Appendix A

Field Investigation Data





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Auckland:

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GEOTECHNICAL AND **GEOLOGICAL INFORMATION**

SOIL TYPES AND SYMBOLS



FILL





SAND

SILT



GRAVEL

TOPSOIL



CLAY



PEAT



GROUNDWATER LEVEL



SCALA PENETROMETER LAST 3 NUMBER OF BLOWS PER 50mm INCREMENT

ROCK TYPES AND SYMBOLS



SANDSTONE



BASALT



SILTSTONE



TUFF



MUDSTONE



IGNIMBRITE



LIMESTONE



GREYWACKE

SOIL STRENGTH CLASSIFICATION

FINE GRAINED COHESIVE SOILS

TERM	FIELD IDENTIFICATION	UNDRAINED SHEAR STRENGTH (KPa)
Very Soft (Vs)	Exudes between fingers when squeezed.	<12
Soft (S)	Easily indented by fingers.	12 – 25
Firm (F)	Indented only by strong finger pressure.	25 - 50
Stiff (St)	Indented by thumb pressure.	50 - 100
Very Stiff (VSt)	Indented by thumbnail.	100 - 200
Hard (H)	Difficult to indent by thumbnail.	200+

SPT & SCALA PENETROMETER RESULTS

TERM	SPT VALUE No. of BLOWS/300mm	SCALA PENETROMETER No. of BLOWS/100mm
very dense	>50	17+
dense	30 - 50	7 – 17
medium dense	10 - 30	3 - 7
loose	4 - 10	1 - 3
very loose	0 - 4	0 - 2

ROCK STRENGTH CLASSIFICATION

TERM		FIELD IDENTIFICATION	UNCONFINED UNIAXIAL COMPRESSIVE STRENGTH (MPa)
Extremely weak	(EW)	Indented by thumbnail.	< 1
Very weak	(VW)	Crumbles under firm blows wit point of geological hammer. Can be peeled with pocket kn	
Weak	(W)	Difficult to peel with pocket ki	nife. 5 - 20
Moderately strong	(MS)	Cannot be scraped or peeled with pocket knife.	20 - 50
Strong	(S)	More than one blow of geolog hammer to fracture.	ical 50 - 100
Very strong	(VS)	Many blows of geological hammer to break.	100 - 250
Extremely strong	(ES)	Can only be chipped with geological hammer.	250+

MOISTURE CONDITION

Dry (D)	Looks and feels dry; powdery and friable.
Moist (M)	Feels cool; darkened in colour; no free water when remoulded.
Wet (W)	Feels cool; darkened in colour; free water forms on hands.
Saturated (S)	Free water is present on sample.

SAMPLE TYPES

UNDISTURBED



MACHINE AUGER DISTURBED



HAND AUGER DISTURBED



STANDARD PENETRATION TEST (solid cone)



STANDARD PENETRATION TEST (hollow cone)

DRILLING METHOD

OB OPEN BARREL TT TRIPLE TUBE WB WASH BORE UNDISTURBED SH SHELBY TUBE

ROCK CORE

STANDARD

PENETRATION TEST

RC

SPT

FIELD TESTS

V SHEAR VANE (corrected to BS:1377) R REMOULDED STRENGTH

Ρ POCKET PENETROMETER

CH CLEGG HAMMER

INFORMATION BASED ON THE NZ GEOTECHNICAL SOCIETY INC. GUIDELINES FOR THE CLASSIFICATION AND DESCRIPTION OF SOIL AND ROCK FOR ENGINEERING PURPOSES

GEOLOGICALINFO.DWG REV. 3

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA01** Date Augered: Client: Hole Location: 06 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK110 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 34.3m E1747736.0, N5949526.0 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Backfill / Install Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 Topsoil; some rootlets; light grey; [TOPSOIL]. 2 S E SILT; with some clay; with some rootlets; brownish orange. D Very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION]. V=139 R=54 33.70 Clayey SILT; light grey and orange. Dry to moist; very stiff; medium plasticity. R=62 DM V=172 R=96 **32.5** V=167 R=70 SILT; with some clayey; with trace fine sand; light grey with BAYS FORMATION mottled orange. Moist; very stiff; low plasticity. V=201 R=97 COAST V=201 EAST V=145 R=74 3.60m: Becomes saturated V=170 _{4.0} R=80 SILT; with some fine sand; with minor clay; bluish grey. Saturated; very stiff; low plasticity. 30.0 S Fine SAND, with minor silt; dark grey. Dense; saturated; non-4, 5, 5 END OF HOLE: 5.00m (Target Depth) 8, 8, 9 10, 10, 10 27.5 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 53B Russell Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater encountered at approximately 3.6mBGL at the time of Topsoil Raw data in blows per 50mm drilling. ← Out-flow unless remarks state otherwise Silt Suction observed during drilling at 1.8m and 2.5m depth. Grout/concrete ├─ In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Logged By: Checked By: Contractor (if applicable): Instrument Details: Shear Vane No.: All dimensions in metres

