

HOLE IDENTIFICATION

**DH307** 

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

DES Weat	DLOGICAL SCRIPTION nering, Colour, Fabric, ROCK NAME. gth, Discontinuities, Lithological Features ing, foliation, mineralogy, cement, etc).	Test Records  Shear SPT Vane/ N Values SPT 0-50	Drilling Method Casing remarks	0 - 100%	Relative W Strength	SW HW LW	Depth	Graphic Log	[RQD] (%)	500) Spacing of Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major fract fraction description, minor fraction description, ad information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear ar Schistosity, Attitude, Spacing, continuity, r	tion description, subordinate ditional structures, additional structures, additional nd Crush Zones, Foliation,	Instrumentation
	0.0m: Slightly weathered, rey, fine to coarse SANDSTONE. Very weak.		HQ3	                     			- - - - - - - - - 21		100 [100]		20.0m: DB, 0°  20.9m: DB, 0°  21.0 to 22.5m: Recovered as silty fine to Flush very silty with core stuck to the sp		
EAST COAST B,			HQ3	                     			- - - - - - - 22		100 [100]				
				                     			- - - - - - - - - - - - - - - - - - -			                     	DH307 terminated at 22.5m Depth Criteria Achieved		
					                         		- - - 24 - - - - - - - - - - - - - - - -			                     			
				                     			- - - - - - - - 26						
				                     	             		- - - - - - - 27 - - -						
				                     	                         		- 28 						
				                     	Ш		- 29      						
FLU	For explanation of symbols and observations, see key sheet FLUID DEPTHS AND DRILLING PROGRESS (m) Date Time Drilled Depth Casing Depth Fluid Depth						RENGTh ng ly strong k / weak	UW - I SW - I MW - I HW - I	WEATHE  Journal of the second	red eathered y weathere athered	Chacked GP	Driller McMillan Started 23/06/2022 Finished	
Har	nd Held Shear Vane		Remarks Hole backfilled with grout upon completion.  Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016						s: NZGD2000 - Mount Eden	23/06/2022  Drill Rig  N119	7		
DR19	980: 19mm blade: Calibrated Jun 20										7		

