Organic CLAY with some silt and fine basalt gravel; black mottled orange. Very stiff, moist, moderate plasticity. 4.35m: Fine gravel ceases.	
								6					
								7					
								8					
								9					
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH		WEATHERING		Date logged 22/06/2022		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 IR		Started 22/06/2022			
Date Time Drilled Depth Casing Depth Fluid Depth				Remarks				Checked GP		Finished 22/06/2022			
Hand Held Shear Vane				Drilling through basalt to form starter hole; investigation continued with cone penetration test. Hole backfilled upon completion of CPT. No groundwater encountered.						Drill Rig N119			
vane shear strength per NZGS guideline				Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						Core Boxes 2			
										Page 1 of 2			

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 04/08/22



**Box: 1 of 2 - Depth: 00.75m to 03.00m of 4.50m**

Date Drilled 22/06/2022 to 22/06/2022 - Date Photographed: 22/06/2022



**Box: 2 of 2 - Depth: 03.00m to 04.50m of 4.50m**

Date Drilled 22/06/2022 to 22/06/2022 - Date Photographed: 22/06/2022

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411477.65mE 795014.01mN  
 Orientation -90° Elevation 8.85m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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 V	SW MW HW EW	
FILL	0.0m: FILL.		0-50	VAC EX							0		0.0m: Vacuum excavation not witnessed.		
AUCKLAND VOLCANIC FIELD	0.6m: Slightly weathered, grey speckled light grey, BASALT. Moderately strong. Highly vesicular, vesicles typically 2 to 25mm, up to 50mm. Iron staining in some vesicles. 1.3 to 1.83m: Strong. Moderately vesicular, vesicles up to 20mm. 1.83 to 4.35m: Becomes slightly vesicular, vesicles up to 10mm.  2.87 to 2.27m: 40mm long vesicle.			HQ3							100 [93]		1.02m: J, 20°, Ud, Ro, Sn, Fe 1.06m: J, 0°, Ud, Ro, Sn, Fe 1.1 to 1.83m: J, 90°, Ud, Ro, Sn, Fe, (1.1-1.34m: 70 deg; 1.34-1.72m: Cg Silt)  1.73 to 1.83m: J, 90°, Ud, Ro, Sn, Fe  2.4m: J, 0°, Ud, Ro, Sn, Fe  3.45m: J, 20°, Ud, Ro, Sn, Fe 3.57 to 4m: J, 70°, Ud, Ro, Sn, Fe, Rootlets in joint.		
TC	4.35m: ALLUVIUM comprising organic clay.			HQ3							100 [100]		4.35m: Organic CLAY with some silt and fine basalt gravel; black mottled orange. Very stiff, moist, moderate plasticity. 4.45m: Fine gravel ceases.		
													DH-sCPT305 terminated at 4.5m Depth Criteria Achieved		
For explanation of symbols and observations, see key sheet				RELATIVE STRENGTH				WEATHERING				Date logged 22/06/2022		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 IR		Started 22/06/2022	
Date Time Drilled Depth Casing Depth Fluid Depth				Remarks								Checked GP		Finished 22/06/2022	
Hand Held Shear Vane				Drilling through basalt to form starter hole; investigation continued with seismic cone penetration test. Hole backfilled upon completion of sCPT. No groundwater encountered.										Drill Rig N119	
vane shear strength per NZGS guideline				Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016										Core Boxes 2	
												Page 1 of 2			