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

NOT TO SCALE

N/A

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

	Ь		Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz				11/	AND A	UGL	I\ L\	
Project No.:		Pro	oject name:		Pr	oject Loc	ation:			N	o.:
240065		Ru	ssell Road, Silverdale				d & Upper Orewa	a Road			
Date Augered	d:		Client:			le Location		NZ444		H/	\02
06 Nov 2024 Ground Leve	ı.		Vineway Ltd Co-ordinates:				y Dwg 240065-S Reason Terr		She	ot:	Status:
RL 41.8m			E1748029.0, N5949670.0		ו פוכ 00 n	Depth: n	Target Depth		1 of		FINAL
			· ·		_						<u> </u>
Elevation (m) Depth (m)	Unit	рц	Geological Description		Water / Moisture		Soil Shea Strength (kf		cala rometer		Situ sting Pepth (m) Backfill / Install
Elevation (m) Depth (m)	2	Legend	In accordance with NZGS Guidelines (200 Refer to "Geotechnical and Geological Inform	ation"	er / M	Samples	△ Residual ●	(blows	s/50mm)		Sting (a) Results Backfill /
			sheet for explanation of legend and abbrevia	itions	Wate		50 100 150		10 15	2 444	Dept
41.65 - 0.15	S I	ìn Žim. LS [™] ™.	Topsoil; some rootlets; light grey; [TOPSOIL].								
41.5	5	××× ×××	SILT; with some clay; with some rootlets; brownish ora mottled grey. Very stiff; try; low plasticity; [COLLUVIUN								- 3 8
0.5		×××			D		A .			,	V=144 0.5
+ 1	COLLUVIUM	× × × × × ×									R=59
41.0 40.90 0.90	0	×××									- 1
1.0		× × ×	SILT; with some clay; with trace fine sand; light grey wi mottled orange. Very stiff; dry to moist; low plasticity; [8]	ith			Δ •			,	V=124 _{1.0} R=62
‡	•	· × ×	COAST BAYS FORMATION].	LAGI							V=128
40.5		, × × ×					Δ •			,	[™] R=62
1.5	ſ	`× × ×					▲ ●			`	V=116 _{1.5} R=59
‡	•	× × ×			DM						48
40.0	\$	× × ×									
2.0		×××					Δ •			`	V=124 _{2.0} R=71
39.5	ľ	`*									∃ ∃
	NO	(×××)									. H
- 2.5	MAT	××× ×××	SILT; with some fine sand; brownish orange. Very stiff; non-plastic.	wet;							2°78
39.0	BAYS FORMATION	< ×_ ×	non plactic.		w						14
3.0	3AYS	××			▼		A •				V=147 3.0 R=74
<u>†</u>	AST	××× ×××	3.00m: Becomes saturated.								R=74
38.5	EAST COAST	× × ×									74
38.30 3.50	EAS	×××	SILT; with trace clay; with trace fine sand; light grey wit								3.5.
‡		^ × ×	mottled light orange. Very stiff; saturated; low plasticity	'.							44
38.0		`*									
4.0	ŀ	`****	3.90m: Becomes grey.		S		Δ •			`	V=162 R=59 4.0
37.5	,	^ × ×									J E1
Ŧ.,		, × ^ ×									🖽
T 4.5	ľ	×× ×									154
37.0	>	× × ×									18
36.80 5.00		çÛ×Û×						0.5	<u> </u>		5.0.
<u>†</u>			END OF HOLE: 5.00m (Target Depth)					1 1		0, 0, 1	_
36.5								1		1, 1, 1 1, 2, 2	-
T 5.5								2 2		3, 2, 2 3, 3, 4	5.5.
‡								2 2		3, 3, 4 4, 5, 5	
36.0								3 4		5, 7, 7	1
6.0										8, 8, 9 9, 9, 10	6.0
35.5									7	10, 11	_
+								5	8		-
Ŧ°.3									9 10	1	-
35.0									11	*	
						<u> </u>					
	Refer	to "Geolo	gical and Geotechnical Information" sheet for further details.		_	- 11	marks land auger at 53B R	ussell Pood			
■ Water Level			rometer Tests Topsoil Clay	Bent	onite	: 2. 0	roundwater encoun		nately 3.0mE	BGL at the	time of
← Out-flow In-flow `			rks state otherwise state of the resistance of t	Grou	ıt/cor	ncrete 3. S	ng. uction observed dur	ring drilling at 1.5	m depth.		
Moisture: M = moist			Strength (kPa) Fill Sand	isings							
M = moist V = Peak, R = Residual W = wet UTP = Unable To Penetrate S = saturated Filter sand Filter sand											
All dimension	ns in	metre	S Contractor (if applicable):	Instrum	ent	Details:	Ī	Shear Vane N	o.: Logg	ed By:	Checked By:

Hand Auger 50 mm

NOT TO SCALE

N/A

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HAND AUGER LOG

	I				: 03.379.4402 www.rileycho		Ph: 09.489.787 E: www.riley.co						11/111						
Project	ject No.: Project name:									oject	Locat	ion:					N	lo.:	
240065			R		id, Silverd	ale						& Upper C	rewa Roa	nd					
Date Au	_			Client:	. 1 +d				1		cation		SE SV11	,			П	403	
08 Nov 2				Vineway	Co-ordi	nates:		-	_	Depth		Dwg 2400	Terminat		\neg	She	ot.	Status	
RL 61.3		01.					949615.0		.00 r	•		Target D		.cu.		1 of		FINA	
noi (i	Œ)	jical t	pu		Geolo	gical De	escription	L	oisture			Soil	Shear th (kPa)		cala trome	otor	In	Situ	Install
Elevation (m)	Deptn (m)	Geological Unit	Legend	Refer to	o "Geotechi	nical and	S Guidelines (Geological Info end and abbre	ormation"	Water / Moisture	Sam	ples	△ Residual	, ,	(blow	s/50n			esting /Results	Depth (m) Backfill / Install
61.20	0.10	∟ ഗ (X X X			lets; with so	ome sand; dark l	brown;	\mathcal{T}					1 1 2			1, 1, 2 1, 1, 2		-
61.0	0.50		× × × × × ×	etiff: dry: l	LT; with trace ow plasticity;	sand; with [EAST CO	some rootlets. E AST BAYS FORI	Brown; Very MATION].				Δ.	•	1 2 1 1 2 2			1, 1, 2 2, 2, 2 2, 1, 2	V=182 ₀. ∀ R=56	_ _ _ 5
60.5			××, × × × × × × ×	orange. V	some clay a ery stiff; dry t	nd minor sa o moist; low	ind; whitish grey plasticity.	with mottled						2 2 2 2			1, 2, 1 2	K=50	- - -
1.0	,		× × ×× × × × ×	1.10m - 1.	30m: Grades	to some ba	ands of orange s	andy silt.				Δ	•	1 2 1 2			*	∨ V=168 ∀ R=63	-
1.5	;		× × × × × × × × × × × × × × ×	×								Δ	•					V=128 ₁ . × R=43	5
59.5		Z	× × × × × × × × × × × × × × × × × × ×	1.80m - 1.	90m: Bands	of orange s	andy silt.					Δ	•					√ V=169 ✓ R=79	
59.0		COAST BAYS FORMATION	× × ×	=	30m: Bands	of orange s	andy silt.		DM										-
2.5	;	AST BAYS	××× ××× ×××									Δ	•					∨ V=146 ≻ R=61	5 <u> </u>
3.0	,	EAST CO	× × ×× × × × ×	× :								A	•					∨ V=153 ∀ R=64	- - -
58.0 3.5	3.60		× × × × × × × ×	×									•					∨ V=214+³	5
57.5			× × × × × ×	× low plastic	.T; light browi	n with mottl	ed orange. Very	stiff; moist;										V-400	-
57.00	4.30		× × × × × ×	-	ands of orang	e sandy silt			м			Δ	•					V=168 × R=79	0_
4.5	,		× × × × × × × × × × × × × × × × × × ×	Sandy SIL	.T; grey. Very	stiff; moist	; medium plastic	ity.					•					∨ V=214+4	_ 5 _
56.5	5.00		^ × × × × ×						-					- 3				√-UTP 5.	-
56.0				END OF F	IOLE: 5.00m	(Target D	epth)								7 6 11	12 12	3, 4, 7 8, 11, 12 12		-
55.5																		5.	5
± 6.0																		6.	_ o <u>_</u> -
55.0	,																	6.	5_
54.5																			-
Fynlanat	ione	· Dofo	to "Co-	logical and C-	stochnical Inf-	mation" at-	et for further detail	le .		' 	Rem	arks		<u> </u>	-				
Standin Water L Out-flow	ng _evel	▼ Sc Ra	ala Pen w data i	etrometer Tes in blows per 5 narks state otl	sts #s= 60mm ===s	Topsoil	Clay	Ве	ntonite		1. Har 2. No	nd auger at 5 groundwater ueeze observ	r was encou	ntered at t			illing.		
In-flow Moisture: M = moist W = wet		Va V :	ne Shea = Peak,	ar Strength (k R = Residual able To Penet	Pa)	Peat Fill Core Loss	Silt Sand Gravel	Dri	out/cor Il arisir er san										
S = saturat					C/L		****	Instru			le.		Shoo	r Vane N	lo · T	Logo	od Rv.	Checked	l Bv
All dime	ensid	ons í	n met	res con	tractor (if	ahhiigap	iej.	และเก	nent	Detai	13.		Jonea	ı vane N	· O	Logg	ed By:	OHECKEC	י טטי.