Project Eastern Busway

262 Ti Rakau Drive - Chinatown

HOLE IDENTIFICATION **DH307** 



Box: 1 of 7 - Depth: 01.50m to 04.50m of 22.50m

Date Drilled 23/06/2022 to 23/06/2022 - Date Photographed: 23/06/2022

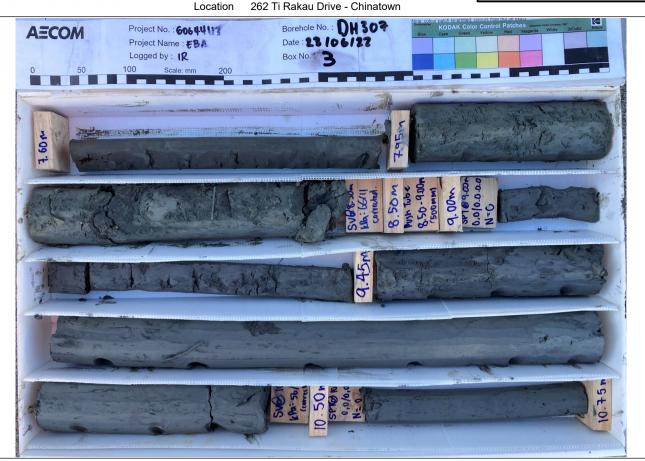


Box: 2 of 7 - Depth: 04.50m to 07.60m of 22.50m

Project Eastern Busway

262 Ti Rakau Drive - Chinatown

HOLE IDENTIFICATION **DH307** 



Box: 3 of 7 - Depth: 07.60m to 10.75m of 22.50m

Date Drilled 23/06/2022 to 23/06/2022 - Date Photographed: 23/06/2022



Box: 4 of 7 - Depth: 10.75m to 13.85m of 22.50m

Project Eastern Busway

262 Ti Rakau Drive - Chinatown

HOLE IDENTIFICATION **DH307** 



Box: 5 of 7 - Depth: 13.85m to 16.80m of 22.50m

Date Drilled 23/06/2022 to 23/06/2022 - Date Photographed: 23/06/2022



Box: 6 of 7 - Depth: 16.80m to 19.50m of 22.50m

Project Eastern Busway

262 Ti Rakau Drive - Chinatown

HOLE IDENTIFICATION **DH307** 



Box: 7 of 7 - Depth: 19.50m to 22.50m of 22.50m



HOLE IDENTIFICATION

**DH308** 

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 411510.79mE 795065.64mN

Orientation -90° Elevation 8.88m

Location 262 Ti Rakau Drive - China Town

DI w si	EOLOGICAL ESCRIPTION Feathering, Colour, Fabric, ROCK NAME. Tength, Discontinuities, Lithological Features edding, foliation, mineralogy, cement, etc).	Vane/ N Values O			Rock HW Weathering	Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Natural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ad information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, i	tion description, subordin Iditional structures, additi additional structures, additi	ate onal land
FILL	0.0m: FILL comprising silty gravel, cobbles and boulders.		VAC EX			- - - - -		0	           	O.0m: Vacuum excavation O.0 to 0.15m: Concrete (car park). O.15 to 0.75m: Silty fine to coarse GRA cobbles and boulders. Densely packed, cobbles and boulders are subangular b	, moist. Gravel,	
AUCKLAND VOLCANIC FIELD	0.75m: SW, dark grey, BASALT. Moderately strong. Highly vesicular (<20%), vesicles typically 5-10mm and up to 60mm. Some iron staining in vesicles.  1.7m: Slightly weathered, vesicular, dark grey, BASALT. Strong. Slightly vesicular (<2%). Vesicles up to 5mm.		HQ3			2		100 [100]		1.5 to 2.22m: J, 80°, Ud, Ro, Sn, Fe  1.95m: 114mm diameter HWT casing 2.1 to 2.16m: J, 45°, Ud, Ro, Sn, Fe 2.14 to 2.2m: J, 45°, Ud, Ro, Sn, Fe 2.14 to 2.17m: DB, 60°, Ud, Ro, Sn, Fe 2.16 to 2.46m: J, 85°, Ud, Ro, Sn, Fe 2.46 to 2.49m: J, 20°, Ud, Ro, MN, F 2.46 to 2.78m: J, 70°, Ud, Ro, Sn, Fe	Fe e P, Cl, Stn, Fe.	2.56
AUCKLAN	4.45 to 4.75m: Slightly vesicular (<5%).  4.75m: ALLUVIUM		HQ3			4				4.23 to 4.35m: J, 60°, Ud, Ro, Sn, F, 4.24 to 4.36m: J, 60°, Ud, Ro, Sn, F, 4.5 to 4.58m: J, 60°, Ud, Ro, Sn, Fe 4.58 to 4.66m: J, 55°, Ud, Ro, VN, S	in, Fe s; brown	4.59 <u>V</u>
	comprising clay, silt, peat and sand.	UTP	HQ3			- 5      6		100 [18]		mottled orange. Very stiff, moist, high		5.5 <sup>5.4</sup>
TAURANGA GROUP		188/35	HQ3			8		100		7.3m: CLAY; bluish grey with some of mottling. Stiff, moist, high plasticity.  8.1 to 8.15m: Clayey fine SAND.  8.15m: Silty CLAY with some fine sa Firm, moist, high plasticity.		
		ss 0,0,1, 1,0,0 N=2	PT		!!!	- - - - - -		100		9.5 to 9.8m: Micaceous fine sandy SILT	lenses.	
Fl Da 17/ 20/ 20/ 21/	or explanation of symbols and obs LUID DEPTHS AND DRILLIN ate Time Drilled Depth 106/2022 16:30 07.95 106/2022 07:00 07.95 106/2022 15:45 27.00 106/2022 07:00 27.00	S (m)	VS- S- MS- W- VW- EW- Rei Flu	1980:	y strong weak mm si	tandpip	e piez	red eathered y weathere athered y weathere y weathere	Chackad GP	Driller McMillan Started 17/06/2022 Finished 20/06/2022 Drill Rig N119		
DI	land Held Shear Vane R2272: 19mm blade: Calibrated 02/22: ane shear strength per NZGS guid	1.595				rtical Su aland V			s: NZGD2000 - Mount Eden n 2016	Core Boxes Page 1 c	10 f 8	