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 04/08/22



**Box: 1 of 2 - Depth: 00.60m to 02.90m of 4.50m**

Date Drilled 22/06/2022 to 22/06/2022 - Date Photographed: 22/06/2022



**Box: 2 of 2 - Depth: 02.90m to 04.50m of 4.50m**

Date Drilled 22/06/2022 to 22/06/2022 - Date Photographed: 22/06/2022

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411487.71mE 795041.15mN  
 Orientation -90° Elevation 8.71m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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 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
	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 gravel, cobbles and clay.			VAC EX				0		0		0.0m: Vacuum excavation 0.0 to 0.15m: Concrete (car park). 0.15 to 1.5m: Silty fine to coarse GRAVEL with minor cobbles. Densely packed, moist. Gravel and cobbles are subangular basalt	
	ss 1,3,1, 1,2,3 N=7		SPT				100		100		1.5m: Silty CLAY with some fine sand and minor gravel; mottled grey, orange and brown. Stiff, moist, high plasticity. Gravel is fine to coarse, subangular basalt.	
	UTP ss 1,1,1, 1,2,3 N=7		HQ3				100		100			
TAURANGA GROUP 3.1m: ALLUVIUM comprising clay, silt and peat.			SPT				100		100		3.1m: Silty CLAY; bluish grey. Stiff, moist, high plasticity. 3.45 to 3.9m: Firm with some gravel.	3.08
			HQ3				100		100		3.9 to 6.25m: Light brownish grey.	3.65
	62/27 ss 0,0,1, 1,1,0 N=3		SPT				100		100		5.0 to 5.4m: Some orange flecks.	
			HQ3				100		100			
	38/10		PT				100		100		5.9 to 8.1m: Firm.	
	ss 0,1,0, 1,0,1 N=2		SPT				100		100		6.25 to 8.1m: Bluish grey. 6.25 to 6.85m: Bluish grey in push tube with trace of orange mottling.	
			HQ3				100		100			
	30/5		PT				100		100			
	ss 0,0,0, 0,0,1 N=1		SPT				100		100		8.1m: Fine to medium sandy CLAY with minor organics; dark grey. Soft, moist, high plasticity.	
		HQ3				100		100		8.65m: Silty CLAY; bluish grey. Soft, moist, high plasticity.		
16/6 ss 0,0,0, 0,0,0 N=0 SUOW		SPT				100		100		9.15 to 10.45m: With some fine sand lenses.	4.4	
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 16/06/2022		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		15/06/2022			
15/06/2022 16:00 15.00 11.8 3.08			MS - Moderately strong		MW - Moderately weathered				Finished			
16/06/2022 07:45 15.00 11.8 4.4			W - Weak		HW - Highly weathered				16/06/2022			
16/06/2022 12:15 25.50 11.8 3.65			VW - Very weak		CW - Completely weathered				Drill Rig N119			
			EW - Extremely weak						Core Boxes 9			
Hand Held Shear Vane			Remarks						Page 1 of 8			
DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595			Hole backfilled with grout upon completion.									
vane shear strength per NZGS guideline			Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016									

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411487.71mE 795041.15mN  
 Orientation -90° Elevation 8.71m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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>	
TAURANGA GROUP	46/11 SS 0,0,1, 0,0,0 N=1	0-50	HQ3						100		8.65m: Silty CLAY; bluish grey. Soft, moist, high plasticity. (continued)	
			SPT						100		10.65m: Spongy PEAT; black. Firm, moist, high plasticity.	
			HQ3						100		10.95m: Silty CLAY; bluish grey. Very stiff, moist, high plasticity.	
			114 HWT								11.8m: 114mm diameter HWT casing to 11.8m.	
			SPT							100		
EAST COAST BAYS FORMATION	12.45m: Highly weathered, grey, fine to coarse SANDSTONE. Extremely weak.	6,12,15,26.9 for 25mm N>50	HQ3						100		12.45m: Silty fine to coarse SAND; grey. Very dense, moist, well graded.	
			SPT						100		13.85 to 14.33m: Slightly weathered.	
	14.33m: Slightly weathered, grey, SILTSTONE. Very weak.			HQ3					100			
	14.95m: Slightly weathered, grey, fine to coarse SANDSTONE. Extremely weak.	sc 16,34 for 50mm N>50	SPT						0		14.95m: Silty fine to coarse SAND; grey. Very dense, moist, well graded.	
				HQ3					100			
	16.5m: Slightly weathered, grey, massive, fine to medium SANDSTONE. Very weak.	sc 13,37 for 35mm N>50	SPT						0		16.5 to 18.0m: 7 no. subhorizontal drilling breaks (planes of weakness).	
				HQ3					100			
											18.0 to 19.5m: 9 no. subhorizontal drilling breaks (planes of weakness).	
				HQ3					100			
											19.5 to 21.0m: 16 no. subhorizontal drilling breaks (planes of weakness).	
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 16/06/2022		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 15/06/2022			
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.		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016				Finished 16/06/2022			
									Drill Rig N119 Core Boxes 9			
									Page 2 of 8			