Hand Auger 50 mm

SRO

ΑB

NOT TO SCALE

N/A

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 HA04 Date Augered: Client: Hole Location: 08 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK112 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 38.2m 5.00 m FINAL E1748257.0, N5949517.0 Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water / Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 Topsoil; dark grey; [TOPSOIL]. Clayey SILT; orange. Very stiff; dry; medium plasticity; [EAST COAST BAYS FORMATION]. 1. 1. 0 0, 0, 0 1, 1, 1 V=107 1, 1, 2 D V=185 _{1.0} R=61 37.00 **37.0** SILT; with minor clay; light grey with orange and dark orange mottles. Very stiff; dry; low plasticity. V=191 1.5 R=46 SILT; with minor clay; with minor fine sand; light grey with orange and dark orange mottles. Stiff to very stiff; dry to moist; low plasticity. V=95 R=30 BAYS FORMATION 2.30m: Becomes some sand 35.50 ----**35.5** COAST ∨ UTP 2.70m: Becomes hard 1, 0, 0 SILT; with some clay; grey with mottled orange. Hard; moist; 1, 1, 2 3.0 EAST 1. 2. 1 Sandy SILT; with trace clay; brownish grey with mottled orange. Hard; moist; low plasticity. 2, 2, 2 3, 3, 2 3, 3, 3 3, 3, 3 M SILT; with some clay; with minor fine sand; light grey with mottled orange. Hard; moist; low plasticity. ∨ UTF 34.00 **34.0** SILT; with some clay; dark grey. Hard; moist; low plasticity. SAND; with some silt; brownish orange and grey. Loose; wet; 33.60 highly oxdised. SILT; with some clay; dark grey. Hard; moist; low plasticity W 33.5 4.80m: Grades to 100mm silt; some fine sand; dark grey; loose; wet; medium plasticity END OF HOLE: 5.00m (Target Depth) 4, 5, 5 33.0_ 8, 9, 9 10, 10, 10 10. 11 32.0 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 55 Russell Road. Standing Water Level Scala Penetrometer Tests 2. No groundwater was encountered at the time of drilling.
3. Squeeze observed during drilling at 3.0m, 4.1m and 4.5m depth. Clay Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete > In-flow Moisture: Vane Shear Strength (kPa) Drill arisings M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Instrument Details: Shear Vane No.: Logged By: Checked By: Contractor (if applicable): All dimensions in metres