HOLE IDENTIFICATION

**DH308** 

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 411510.79mE 795065.64mN

Orientation -90° Elevation 8.88m

Location 262 Ti Rakau Drive - China Town

DE Wea	COLOGICAL SCRIPTION athering, Colour, Fabric, ROCK NAME. ength, Discontinuities, Lithological Features dding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	S N V	ords SPT Values	Drilling Method Casing remarks	Core Loss/Lift	S Relative	1.		Depth	Graphic Log	TCR [RQD] (%)	Spacing of Natural Natural Defects	SOIL PROPERTIES  Subordinate MAJOR minor; colour, structure. Strength, moistu grading, bedding, plasticity, sensitivity, major fraction description, fraction description, minor fraction description, additional structinformation, etc  DEFECT DESCRIPTION  (Joints, Bedding Seams, Shatter, Shear and Crush Zor Schistosity, Attitude, Spacing, continuity, roughness, in	on, subordinate stures, additional	Instrumentation
JUP		38/11			HQ3	111			-   -   -   -	-	\$	100		8.15m: Silty CLAY with some fine sand; bluish Firm, moist, high plasticity. (continued)  10.5m: Water return in basalt. No return in alluvi		
IGA GROUP		ss 1,0,1, 1,2,3 N=7		         	SPT	           			ΙE	· 11	*** **********	100		moderately decomposed wood fragments.  11.0m: Organic CLAY; brown. Firm, moist, hig plasticity.	gh /	
TAURANGA		131/38	l i		HQ3	-                             			! E	· · 12		100		11.2m. CLAY with trace indistinct organics; lig bluish grey. Very stiff, moist, high plasticity.	ht	
		0,1,1, 1,2,1 N=5			SPT	           				. '-		100		12.4m: With some fine sand.		
	12.6m: HW, grey, fine to medium SANDSTONE. EW. 12.8m: MW, grey, fine to medium SANDSTONE. VW.	005/4			HQ3	                     				· 13		100		12.6m: Fine to medium SAND; grey.		
	13.35m: HW, grey, SILTSTONE. EW. 13.6m: MW, grey, fine	225/* ss 3,8,12, 15,16,7 for			SPT	           					× × × × × × × × × × × × × × × × × × ×	100		13.35m: Clayey SILT with trace fine siltstone or grey	gravel;	
	SANDSTONE. Very weak.  13.9m: Slightly weathered, grey, SILTSTONE. Very weak.	25mm N>50			HQ3					· 14	× × × × × × × × × × × × × × × × × × ×	100		13.9m: Gently inclined very thinly to moderate thinly bedded. 13.9 to 15m: DB, 5°, 6 No.	ely	
	14.53m: Slightly weathered, grey, fine SANDSTONE. Very weak.	ss 9,14,18, 20,12			SPT	           				- 15		100				
FORMAT	15.3m: Slightly weathered, grey, SILTSTONE. Very weak. Gently inclined, very to moderately thinly bedded.	for 50mm N>50	0mm		HQ3					· · 16	X X X X X X X X X X X X X X X X X X X	100 [100]		15.35 to 16.5m: DB, 0°, 3 No. 15.4 to 15.5m: Fine sandy SILTSTONE.		
B	16.1m: Slightly weathered, grey, thickly bedded, fine to medium SANDSTONE. Very weak.	sc 15,35 for	15,35		SPT							0		16.02m: BP, 5°, VN, C, SIt 16.15 to 16.35m: Very thin silt beds.		
EAST COA	18.2 to 18.93m: Extremely weak.	sc 16,34 for N>50			HQ3					· 17		100 [73] 75		17.4 to 17.55m: Recovered as silty fine to medium SAND.  18.2 to 18.93m: Recovered as fine SAND. 19.25 to 19.5m: DB, 5°, 4 No.	1	
For						                     							                     	19.2m: Very thin carbonaceous bed.		
Date	r explanation of symbols and observations, see key sheet UID DEPTHS AND DRILLING PROGRESS (m) te Time Drilled Depth Casing Depth Fluid Dep						VS - S - MS - W - VW - EW -	Very : Stron Mode Weak Very ! Extre	strong g erately ( weak mely v	strong	UW - SW - MW - HW -	lighly we	red eathered y weather	Chocked GP 47/0	1illan d 6/2022	
Ha DR:								Remarks Flush 50 mm standpipe piezometer installed on completion. DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876 used for hand shear vane measurments 9.0m and deeper							6/2022 tig 9	
DR	Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: Correction Factor = 1.595 vane shear strength per NZGS guideline						Horizontal / Vertical Survey Datums: NZG 2000 / New Zealand Vertical Datum 2016						Datum	s: NZGD2000 - Mount Eden Core E		10



HOLE IDENTIFICATION

**DH308** 

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 411510.79mE 795065.64mN

Orientation -90° Elevation 8.88m

Location 262 Ti Rakau Drive - China Town

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records  Shear SPT Vane/ N Values SPT 0-50	Core Loss/Lift	S Relative W Strength	>	Depth	Graphic Log	(%)	500 Spacing of Natural Netects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major fract fraction description, minor fraction description, ad information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear at Schistosity, Attitude, Spacing, continuity, r	tion description, subordinate Iditional structures, additional additional structures, additional trush Zones, Foliation,	Instrumentation		
16.1m: Slightly weathered, grey, thickly bedded, fine to medium SANDSTONE. Very weak. (continued)  20.68m: SW, grey, SILTSTONE. Very weak.  20.94m: Slightly weathered,					. 21		100 [90]	1111 1111 1111 1111 1111	21.0 to 22.5m: DB, 0°, 2 No. 21.05 to 21.15m: Recovered as subang	oular SILTSTONE			
grey, fine SANDSTONE. Very weak.	                     				· 22		100 [93]		gravel. 21.2m: SILTSTONE clast, 50mm long.	, 0.2.0.0.1.2			
22.3m: Slightly weathered, grey, SILTSTONE. Very weak.  22.67m: Slightly weathered, grey, thickly bedded, fine SANDSTONE. Very weak.		-			. 23	**************************************	100 [67]		22.3 to 22.4m: Thinly laminated. 22.5m: Subrounded SILTSTONE clast,				
EAST COAST B					· 24		100		23.5 to 25.5m: Subhorizontal, thinly to thinly bedded with thin laminations or mudstone. Drilling breaks infilled with	partings of			
		                     			25		[25]		25.5 to 27m: DB, 0°, 4 No.				
26.7 to 27.0m: Siltstone		                     		_	. 27	(	100 [100]		26.7 to 27.0m: Thinly laminated.  DH308 terminated at 27.0m				
		111	                         		28				Depth Criteria Achieved				
					29								
For explanation of symbols and obs FLUID DEPTHS AND DRILLIN Date Time Drilled Depth (		VS-\ S-S MS-M W-V	/ery strong Strong Moderately Veak /ery weak Extremely v	strong	UW - I SW - S MW - I HW - I	VEATHE Unweather Slightly we Moderately Highly wea Completel	red eathered y weather athered	Chacked GP	Driller McMillan Started 17/06/2022 Finished				
	Hand Held Shear Vane							Remarks Flush 50 mm standpipe piezometer installed on completion. DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876 used for hand shear vane measurments 9.0m and deeper.					
Hand Held Shear Vane DR2272: 19mm blade: Calibrated 02/22: vane shear strength per NZGS guid			Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016  Page 3 of					Core Boxes Page 3 of	10				



Project Eastern Busway

Location 262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION DH308



Box: 1 of 10 - Depth: 00.75m to 03.10m of 27.00m

Date Drilled 17/06/2022 to 20/06/2022 - Date Photographed: 17/06/2022



Box: 2 of 10 - Depth: 03.10m to 05.90m of 27.00m

Project Eastern Busway

262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION **DH308** 



Box: 3 of 10 - Depth: 05.90m to 08.75m of 27.00m Date Drilled 17/06/2022 to 20/06/2022 - Date Photographed: 20/06/2022