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 07/08/22



Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411487.71mE 795041.15mN  
 Orientation -90° Elevation 8.71m  
 Location 262 Ti Rakau Drive - China Town  
 Feature Bridge Pier

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>	
EAST COAST BAYS FORMATION 20.25m: Slightly weathered, grey, SILTSTONE. Very weak. 21.0m: Slightly weathered, grey, fine to medium SANDSTONE. Very weak. 22.0m: Slightly weathered, grey, SILTSTONE. Very weak. 22.4m: Slightly weathered, grey, fine to coarse SANDSTONE. Extremely weak.			HQ3				21		100		21.0 to 22.4m: 5 no. subhorizontal drilling breaks (planes of weakness).	
			HQ3				22		100			
			HQ3				23		100		22.4m: Silty fine to coarse SAND; grey. Very dense, moist, well graded. 22.4 to 22.5m: Core recovered broken.	
			HQ3				24		87		24.1 to 25.5m: Very weakly cemented.	
							25				DH306 terminated at 25.5m Depth Criteria Achieved	
							26					
							27					
							28					
							29					

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 16/06/2022  
 Logged SK  
 Checked GP

Driller McMillan  
 Started 15/06/2022  
 Finished 16/06/2022  
 Drill Rig N119  
 Core Boxes 9

Remarks  
 Hole backfilled with grout upon 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