Hand Auger 50 mm

NOT TO SCALE

N/A

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HAND AUGER LOG

			Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz					IID AC				
Project No.	:	Pr	roject name:		roject L					N	o.:	
240065		Rı	ussell Road, Silverdale				& Upper Orewa R	oad	_			
Date Auger			Client:		ole Loc					H/	405	
07 Nov 2024			Vineway Ltd Co-ordinates:	_			Dwg 240065-SK1		01	-4.		
Ground Lev RL 28m	/ei:		E1748218.0, N5949536.0	5.00 i	Depth:	:	Reason Termin Target Depth	iatea:	She 1 of		Status FINA	
		1			1		raiget Deptil	1	1 01	<u>'</u>	1 1111	
e (ï.	Geological Unit	Þ	Geological Description	் ு Water / Moisture			Soil Shear	Sca		l In	Situ	Depth (m) Backfill / Install
Elevation (m) Depth (m)	olog Unii	Legend	In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information	n" Ĕ	Sam		Strength (kPa)	(blows/5			sting Results	(1)
	g		sheet for explanation of legend and abbreviation	Nate s			△ Residual • Pea 50 100 150 200		15	Data/	Results	Depth (m) Backfill /
\neg	Ħ	LS TA	Topsoil; some rootlets; grey; [TOPSOIL].					0 1		0, 1, 1		- XI X
‡	TOPSOIL	T. T.S. T.						2 2 2		2, 2, 2 2, 3, 2		
27.60 0.40		^ × × ^ × X ^	SILT; with some clay; grey and orange. Very stiff; dry; low					3		2, 2, 2 1, 2, 2	√ V=217+0.	
Ŧ		× × ×	plasticity. Intermixed with topsoil and some rootlets; [EAST COAST BAYS FORMATION].					2 2		1, 1, 2	V-21710.	7
‡		× × × ,						2				
27.10 0.90		×××	SILT; with some clay; light grey with mottled orange. Very s	stiff;				2		 ▼ ,	✓ UTP 1.0	
+		× × ×	dry; low plasticity. 1.00m: Becomes hard.	D				1 2				$-\Box$
Ŧ		(× × ,	x									$\exists \exists$
26.5 1.5		××××								,	✓ UTP 1.9	
İ		× × ×										$\exists \exists$
+		×Î×,	×									$-\Box$
26.0 2.0		^× × ×									✓ UTP 2.0	-18
‡	NO O	× × × ×										1
25.70 2.30	COAST BAYS FORMATION	_{ұ×′, ×,}	SILT; with minor clay; light grey with mottle orange. Very sti	iff;	1							$\exists \exists$
25.5 2.5	FOR	× × ×	dry to moist; low plasticity.				Δ	•		,	V=209 _{2.5} R=83	∃ ∃
‡	AYS	x×,	2.60m: Becomes oxidized; dark orange.									$\exists \exists$
‡	STE	×× × ×		DM	,							坩
25.0 3.0	00	* × × × × ×					Δ •			,	V=184 _{3.0} R=76	
Ŧ	EAST	έ×̂×,	×									$-\Box$
‡		×× ×									V-400	$\exists \exists$
24.50 3.5 3.50		××××	SILT; with minor clay; with minor to some fine sand; light gr	rey.	†		Δ •			,	V=189 R=93	JH
+		× × ×	Very stiff; moist; low plasticity.									$-\Box$
24.10 3.90			Sandy SILT; light grey and bluish grey with mottled orange.								V=161	$\exists \exists$
24.0 4.0		^ ×	Very stiff; moist; low plasticity.	.			△ ●			· ·	R=127	ΉĦ
‡		× × ×		IVI								
23.5 4.5		× × .	1								V=152 R=56	<u>.</u> -
Ŧ		× × ×									× R=56	$\exists \exists$
23.20 4.80		×××	City CAND have in board and a second a second and a second a second and a second and a second and a second and a second an	▼	1							14
23.00 5.0 5.00		×	Silty SAND; brownish orange; loose; wet; non-plastic.	W				4 4			V=122 R=50	Щ
± 1			END OF HOLE: 5.00m (Target Depth)					3 4		4, 4, 3 3, 4, 4	K=50	_
Ŧ								4 4		4, 5, 5 5, 5, 5		-
22.5 5.5								5 5		5, 4, 3	5.9	5_
‡								5 5		4, 4, 5 7, 7, 10		_
İ								4		11, 11, 12	2	1
22.0 6.0								4 . 7 4 . 7.	10		6.0	0
‡								5	11	l ↓		-
‡									-			1
21.5 6.5											6.5	5
+												+
‡												7
Fynlanations	· Det	to "C	ogical and Geotechnical Information" sheet for further details.		'	Rema	arks	<u> </u>	•	<u> </u>		
Standing			etrometer Tests	D4		1. Han	d auger at 55 Russel		oly 4 C I	DCI	time of	
Water Level Out-flow	Ra	w data ir	n blows per 50mm	Bentonite		drilling			-	oge at the	une of	
├─ In-flow	*		Teat Silt Silt	Grout/co		3. Suc	tion observed during	arıllıng at 3.0m	depth.			
Moisture: M = moist	V :	= Peak, F	rr Strength (kPa) Fill Sand	Drill arisi	ings							
W = wet S = saturated	UT	P = Una	nble To Penetrate Cn Core Loss Gravel	Filter sar	nd							
All dimensi	ons i	n metr	res Contractor (if applicable): Inst	s:	Sho	ear Vane No.	Logg	jed By:	Checked	l By:		

Hand Auger 50 mm

SRO

RS

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

			Ph:	RISTCHURCH 8011 03.379.4402 www.rileychch.co.nz	AUCKLAND 062 Ph: 09.489.7872 E: www.riley.co.r	2					ПАН	υА	U	7	K L	UG	
Project No	.:	Pr	oject nam			Pro	oject	Locati	ion:					N	o.:		
240065		Ru	issell Roa	d, Silverdale			Ru	ssell f	Road 8	& Upper C	rewa Roa	nd					
Date Auge			Client:				Į.		cation						HA	406	
07 Nov 202			Vineway				_				065-SK115			01			
Ground Le RL 25.1m	vel:			Co-ordinates: E1748308.0, N	5040406.0		ole I .50 n	Depth	:	Reason Refusal	Terminat	ed:		Shee 1 of		Status FINA	
1 25.1111	_	_		•		4	_	1		Relusai		_		1 01	1		_
Elevation (m)	Geological Unit	Legend	Refer to	Geological D cordance with NZC "Geotechnical and or explanation of le	SS Guidelines (2 Geological Info	rmation"	Water / Moisture	Sam	ples	Streng	Shear (kPa) I • Peak	Pene	Scala etrome /s/50m		Te	Situ sting Results	Depth (m) Backfill / Install
25.0	P S J	TS _w w,	Topsoil; mi	nor rootlets; grey; [TO	PSOIL].		1			90 190	.,00 200	0 1	.,,		0, 1, 2		
24.90 0.20	S IN IN	TC	SILT; with s	some clay; with some	rootlets; brownish o	grey with	- D					1 2			1, 2, 1 1, 1, 1		-8
24.70 0.40	<u> 23</u>	× × × ×	mottled ora	inge. Very stiff; dry; lov	w plasticity; [COLLU	UVIUM].	\vdash								1, 1, 1	V=189 n	7
24.5		× × × × ×		T; orange. Very stiff; d AST BAYS FORMATIO		m plasticity;	DM			A	•	• 1 • 1 • 1			1, 1, 1 2, 1, 1 1	R=76	5—8
24.20 0.90		× × × :					\perp					• 1 1			Ļ	\/=126	
24.0		××, × × × ×	mottled gre	minor to some fine sar by.Very stiff; moist; me	nd; orange and dark dium plasticity.	k orange				Δ	•	1 1 1			·	V=136 R=73	
1.5		* * * * * * * *								Δ	•				,	V=152 ₁ . R=73	
23.5		× × × × × ×														K=73	損
+	NO O	××× ×	1													V=105 a	$-\Box$
23.0	MAT	× × ×													,	V=105 ₂ . R=57	<u> </u>
‡	FOR	(× ×	ļ				м										$\exists \exists$
2.5	EAST COAST BAYS FORMATION	××× ×××									•				,	V=127 ₂ . R=77	
22.5	AST E	×××														R=//	\dashv
Ŧ	000	× × ×	1														$\exists \exists$
3.0	EAS.	××, ×								Δ	•				,	V=124 ₃ . R=54	4
22.0		× × ×														11 04	\bot
±		*×× ×	1														出
3.5		× × ×								Δ	•				,	V=158 _{3.} R=91	<u>-</u>
21.40 3.70		×*	CII Ti veith f	race clay; with trace fi	no condi grov with	mattlad	\perp										$\exists \exists$
ļ.,, ‡		× × ×	orange. Ve	ry stiff; wet; low plastic	city.	mottled											\blacksquare
21.10 4.00		××.×		minor to some clay; wi	th trace fine sand;	dark grey.	$\frac{1}{w}$,	√ UTP 4	┧
<u>†</u>		* × ×	Hard; wet;	low plasticity.													$\exists \exists$
20.60 4.50		×××	ļ				▼									UTD	_H
20.5			END OF H	OLE: 4.50m (Refusal)							T :	1			✓-UTP4.	-
‡													10		10, 10, 1° ▼13		1
5.0														13	¥ 15	5.	_
20.0																	-
Ŧ																	
5.5																5.	5
19.5																	1
‡																	11
19.0																6.	0_
Ŧ																	+
Ŧ]
18.5																6.	5_
‡																	1
																	+
Explanation	S: Refer	to "Geolo	gical and Geot	echnical Information" sh	eet for further details.	s.			Rema								
Standing Water Level	v Sc	ala Penet	trometer Test	S Topsoil	Clay		ntonite				55 Russell R ncountered a		mately	4.37m	BGL at th	e time of	
- Out-flow	Ra		i blows per 50 arks state othe	······ —	Silt		ut/cor		drilling	J.	ed during dri		-				
In-flow Moisture:	Va	ne Shear	Strength (kP	0.00.00.0	Sand	× ×	l arisir				ed during di						
M = moist V = Peak, R = Residual W = wet UTP = Unable To Penetrate M Core Loss Gravel Filt.																	
W = wet								Filter sand									
All dimens	n metro	es Cont	nent	Detail	ls:		Shea	r Vane N	No.:	Logg	ed By:	Checked	l By:				