Box: 4 of 10 - Depth: 08.75m to 12.25m of 27.00m

Project Eastern Busway

262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION **DH308** 



Box: 5 of 10 - Depth: 12.25m to 15.00m of 27.00m Date Drilled 17/06/2022 to 20/06/2022 - Date Photographed: 20/06/2022

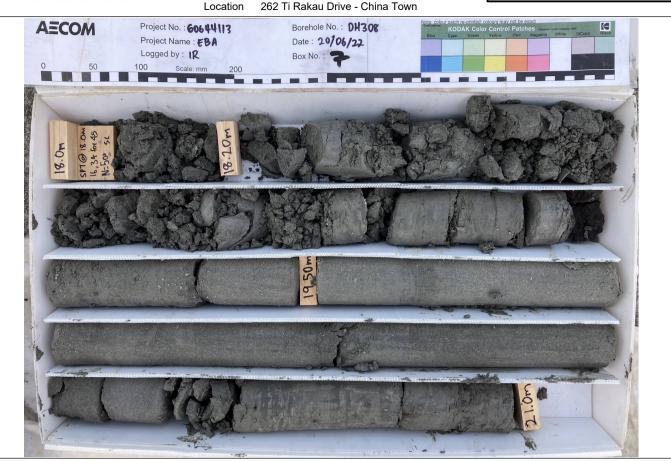


Box: 6 of 10 - Depth: 15.00m to 18.00m of 27.00m

Project Eastern Busway

262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION **DH308** 



Box: 7 of 10 - Depth: 18.00m to 21.00m of 27.00m Date Drilled 17/06/2022 to 20/06/2022 - Date Photographed: 20/06/2022



Box: 8 of 10 - Depth: 21.00m to 23.65m of 27.00m

Project Eastern Busway

Location 262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION DH308



Box: 9 of 10 - Depth: 23.65m to 26.35m of 27.00m

Date Drilled 17/06/2022 to 20/06/2022 - Date Photographed: 20/06/2022



Box: 10 of 10 - Depth: 26.35m to 27.00m of 27.00m



HOLE IDENTIFICATION

**DH-CPT308** 

Client Auckland Transport

Project Eastern Busway

Project number 60644113

Co-ordinates 411510.88mE 795064.0mN

Orientation -90° Elevation 8.81m

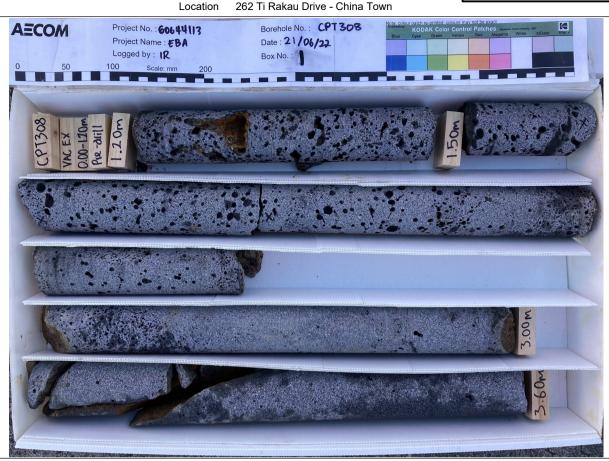
Location 262 Ti Rakau Drive - China Town

D	EOLOGICAL ESCRIPTION Veathering, Colour, Fabric, ROCK NAME. trength, Discontinuities, Lithological Features pedding, foliation, mineralogy, cement, etc).	Test Records  Shear SPT Vane/ N Values SPT 0-50	Drilling Method Casing remarks	Core Loss/Lift	s Relative W Strength	sw Rock	Depth	Graphic Log	(%)	500 Spacing of 100 Matural 50 Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ac information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear e Schistosity, Attitude, Spacing, continuity,	tion description, subordinate ditional structures, additiona	Instrumentation	
FILL	0.0m: FILL.		VAC EX				- - - - - - - - - -		0		0.0m: Vacuum excavation not witne	ssed.		
VOLCANIC FIELD	1.2m: Slightly weathered, grey speckled light grey, BASALT. Moderately strong. Highly vesicular, vesicles typically 2 to 20mm. Iron staining in some vesicles.  1.35 to 4.4m: Strong. Moderately vesicular with vesicles up to 10mm.  2.14 to 2.72m: Becomes slightly vesicular with vesicles up to 3mm.		HQ3				- - - - - - - - - - - - - - - - - - -		100 [100]		1.26 to 1.33m: Large vesicle, 70mm, lir infill.  1.64m: DB, 20° 1.92m: DB, 0°  2.25m: J, 0°, Ud, Ro, VN, Sn, Fe 2.5m: J, 10°, Ud, Ro, N, Sn, Fe 1.2 to 4.7m: Used 1.5m3 of water	nonite and silt		
AUCKLAND VOLCANIC			HQ3				- 3 - - - - - - - - - - - - - - - - - -		93 [90]		3.0m: J, 0°, Ud, Ro, VN, Sn, Fe 3.02 to 3.21m: J, 90°, Ud, Ro, N, Sn 3.12 to 3.28m: J, 70°, Ud, Ro, VN, S 4.26m: DB, 0°	Sn, Fe		
16	4.4m: ALLUVIUM comprising silt, clay and fine gravel.		WASII				5 - 6 - 7 - 8 - 9				4.4m: Silty CLAY with some fine gra Very stiff, moist, high plasticity. 4.48m: Fine gravel ceases, becomes d 4.55 to 4.7m: Light brown.  4.7 to 9.0m: Wash drill for piezometer i	ark brown.		
							- - - - - - - -			                     	DH-CPT308 terminated at 9.0m Depth Criteria Achieved			
F Di	For explanation of symbols and observations, see key sheet  FLUID DEPTHS AND DRILLING PROGRESS (m)  Date Time Drilled Depth Casing Depth Fluid Depth						RENGTH ng ly strong k y weak	UW - I SW - I MW - I HW - I	WEATHE  Journal of the second	ed eathered weathered	Charled CD	Driller McMillan Started 21/06/2022 Finished		
 	Hand Held Shear Vane						Remarks  Drilling through basalt to form starter hole; investigation continued with cone penetration test. Hole wash drilled to 9m depth upon completion of CPT and piezometer installed.  No groundwater encountered.  21/06/2  Drill Rig  N119  Core Box							
: I	ane shear strength per NZGS guid		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden 2000 / New Zealand Vertical Datum 2016 Page 1 of							2 8/08/2022				