**Box: 1 of 9 - Depth: 01.50m to 04.40m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022



**Box: 2 of 9 - Depth: 04.40m to 07.50m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022



**Box: 3 of 9 - Depth: 07.50m to 10.60m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022



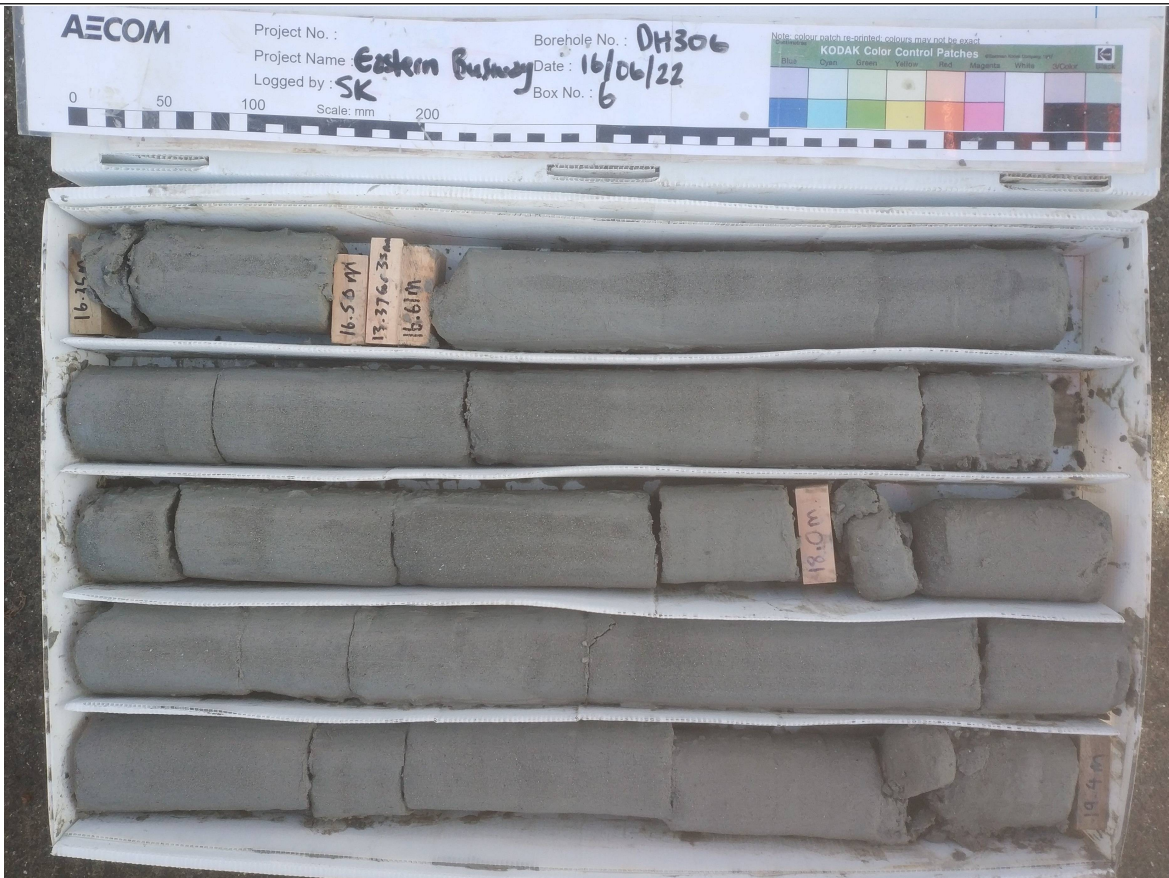
**Box: 4 of 9 - Depth: 10.60m to 13.40m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 15/06/2022



**Box: 5 of 9 - Depth: 13.40m to 16.35m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022



**Box: 6 of 9 - Depth: 16.35m to 19.40m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022



**Box: 7 of 9 - Depth: 19.40m to 21.95m of 25.50m**  
 Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022



**Box: 8 of 9 - Depth: 21.95m to 25.00m of 25.50m**  
 Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022



**Box: 9 of 9 - Depth: 25.00m to 25.50m of 25.50m**

Date Drilled 15/06/2022 to 16/06/2022 - Date Photographed: 16/06/2022

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411494.80mE 795054.36mN  
 Orientation -90° Elevation 8.86m  
 Location 262 Ti Rakau Drive - Chinatown  
 Feature Bridge Abutment/Pier

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 MS W VW</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
	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: FILL comprising silty gravel, cobbles and clay.			VAC EX				0		0		0.0m: Vacuum excavation. 0.0 to 0.15m: Concrete (car park). 0.15 to 1.4m: Silty fine to coarse GRAVEL with minor cobbles. Densely packed, moist. Gravel and cobbles are subangular basalt.	
		0.0, 0.1, 0.2, 2 N=5	SPT				1		51		1.4m: Silty CLAY with minor fine sand lenses, trace fine to medium gravel and indistinct organics; bluish grey mottled brown and black. Stiff, moist, high plasticity. Gravel is subangular basalt. 2.1 to 2.95m: Very stiff.	
3.1m: ALLUVIUM comprising clay, silt, sand and peat.		225/*	HQ3	114			2		95		2.7m: 114mm diameter HWT casing to 2.7m. 3.0m: Complete water loss. 2.95 to 3.1m: Hard.	
		1.1, 1.1, 2.2, 2 N=7	SPT				3		89		3.1m: Silty CLAY with trace indistinct organics; bluish grey mottled brown and speckled black. Very stiff, moist, high plasticity. 3.5 to 3.6m: Soft. 3.6 to 4.08m: Light grey mottled brown.	
		28/11	HQ3				4		100		4.08 to 4.22m: Fine SAND with some fine to medium, brown subangular basalt gravel.	
		1.1, 1.1, 1.2, 2 N=6	SPT				5		100		4.5m: Becomes firm.	
		49/11	HQ3				6		100			
		0.0, 0.1, 1.1, 1.1 N=4	PT				7		80			
		30/8	SPT				8		100		7.5 to 7.95m: Brownish grey. 7.7m: Mottling ceases.	
		0.0, 0.0, 0.0, 0.0 N=0 SUOW	HQ3				9		100		7.95m: Silty CLAY with lenses of fine sand; bluish grey. Stiff, moist, high plasticity.	
		66/11	PT						100			
	0.0, 0.0, 0.0, 0.0 N=0 SUOW	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
27/06/2022 08:11	22.50	2.7	6.23