Project Eastern Busway

262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION **DH-CPT308** 



Box: 1 of 2 - Depth: 01.20m to 03.60m of 9.00m

Date Drilled 21/06/2022 to 21/06/2022 - Date Photographed: 21/06/2022



Box: 2 of 2 - Depth: 03.60m to 04.70m of 9.00m



Project number 60644113

**Auckland Transport** 

Eastern Busway

Client

Project

# **LOG OF DRILLHOLE**

HOLE IDENTIFICATION

DH-sCPT308

Co-ordinates 411512.14mE 795064.65mN

Orientation -90° Elevation 8.81m

Location 262 Ti Rakau Drive - China Town

D	EOLOGICAL ESCRIPTION Veathering, Colour, Fabric, ROCK NAME. strength, Discontinuities, Lithological Features bedding, foliation, mineralogy, cement, etc).	Test Records  Shear SPT Vane/ N Values SPT 0-50	Drilling Method	Core Loss/Lift	ο≅≥≷	SW HW NMH	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of 100 Matural Defects	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Strength, moisture conditit grading, bedding, plasticity, sensitivity, major fraction description, subord fraction description, minor fraction description, additional structures, add information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliat Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.	Instrun
FILL	0.0m: FILL.		VAC EX				- - - - - -		0		0.0m: Vacuum excavation not witnessed.	
Q.	0.8m: Slightly weathered, grey speckled light grey, BASALT. Moderately strong. Moderately vesicular, up to 50mm. Iron staining in some vesicles.		HQ3		111111111111111111111111111111111111111		1		100 [86]		0.8 to 5.1m: Used 2m3 of water. 1.08m: J, 52°, Ud, Ro, N, Sn, Fe & Slt	
<b>AUCKLAND VOLCANIC FIELD</b>	2.0m: Becomes slightly vesicular. Vesicles up to 10mm.  2.87 to 2.96m: Vesicles up to 50mm.		HQ3	                     	11		- - - - - - 3		100 [100]		2.17m: J, 10°, Ud, Ro, N, Sn, Fe & Slt 2.1 to 2.2m: J, 60°, Ud, Ro, N, Sn, Fe & Slt 2.3 to 2.4m: J, 80°, Ud, Ro, N, Sn, Fe & Slt	
AUCKLAND	3.05 to 5.0m: Strong. Vesicles up to 5mm.		HQ3	                     			- - - - - - - - 4		100 [100]		3.1m: J, 45°, Ud, Ro, N, Sn, Fe 3.12 to 3.24m: J, 60°, Ud, Ro, N, Sn, Fe 3.23 to 3.36m: J, 80°, Ud, Ro, N, Sn, Fe 3.9 to 5m: J, 90°, Ud, Ro, MN, C, Cl & Fe, some infill washed out.	
<del>5</del>	5.0m: ALLUVIUM comprising \( \silt and clay. \)		HQ3			1::::	- - - - - - 5		100 [100]		75.0m: Silty CLAY; greyish brown. Moist, firm, high	
							-				DH-sCPT308 terminated at 5.1m Depth Criteria Achieved	
F	ior explanation of symbols and obs LUID DEPTHS AND DRILLIN ate Time Drilled Depth		VS - V S - S MS - I W - V	TVE STF Very strong Moderatel Weak Very weal	ly strong	UW - I SW - I MW - I HW - I	lighly we	red eathered y weather	Checked GP 04/00/000	2		
	Hand Held Shear Vane		Rer Dril con inst	marks ling thatinued	rough	basalt eismic	to forr cone	n start penet sCPT.	Finished 21/06/2023 er hole; investigation ration test. Piezometer  Pinished 21/06/2023	2		
ν	ane shear strength per NZGS guid		Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden							of 2		

Project Eastern Busway

262 Ti Rakau Drive - China Town

HOLE IDENTIFICATION DH-sCPT308



Box: 1 of 2 - Depth: 00.80m to 03.00m of 5.10m

Date Drilled 21/06/2022 to 21/06/2022 - Date Photographed: 21/06/2022



Box: 2 of 2 - Depth: 03.00m to 05.10m of 5.10m



HOLE IDENTIFICATION

**DH309** 

Client **Auckland Transport** Project Eastern Busway

Project number 60644113

Co-ordinates 411582.05mE 795072.05mN Orientation -90° Elevation 8.195m 209 Burswood Dr, Pakuranga Location Feature Bridge/Embankment Design

DE W	EOLOGICAL ESCRIPTION eathering, Colour, Fabric, ROCK NAME. rength, Discontinuities, Lithological Features edding, foliation, mineralogy, cement, etc).	Test Shear Vane/ SPT	Record SPT N Valu	ies	Drilling Method Casing remarks	ું Core Loss/Lift	E 0	SW Rock	Depth	Graphic Log	TCR [RQD] (%)	500 Spacing of Natural	n)	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Str grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ac information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity,	tion description, subordina Iditional structures, additional structures, additional structures, additional structures, additional structures, Foliation crush Zones, Foliation	ate onal
FILL	O.0m: FILL comprising clay, silt and fine to coarse gravel.  1.1m: ALLUVIUM comprising clay, silt, fine sand and organics.	143/34 105/23 111/17 158/90 161/21			VAC EX				- - - - - - - 1		0			0.0m: Silty CLAY with some fine to clight brown. Very stiff, moist, high pla comprises slightly weathered, subar BASALT. (Noted during hyro-excave 1.1m: Silty CLAY; blueish grey. Very high plasticity.	asticity. Gravel Igular, Ition)	
	organics.	1,1,2, 2,2,3 N=9			SPT	<del>////</del>     			- - - - 2	- x - x	100	         	 	1.6 to 1.7m: Minor organic flecks, black		1 Z <sub>2.2</sub> ; <u>∑</u>
		116/23 ss		 	HQ3				- - - - - - - 3	- x - x - x - x - x - x - x - x - x - x	100		 	2.5 to 3.05m: Some brown mottling.		⊻
		0,1,1, 1,1,1 N=4			SPT	                 			- 3	* - x - x - x - x - x - x - x - x - x -	100	         	1	3.05 to 4.95m: Greyish brown.		
		70/20			HQ3		                         		- 4 	F - X - X	<u>*x-</u>		1 1 1 1			3.95 \( \sqrt{2}
ا ا		ss 0,0,1, 1,2,1 N=5			SPT					F - X - X - X - X - X - X - X - X - X -	100	         	1	4.95m: Blueish grey.		5 20
TAURANGA GROUP		120/26			HQ3 114 HWT				- - - - - -		100		 	• •		5.28 \( \sum_{\chi} \)
TAL		ss 1,0,0, 0,1,1 N=2			SPT HQ3				- 6 - - - - - - - - - 7		100					
		48/9			PT I					* * * * * * * * * * * * * * * * * * *	100	                 	 	7.2m: Becomes firm.		
		ss 0,0,0, 0,0,0 N=0 SUOW		         	SPT	                 	             		- 8 - - - - -	* - * - * - * - * - * - * - * - * - * -	100	111	 	8.0m: Silty CLAY; blueish grey. Soft moist, high plasticity.	to very soft,	0000
		9/3 ss 0,0,0, 0,0,0 N=0		       	PT SPT	                                 		111	9		100	                         	 			
FL Da 27/	N=0						VS - \ S - S MS - M W - N VW - N EW - E	/ery strong Moderati Veak /ery wei Extreme	ely strong ak ly weak	Date logged 29/09/2022 Logged FK Checked GP	Driller McMillan Started 27/09/2022 Finished					
30/ H	09/2022 14:30					50 r Hor	izont	tandpi al / Ve		urvey [	Datu	ıms	led on completion. s: NZGD2000 - Mount Eden n 2016	29/09/2022 Drill Rig N119 Core Boxes	9	
	R1980: 19mm blade: Calibrated Jun 20 ane shear strength per NZGS guid		ection Fa	actor:	1.876										Page 1 of	f 9