RELATIVE STRENGTH <small>VS - Very strong S - Strong MS - Moderately strong W - Weak VW - Very weak EW - Extremely weak</small>	WEATHERING <small>UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered</small>	Date logged 23/06/2022 Logged IR Checked GP	Driller McMillan Started 23/06/2022 Finished 23/06/2022 Drill Rig N119 Core Boxes 7
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 blade: Calibrated Jun 2022: Correction Factor: 1.876 vane shear strength per NZGS guideline			
		Page 1 of 7	

Client Auckland Transport  
 Project Eastern Busway  
 Project number 60644113

Co-ordinates 411494.80mE 795054.36mN  
 Orientation -90° Elevation 8.86m  
 Location 262 Ti Rakau Drive - Chinatown  
 Feature Bridge Abutment/Pier

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 MS 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	56/15 SS 0,0,0 0,0,0 N=0 SUOW		HQ3						100		9.95m: Sand lenses cease. 7.95m: Silty CLAY with lenses of fine sand; bluish grey. Stiff, moist, high plasticity. (continued)	
			SPT						100		10.9m: Fibrous PEAT; dark brownish black. Very stiff, moist. 11.1m: Organic CLAY with trace wood fragments; brown to bluish grey. Very stiff, moist, high plasticity. 11.34m: Silty CLAY with trace fine sand; bluish grey. Stiff, moist, high plasticity.	
EAST COAST BAYS FORMATION	0,1,1,1,1,2 N=5		SPT						100		12.45 to 12.8m: Core Loss: Assume completely weathered boundary washed out.	
			HQ3						67 [67]			
	6,8,15,19,16 for 45mm N>50		SPT						100			
			HQ3						89 [89]			
	7,30,50 for 50mm N>50		SPT						100		14.88 to 15.0m: Core Loss: Stuck down hole, unable to retrieve.	
			HQ3						100 [100]			
	10,40 for 70mm N>50		SPT						100			
			HQ3						100 [100]		16.73m: HJ, 60° 16.85 to 16.95m: Trace carbonaceous material. 17.0m: BP, 40° 17.06m: BP, 40°, DB 17.3 to 17.55m: Siltstone bed.	
17.8m: Slightly weathered, grey, massive, fine to coarse SANDSTONE. Very weak.											18.14m: DB, 0° 18.37m: DB, 0°	
18.5m: Slightly weathered, grey, fine to coarse SANDSTONE. Very weak.											19.2 to 19.5m: DB, 0°, 4 No. 19.24 to 19.28m: Fine sandstone bed.	
19.2m: Slightly weathered, grey, SILTSTONE. Very weak.												
For explanation of symbols and observations, see key sheet			RELATIVE STRENGTH		WEATHERING		Date logged 23/06/2022		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 IR Checked GP		Started 23/06/2022			
Hand Held Shear Vane DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876 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 23/06/2022		Drill Rig N119			
							Core Boxes 7		Page 2 of 7			

2021 EB DRILLHOLE LOG 2022-08-04 MASTER.GPJ BASE.GDT 04/08/22