HOLE IDENTIFICATION

Feature

DH309\_P

Client Auckland Transport
Project Eastern Busway

Project number 60644113

02/12/22

IR FIELD FILE (DH'S, HA'S).GPJ BASE.GDT

**DRILLHOLE LOG 2022-06-27** 

8

2021

Co-ordinates 411582.05mE 795072.05mN

Orientation -90° Elevation 8.195m

Location 209 Burswood Dr, Pakuranga

Bridge/Embankment Design

SOIL PROPERTIES Instrumentation **Drilling Method GEOLOGICAL** Core Loss/Lift Rock Weathering Subordinate MAJOR minor; colour, structure. Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional Graphic Log Relative Strength Spacing c Natural Defects **DESCRIPTION** Test Records Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc). TCR information, etc [RQD] **DEFECT DESCRIPTION** SPT (%) N Values (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.) Vane/ SPT s≨≥≷ ≥ ≥ ≥ ≥ ПП 8.0m: Silty CLAY; blueish grey. Soft to very soft, HQ3 100 11111111moist, high plasticity. (continued) 33/10  $\Pi\Pi$ 1111  $\Pi$  $\Pi\Pi\Pi$ ss 0,0,0, 1,1,1  $\Pi\Pi$ 37, 37, 37, 111 $\Pi\Pi\Pi$  $\mathbf{I}$ 10.55m: Spongy PEAT; black. Soft, moist, high 100  $\Pi\Pi$ 1111 111 $\Pi\Pi$ plasticity. **TAURANGA GROUP** N=3 116/14 Ш 111Ш 10.75m: Silty CLAY; brown. Stiff, moist, high  $\Pi\Pi$  $\Pi\Pi\Pi$  $\Pi\Pi$ plasticity. 10.95m: Becomes blueish grey. Ш  $\Pi\Pi$  $\Pi\Pi\Pi$ HQ3 100  $\Pi\Pi$  $\Pi\Pi$ 111 $\Pi\Pi$ 111 1111 111 HH 111 111111112 1111ΪĤ 111 $\Pi\Pi\Pi$ SPT 100  $\Pi\Pi$ 1111111IIIII1111 $\Pi\Pi\Pi$ 12 45 to 12 85m: Core Loss:  $\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi\Pi$ 12.85m: Slightly weathered, grey, coarse SANDSTONE. Weak. Moderately thickly HQ3 13  $\Pi\Pi$ [62]  $\Pi\Pi$ bedded. 13.34 to 13.37m: J, 30°, Ud, Sm, Cg Ш 13.4m: Slightly weathered, grey, SILTSTONE. Very 100  $\Pi\Pi$  $\Pi\Pi$ 111114 111 111 $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$ 111  $\Pi\Pi\Pi$ 14.3m: Slightly weathered,  $\Pi\Pi$  $\Pi\Pi\Pi$ HQ3 100 grey, fine to coarse  $|\mathbf{I}|$ 111IIII[95] SANDSTONE. Very weak. Weakly cemented. Very IIII111IIIII $\Pi\Pi$ IIII $\Pi\Pi$ thickly bedded. 15 ss 18,12,17 23,10 for 25mm N>50  $\Pi\Pi$ SPT 100 COAST BAYS FORMATION Ш Ш HQ3 100  $\Pi\Pi$  $\Pi\Pi\Pi$ 16 [100]  $\Pi\Pi$  $\Pi\Pi$ 1111 $\mathbf{III}$ IIIIIIIII111116.28 to 16.85m: Recovered as silty fine to medium sc 14,36 for 111  $\Pi\Pi\Pi$ SAND; grey. Slightly packed. SPT n 111116.65m: DB. 3 No  $\Pi$  $\Pi\Pi\Pi$  $\Pi$ 1111EAST  $\Pi\Pi$  $\Pi\Pi\Pi$ 22 [22] HQ3  $\Pi\Pi$ 18 sc 9,18,30, 20 for 55mm N>50  $\Pi\Pi\Pi$  $\Pi\Pi$ 0  $\Pi\Pi$ 18.28m: SW, grey, fine to medium SANDSTONE. EW. 18.28m: Recovered as silty fine to medium SAND; IIIII1111111grey. Loosely packed. 18.35 to 18.6m: Becomes very weak.  $|\mathbf{I}|$ IIIIModerately thickly bedded.  $|\mathbf{I}|$ IIII18.6m: Slightly weathered, grey, SILTSTONE, Very weak. HQ3 100 111IIIII19 [71]  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi\Pi$  $\Pi\Pi$ 19.4 to 19.9m: Thin fine to medium SAND bed 13,37 for  $\Pi\Pi$ For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Driller Date logged 29/09/2022 FLUID DEPTHS AND DRILLING PROGRESS (m) McMillan VS - Very strong S - Strong MS - Moderately strong W - Weak UW - Unweathered Logged FK SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered Date Time Drilled Depth Casing Depth Fluid Depth Started Checked GP 27/09/2022 VW - Very weak EW - Extremely weak Finished Remarks 29/09/2022 50 mm standpipe piezometer installed on completion. Drill Rig Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden N119 2000 / New Zealand Vertical Datum 2016 Hand Held Shear Vane Core Boxes 9 DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876 vane shear strength per NZGS guideline Page 2 of 9



HOLE IDENTIFICATION

Feature

DH309\_P

Client Auckland Transport
Project Eastern Busway

Project number 60644113

Co-ordinates 411582.05mE 795072.05mN Orientation -90° Elevation 8.195m Location 209 Burswood Dr, Pakuranga

Bridge/Embankment Design

SOIL PROPERTIES Instrumentation **Drilling Method GEOLOGICAL** Core Loss/Lift Spacing of Natural Defects Subordinate MAJOR minor; colour, structure. Strength, moisture condition, grading, bedding, plasticity, sensitivity, major fraction description, subordinate fraction description, minor fraction description, additional structures, additional Graphic Log Weathering Relative Strength **DESCRIPTION** Test Records Rock Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc). TCR [RQD] **DEFECT DESCRIPTION** SPT (%) N Values (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.) Vane/ SPT s§≥≷ ≥ ≥ ≥ ≥ ┿┿┿  $\Pi\Pi\Pi$ HQ3 100 1111111[85] 111 $\mathbf{I}$ 111  $\Pi\Pi$ Ш 111 21.03 to 21.2m: DB. 3 No. 21.2 to 21.7m: , Drilling disturbed  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$ HQ3 100 H  $\Pi\Pi\Pi$ [67] 11122 IIII21.9 to 22.0m: Thin fine to medium SAND bed  $\mathbf{I}$  $\Pi\Pi\Pi$  $\mathbf{I} \mathbf{I} \mathbf{I}$ IIIII $\Pi\Pi$  $\Pi\Pi\Pi$ 22.5 to 24.45m: DB. Broken during handling  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi\Pi$ 23 111  $\Pi\Pi$ HQ3 100 [100] 111  $\Pi\Pi$ 24 EAST COAST BAYS FORMATION 111 1111 $\Pi\Pi$  $\Pi\Pi\Pi$ 24.3m: Slightly weathered, light grey, fine to medium 111 $\Pi\Pi\Pi$  $|\mathbf{I}|$ IIIISANDSTONE. Very weak. Weakly cemented. Very HQ3 100 111 $\Pi\Pi\Pi$ [75]  $\Pi\Pi$  $\Pi\Pi$ thickly bedded. 25 24.9 to 27.5m; DB, sub-horizontal, 19 No.  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$  $\Pi\Pi$ Ш  $\Pi\Pi$ 26 HQ3 100  $\mathbf{III}$ 1111[100] I I I I I111IIII|111|111126.65m: SW, light grey, fine to medium SANDSTONE. 26.65 to 26.85m: J. 80°. Ud. Sm  $\Pi\Pi$  $\Pi\Pi\Pi$ 27 Moderately strong, Well 1111cemented.  $\Pi\Pi$ 27.0m: Slightly weathered, light grey, fine to medium SANDSTONE. Extremely  $\Pi\Pi$  $\Pi\Pi$ 27 55 to 27 85m: Core Loss: HQ3 77 weak. Very thickly bedded. [67]  $\Pi\Pi$ 28 27.9 to 29.72m: DB, 10 No  $\Pi\Pi$  $\Pi\Pi$ 11111111111111IIII $|\mathbf{I}|$ IIIII29 29.0m: SW, light grey, SILTSTONE. VW.  $\Pi\Pi$ 1111HQ3 100  $|\mathbf{11}|$  $\Pi\Pi\Pi$ [100] 29.25m: SW, light grey, fine to medium SANDSTONE.  $\Pi\Pi$  $\Pi\Pi$  $|\mathbf{11}|$  $\Pi\Pi$ VW. Well cemented. For explanation of symbols and observations, see key sheet RELATIVE STRENGTH WEATHERING Driller Date logged 29/09/2022 FLUID DEPTHS AND DRILLING PROGRESS (m) McMillan VS - Very strong S - Strong MS - Moderately strong W - Weak UW - Unweathered Logged FK SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered Date Time Drilled Depth Casing Depth Fluid Depth Started Checked GP 27/09/2022 VW - Very weak EW - Extremely weak Finished Remarks 29/09/2022 50 mm standpipe piezometer installed on completion. Drill Rig Horizontal / Vertical Survey Datums: NZGD2000 - Mount Eden N119 2000 / New Zealand Vertical Datum 2016 Hand Held Shear Vane Core Boxes 9 DR1980: 19mm blade: Calibrated Jun 2022: Correction Factor: 1.876 vane shear strength per NZGS guideline Page 3 of 9

02/12/22



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

### **LOG OF DRILLHOLE**

HOLE IDENTIFICATION

DH309\_P

Client Auckland Transport
Project Eastern Busway

Project number 60644113

Co-ordinates 411582.05mE 795072.05mN
Orientation -90° Elevation 8.195m
Location 209 Burswood Dr, Pakuranga
Feature Bridge/Embankment Design

GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, ROCK NAME. Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc).	Test Records Duiling Method Shear SPT Vane/ N Values SPT 0-50	S Relative WW Strength WW Weathering Depth	Graphic Log  Graphic Log  (%) (MOS)  Spacing of Matural Natural Defects  One feet to the control of the control	SOIL PROPERTIES Subordinate MAJOR minor; colour, structure. Stre grading, bedding, plasticity, sensitivity, major frac fraction description, minor fraction description, ad information, etc  DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear a Schistosity, Attitude, Spacing, continuity, i	tion description, subordinate lditional structures, additional and Crush Zones, Foliation,	Instrumentation
29.55m: Slighly weathered, light grey, SILTSTONE. Very weak.				DH309_P terminated at 30m Depth Criteria Achieved		
FLUID DEPTHS AND DRILLIN	-	VS - Very strong	UW - Unweathered SW - Slightly weathered MW - Moderately weathered HW - Highly weathered CW - Completely weathered	Chacked GP	Driller McMillan Started 27/09/2022	
Hand Held Shear Vane		Remarks 50 mm standpipe Horizontal / Verti	e piezometer installe ical Survey Datums: and Vertical Datum	NZGD2000 - Mount Eden	Finished 29/09/2022 Drill Rig N119 Core Boxes	
DR1980: 19mm blade: Calibrated Jun 20 vane shear strength per NZGS guid					Page 4 of	9

Project Eastern Busway

Location 209 Burswood Dr, Pakuranga

HOLE DH309\_P



Box: 1 of 9 - Depth: P\DH309\_P 00.00m to 04.50m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 27/09/2022



Box: 2 of 9 - Depth: P\DH309\_P 04.50m to 07.40 (Please retake)m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 27/09/2022

Project Eastern Busway

Location 209 Burswood Dr, Pakuranga

HOLE IDENTIFICATION DH309\_P



Box: 3 of 9 - Depth: P\DH309\_P 07.40m to 10.95m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 27/09/2022



Box: 4 of 9 - Depth: P\DH309\_P 10.95m to 14.10m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 27/09/2022

Project Eastern Busway

Location 209 Burswood Dr, Pakuranga

HOLE DH309\_P



Box: 5 of 9 - Depth: P\DH309\_P 14.10m to 16.65m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 29/09/2022



Box: 6 of 9 - Depth: P\DH309\_P 16.65m to 21.00m of 30.00m Date Drilled 27/09/2022 to 29/09/2022 - Date Photographed: 29/09/2022