Hand Auger 50 mm

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

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4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 F: www.rilev.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA07** Date Augered: Client: Hole Location: 07 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK116 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 35m E1748336.0, N5949057.0 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Backfill / Install Geological Unit Soil Shear Elevation (m) Scala Depth (m) In Situ Legend Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 Topsoil; some rootlets; grey; [TOPSOIL]. S TOP SOI COLLUVI SILT; with some clay; with some rootlets; brownish grey with mottled orange. Very stiff; dry; low plasticity; [COLLUVIUM]. D V=141 0, 0, 1 R=54 Clayey SILT; light orange and grey. Very stiff; dry to moist; medium plasticity; [EAST COAST BAYS FORMATION]. R=68 DM V=183 33.5_ R=91 SILT; with trace clay; with trace fine sand; light grey with V=161 R=82 mottled orange. Very stiff; moist; non-plastic. BAYS FORMATION V=108 R=62 V=110 COAST EAST V=110 R=74 3.78m: Becomes saturated V=186 R=105 Sandy SILT; brownish grey with mottled orange. Very stiff; saturated; non-plastic. SILT; with some clay; grey. Very stiff; saturated; low plasticity. 30.50 ...**30.5** V=217+4 Sandy SILT; brownish grey. Very stiff; saturated; non-plastic. SILT; with minor clay; dark grey. Very stiff; saturated; low 30.00 UTF END OF HOLE: 5.00m (Target Depth) 0. 0. 1 1, 2, 2 2. 3. 3 3, 4, 5 29.5_ 5, 6, 6 7.7.7 9.9.9 9, 10, 11 14 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 55 Russell Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater encountered at approximately 3.78mBGL at the time of Topsoil Raw data in blows per 50mm ← Out-flow drilling. unless remarks state otherwise Silt Suction observed during drilling at 2.0m depth. Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 50 mm

RS

SRO

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4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA08** Date Augered: Client: Hole Location: 07 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK115 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 30.6m E1748235.0, N5949215.0 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 Topsoil; some rootlets; dark grey; [TOPSOIL]. 으움 등 S[™] Clayey SILT; with some rootlets; brown. Very stiff; moist; nonplastic; [EAST COAST BAYS FORMATION]. 2, 1, 2 .0.5..... V=184 1, 1, 2 R=65 SILT; with some sand; brownish orange with mottled whitish grey. Very stiff; moist; non-plastic. 30.0 V=139 R=65 V=147 R=88 V=153 R=105 BAYS FORMATION 2.00m: Becomes brownish orange mottled whitish grey and V=138 R=93 EAST COAST V=147 V=155 _{3.} R=91 27.00 SILT; with minor clay; with minor sand; light brown with mottled light grey. Very stiff; moist; low plasticity. V=158 R=87 Sandy SILT; with trace gravel at sandstone; brownish orange with mottled light grey. Firm; wet; Very stiff; wet; low plasticity. V=151 R=73 END OF HOLE: 5.00m (Target Depth) 3, 3, 3 3, 3, 3 4, 5, 5 5, 5, 5 7, 9, 8 9, 11, 11 11 Remarks Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 55 Russell Road. Standing
Water Level Scala Penetrometer Tests 2. No groundwater was encountered at the time of drilling.
3. Squeezing observed during drilling at 1.5m, 2.5m and between 3.0 and Clay Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Instrument Details:

NOT TO SCALE

N/A

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.nz

HAND AUGER LOG

	K			Ph	HRISTCHURCH 8011 a: 03.379.4402 www.rileychch.co.nz	AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.n						TAN	D AU	GE	KL	UG	
Proje	ct No.	:	Pr	oject nar		· · · · · ·		Pro	oject L	.ocati	on:				N	lo.:	
24006			Ru	issell Roa	ad, Silverdale			Ru	ıssell R	oad 8	& Upper Or	ewa Road	t	_			
	Auger			Client:					le Loc			- 01444			H	411	
	v 202			Vineway							Dwg 24006			Cha	-4.	04-4	
RL 20	nd Lev	vei:			Co-ordinates: E1748247.0, N	5949354 0		10 n	Depth:	-	Reason 1 Target De		ea:	She 1 of		Statu:	
					· · · · · · · · · · · · · · · · · · ·			_				•	1	1	Ī		
Elevation (m)	Depth (m)	Geological Unit	pu		Geological D	•	205)	Water / Moisture			Soil S Strength		Scal Penetror			Situ	Depth (m) Backfill / Install
leva (m	epth	e P	Legend	Refer to	ccordance with NZ0 o "Geotechnical and	Geological Infor	rmation"	er / N	Samp	- 1	•	• Peak	(blows/5			esting /Results	# ∰ (m)
Ш	۵			sheet	for explanation of le	gend and abbrev	/iations	Wat			50 100		5 10	15			Dept
20.00	0.20	FILL	TS W	Topsoil; s	ome rootlets; dark grey	; [TOPSOIL].		D							1, 1, 1 1, 2, 1		
1			××, × × × ×	SILT; with stiff; mois	n some clay; with some t t; low plasticity; [EAST (and fine gravel; bro COAST BAYS FOR	wn. Very RMATION].						2		1, 1, 2 1, 1, 2		
19.70	0.50		8 × ,× .	L							Δ	•	1 2 1		1, 2, 1	V=140 R=52).5
19.5			^× ×	whitish gr	n some clay; with minor ey and red. Rare lense d sand. Very stiff; moist	of reddish brown lin							2		1		
1	• •		× × × × ×	graverand	u sanu. Very sun, moisi	, low plasticity.							2:				
1	- 1.0		×××*	1.00m: Gı	rades to some sand.						Δ •		1 1			∨ V=110 R=35	
19.0			* × × × × ×										1				圕
18.70	1.50		× × ×													V=145	.,-Н
7		NO	× ×	Sandy SII	LT; brownish orange wit t; non-plastic.	h mottled whitish g	rey. Very]				•				∨ V=145 R=47	$\exists H$
18.5	1.90	MATI	× · · · × · · · · · · · · · · · · · · ·	,	-, · · · · · · · · · · · · · · · · · · ·			М									-18
	- 2.0	BAYS FORMATION	××××		some clay; with minor		with	1			Δ .					V=128 R=58	2.0
18.0		3AYS	* * * * * *	mottled or	range. Very stiff; moist;	low plasticity.										11-30	泪
1		ASTI	× × ×														井
+	2.5	EAST COAST	×××								Δ	•				∨ V=154 × R=46	2.5
17.5		EAS	× × × × ×	2 70m: Sc	ome lenses of fine grey	sand											井
17.30	2.90		×		some sand; with minor		nge									V=150	泪
1	3.0		×××		taining. Stiff; wet; low pl		ilige				A :					∨ V=150 R=43	·°-
17.0			× × × ,					lacksquare									泪
16.70	. 3.5		××× ×		ecomes saturated.						Δ	•				∨ V=151 ∀ R=17	3.5
16.5			× × ×		LT; with some clay; with bluish grey. Very stiff; s			s								K=17	担
+	-		× × ×														曲
16.10	4.0 4.10		× ×									•				∨ V=214+	:
16.0	•			END OF H	HOLE: 4.10m (Target [Depth)							• -5;	20	▼ 5, 20		-
1																	1
‡	- 4.5															4	4.5—
15.5																	_
‡	- 5.0																5.0_
15.0																	_
+																	_
14.5	5.5															5	5.5
14.5																	1
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1	- 6.0															6	6.0
14.0																	1
1	6.5															6	6.5
13.5																	_
1]
											<u> </u>	<u> </u>	l i i	- :			
Star	idina				otechnical Information" sh	eet for further details.				Rema 1. Han	arks d auger at 55	Russell Ro	ad.				
▼ Wat	er Level	Ra	w data in	trometer Tes	50mm	Clay	Ben	tonite	, [[2. Grou	undwater end . Groundwate	ountered at	approximate				
├ In-fl	ow	•		arks state ot	www real	Silt	Grou	ut/cor	ncrete	3			,				
Moistu M = mo	ist			Strength (k t = Residual		Sand	Drill	arisir	ngs								
W = we S = sati		UT	P = Unal	ole To Pene	trate Core Los	Gravel	Filte	r san	d								
All di	mensi	ons i	n metr	es Con	tractor (if applica	ble):	Instrum	ent	Details	s:		Shear	Vane No.:	Logo	jed By:	Checke	d By:

Hand Auger 50 mm

22 Moorhouse Avenue Addington

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna

EK.			Ph:	RISTCHURCH 03.379.4402 www.rileychch.c	P	UCKLAND 062 h: 09.489.7872 : www.riley.co.	2					П	AINI	JΑ	U	7 C F	K L	UG	
Project No.	:	<u> </u>		Pro	oject l	Locat	ion:						N	o.:					
240065				d, Silverdale	е						& Upper	Orew	a Road	t					
Date Auger			Client:						le Lo								HA	\12	
19 Nov 202		\	/ineway		4					_	Dwg 240				I	01		1	
Ground Let RL 66.3m	vel:			Co-ordina E1747734		50280 O		ole I 10 n	Depth	:	Reaso Refusa		minate	ed:		Sheet 1 of 1	::	Statu FIN	
1 00.3111							4.	_	I .		Neiusa	11		1		1 01 1		LIIV	
E E	<u>ea</u>	ا و		Geologi	cal Des	cription		Water / Moisture				il Shea			cala	.	In	Situ	Depth (m) Backfill / Install
Elevation (m) Depth (m)	Geological Unit	Legend	In ac	cordance wit "Geotechnic"	h NZGS (Guidelines (2	2005) ermetion"	/ Mc	Sam	ples		ngth (k	•		trome s/50m			sting	Œ <u></u>
E De	Ö	ا ٽ		or explanation				Vater			∆ Residu	ıal ● 00 150) 5		5	Data	Results	Sack
	SO J	т. Т.	Topsoil; so	me rootlets; da	rk grey; [TC	OPSOIL].		>			30 1	90 130 : :	200	, y	10 1	-			-
66.0 0.20	_ 0,	±ç	SILT: with:	some clay; brov	vnish orano	ae. Verv stiff: m	noist:	+											+
+	^	× ×		asticity; [ÉAST (V=117	7
0.5		× ^									∆ :	•					,	V=117 R=52	0.5—
65.5	×,	××*																	
1.0		× × × ×																V=95	-
65.10		×××	1.00m: Bed	comes stiff.							Δ. •						Ì	V=95 R=37	-
65.0	×	×		; light grey mott	led orange	. Stiff; moist; m	nedium	1											=
1.5		×	plasticity.								Δ.						,	V=89 R=37	1.5
Ŧ	NO X							м										* R=37	-
64.5	MAT ×	× ×																	1
2.0	FOR										Δ						,	V=92 R=40	2.0
±	BAYS																	K=40	-
64.0	STB	×						$ \mathbf{v} $											7
63.80 2.5 2.50	EAST COAST BAYS FORMATION		OU T'W					┻			Δ		•				,	V=172 × R=61	2.5
‡	×	××	plasticity.	some clay; light	grey. very	stiff; moist; m	eaium											1001	
63.5	_ ×	× × × ×																	-
3.0	×,	. × ×	3 00m: 100	mm layer of cla	wev eilt: wi	th trace cand:	brown				Δ	•					,	V=126 R=37	3.0.
63.10 3.20	×		mottled da	rk red.	wi			Щ											1
63.0	×.:	××	Sandy SIL	Γ; bluish grey. \	ery stiff; w	et; non-plastic.													_
3.5	i ×	××											•				,	√ V=215+	3.5
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62.0			END OF H	OLE: 4.10m (F	Refusal)										10		13, 10, 8 10, 12, 10	1	-
-															10		10, 12, 10		7
4.5																			4.5—
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									<u> </u>	D		<u> </u>	-:		:	:			
Explanations Standing					tion" sheet f	or further details	S.				nd auger a								
₩ater Level Out-flow	Raw	data in bl	meter Test lows per 50)mm 🚉 🛚 🖸	opsoil	Clay	Ben	tonite	·		undwater					2.4mB0	SL at the	time of	
In-flow	unles	s remark	s state oth	erwise Pe	eat	Silt	Gro	ut/cor	ncrete		•								
Moisture: M = moist			strength (kP Residual	'a) Fi	II	Sand	Drill	arisir	ngs										
W = wet S = saturated			To Penetr	ate Cu Cu	ore Loss	Gravel	Filte	r san	d										
All dimensi	ons in r	netres	Cont	ractor (if ap	plicable):	Instrun	nent	Detail	ls:		I	Shear	Vane N	lo.: L	_ogge	d By:	Checke	d By:

Hand Auger 50 mm

GEO3588-B

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA13** Date Augered: Client: Hole Location: 20 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK120 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 57.2m E1747634.0, N5950202.0 4.10 m FINAL Refusal 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 S Topsoil; minor rootlets; dark grey; [TOPSOIL]. SOI 57.00 57.00 Clayey SILT; brownish grey mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. V=129 R=49 V=110 BAYS FORMATION Silty CLAY; with trace sand; light grey with mottled orange and brown. Very stiff; moist; medium plasticity. V=104 R=40 Y COAST V=74 Sandy SILT; with some clay; bluish grey. Stiff; moist; non-R=25 EAST 54.5 2.50m: Becomes saturated. V=141 3.00m: Becomes very stiff. S V=172 Sandy SILT; dark bluish grey with mottled dark brown. Very R=49 stiff: wet: non-plastic 53.5 √ V=215+4.0 53.0 END OF HOLE: 4.10m (Refusal) 2, 2, 10 20, 17 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 130 Upper Orewa Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater inflow encountered at approximately 2.26mBGL at the time of Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete ├─ In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 70 mm

SRO

SY

GEO3588-B

All dimensions in metres

NOT TO SCALE

N/A

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4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA14** Date Augered: Client: Hole Location: 19 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK120 Ground Level: Co-ordinates: Hole Depth: Reason Terminated: Sheet: Status: RL 76.7m E1747756.0, N5950170.0 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results Water/ △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 S SILT; with trace clay; with trace fine sand; dark brownish grey. SOI Very stiff; moist; low plasticity; [TOPSOIL]. 76.50**76.5...** CLAY; with some silt; greyish brown. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=127 R=37 V=102 _{1.0.} R=42 1.20m: Grades to brownish grey V=127 R=67 1.70m: Grades to grey mottles. BAYS FORMATION V=112 R=39 2.50m: Grades to minor fine sand. COAST 2.80m: Becomes wet. V=71 2.90m: Grades to trace fine sand EAST 3.00m: Grades to light grey; becomes stiff. V=166 3.50m: Becomes very stiff. R=44 V=101 3.90m: Grades to mottled orange R=55 4.00m: Grades to some fine sand. _{72.5} 4.30m: Grades to trace fine sand: orange brown and grey V=97 R=60 4.50m: Becomes stiff. 4.60m: Grades to mottled grey. V=118 R=70 2, 2, 1 2, 2, 2 3, 3, 2 END OF HOLE: 5.00m (Target Depth) 71.5_ 2, 3, 2 5. 6. 3 4, 5, 5 6, 6, 6 10, 8, 8 8, 8, 9 8, 9, 12 14, 10 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 130 Upper Orewa Road. Standing
Water Level Scala Penetrometer Tests Topsoil 2. No groundwater encountered at the time of drilling. Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete ├─ In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By:

Hand Auger 50 mm

MAH

SRO

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

	K			Ph	03.379.4402	AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.nz					HAN	D AL	JGE	K L	UG	
-	ct No.	:		oject nan	ne:	,			ject Loc		. O D	-1		N	o.:	
24006			Ru		d, Silverdale						Orewa Roa	a	4		115	
	Auger			Client:	l td				e Locati		0065 61/100			П	\15	
	nd Le			Vineway	Co-ordinates:				er to Kile		0065-SK120 on Terminate	nd:	She	ot:	Status	
RL 32		vei.			E1747534.0, N59	149888 O	4.2		•	Refusa		ou.	1 of		FINA	
1		ı		İ	•			_		1		1	1	· I	l .	
6	Œ	Geological Unit	Þ		Geological De	scription		Water / Moisture		1	oil Shear	Sca		l In	Situ	Backfill / Install
Elevation (m)	Depth (m)	S P	Legend	In a	ccordance with NZGS o "Geotechnical and G	Guidelines (2005	5)	ĭ	Samples	·	ngth (kPa)	Penetro (blows/s			sting 1	
≝	De	Ö	تا		or explanation of lege		tions	Vater		1	ual ● Peak 00 150 200	5 1	,	Data	Results	Back
32.60	0.10) D O (TS _{JV} Ψ.	Topsoil; da	ark grey; [TOPSOIL].			> 		30 1	: : :		15			
32.5	-		××, × × × ×		some clay; with trace fine											4
1	-		××××		ange. Very stiff; moist; mo AYS FORMATION].	edium piasticity; [EA	.51								V-122	1
1	- 0.5		× ×							A	•				V=132 _{0.5} R=40	_
32.0	-		^× × ×													-
1	- -		×××												\/-02	1
1	_ 1.0		× × ×							Δ •) : : : : : : : : : : : : : : : : : : :				V=92 R=34	1
31.50 31.5	1.20		^× ×	Silty CLAY	'; with trace fine sand; lig	ht arev with mottled	orange									-
1	-		×		; medium plasticity.	nt groy war motaca	orango.								1/-74	1
1	_ 1.5	z	×					м		Δ •					V=74 R=18	_
31.0_	-	ATIO	××													-
Ŧ	-	ORM	×												V=58	7
1	- 2.0	COAST BAYS FORMATION	×							^					V=58 R=15 2.0	1
30.5	-	T BA	× ×													_
Ŧ	-	OAS													V=141	7
1	- 2.5 -	EASTC	<u>×</u>	2.50m: Be	comes very stiff.					^	•				V=141 R=37 ^{2.5}	7
30.0	-	Ā	×_ ×													1
+	-														V=169 3.0	-
29.60	3.0 3.10		××					╛		1	•			ľ	R=49	7
29.5	- -			low plastic	'; with some fine sand; br ity.	ownish grey. Very si	tiff; wet;	┸│								_
+	- - 3.5		×					w							. V-245 :25	4
1	- 3.3		<u> </u>	3.50m: Gr	ades to brownish orange.										√ V=215+ ^{3.5}	7
29.0 28.90	3.80		×	-				_								1
1	- - 4.0		× × ×	Sandy SIL	T; bluish grey. Very stiff;	Saturated; non-plast	tic.	s							√ V=215+4.0	_
28.50	4.20		× × ×												V 210	-
	-			END OF H	OLE: 4.20m (Refusal)							\$ 5		5, 5, 6		-
1	- - 4.5											6.6	. 10 •12	6, 10, 12 20	4.5	1
28.0	-												20]		_
+	-															-
7	- 5.0														5.0	7
27.5	-															_
1	-															_
+	- 5.5														5.5	-
27.0	-															1
1	-															_
+	- 6.0														6.0	-
26.5	-															7
1	-															1
1	- 6.5														6.5	_
26.0	-															-
1	-															7
Expla	nations	S: Refer	to "Geolo	gical and Geo	technical Information" shee	t for further details.			Re	marks	-		•			_
	ndina	▼ Sc	ala Pene	trometer Tes	ts Topsoil	Clay	Bento	nite			at 130 Upper Or encountered at		tely 3.2ml	BGL at the	time of	
√ - Out-	-flow			blows per 5 arks state oth	Umm 🝱 .				dril	ing.	ta from 4.5mBG		-			
├─ In-fl		•		Strength (ki	EXX	Silt	Grout			ouia raw ua	MING.P IIIOII DO	,_ 13 JU DIO\	100 000			
M = mo W = we	ist	V =	Peak, R	t = Residual		Sand	Drill a									
S = sat		UT	r = Unal	ole To Penet	rate th Core Loss	Gravel	Filter	sand								
VII 4:	manai	:	a matr	oo Cont	ractor (if applicabl	e). I	nstrume	nt [Details:		Shear	Vane No	: Logo	ied Bv	Checked	Bv:

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 F: www riley co nz

HAND AUGER LOG

	Ы		CHRISTCHURCH 8011 AUCKLAND 0622 Ph: 03.379.4402 Ph: 09.489.7872 E: www.riley.chch.co.nz E: www.riley.co.nz					ANI	J AU	JEF	LC	
Project No.:		Pro	oject name:		Pro	oject Loc	ation:				No	.:
240065		Rus	ssell Road, Silverdale		Ru	ssell Roa	d & Upper Orev	va Road				İ
Date Augere	d:		Client:			le Locati					HA	16
20 Nov 2024			Vineway Ltd				y Dwg 240065-			21		
Ground Leve RL 48.5m	91:		Co-ordinates: E1747788.0, N5949909.0	4.7		Depth:	Reason Te		a:	Sheet 1 of 1	•	Status: FINAL
1 1	_	1		7.7	_	•	Tiole Collap			1011		
Elevation (m) Depth (m)	Unit	Legend	Geological Description In accordance with NZGS Guidelines (20 Refer to "Geotechnical and Geological Inforr sheet for explanation of legend and abbrevi	nation"	Water / Moisture	Samples	I	kPa) Peak	Scala Penetrom (blows/50) 5 10	eter	In S Test Data/R	ing ᢓ
48.30 0.20	0) <u>un</u>		SILT; with trace fine sand and orgranics; with black in dark grey. Very stiff; moist; non-plastic; [TOPSOIL].	clusions;	>		30 190 19	200	9 19			
48.0 0.5	×	× × × × × ×	SILT; brown. Very stiff; moist; non-plastic; [EAST CO/ BAYS FORMATION].	AST			Δ •				~	V=134 _{0.5} R=47
‡	χ,	, ×,×	0.30m: Grades to trace fine sand.		м							- 3 8
‡	×	× ×	0.50m: Grades to grey specks.		IVI							-
47.5 1.0 47.40 1.10	× ,	× × × ×	1.00m: Becomes stiff.				A •					V=94 R=25
<u>†</u>	_		CLAY; with some silt; grey with mottled orange. Stiff; high plasticity.	moist;								∄
47.0 1.5			g., p.2,				Δ.					V=65 15
Ŧ I	E		1.50m: Becomes wet.	ĺ			A .				~	R=22
46.70 1.80	_ ×	· · ×	Sandy SILT, with trace clay; grey mottled orange. Stif	f· wet·								341
46.5 2.0	IATION	××	low plasticity; sand, fine to medium.	,,,	w		Δ •				~	V=86 R=25 ^{2.0}
‡	BAYS FORMATION	× × ×										11
46.10 2.40	YS F		CLAY; with some silt; grey. Stiff; saturated; high plast	ioitu								v=02]
46.0 2.5	ST B/		2.50m: Becomes saturated.	ioity.	¥		Δ •				~	V=92 R=37 ^{2.5}
‡	EAST COAST											1 H
45.5 3.0	EAST		0.00 B				A •				~	V=119 3.0 R=50
‡			3.00m: Becomes very stiff.3.10m: Grades to some fine sand; mottled orange.									1
<u>†</u>			3.30m: Grades to trace fine sand.									∃ E
45.0 3.5	<u> </u>		3.40m: Grades to some fine sand.		s		Δ	•			~	V=168 R=37 3.5
44.70 3.80	Ξ.											追
44.5 4.0		.	Silty SAND; grey. Medium dense; saturated; non-plas	stic.								
44.30 4.20	×	×										
44.10 4.40		× × ×	Clayey SILT; with minor fine sand; grey. Very stiff; sai high plasticity.	turated;								
44.0 4.5		· ×	Silty SAND; with trace clay; grey. Medium dense; satu non-plastic; sand, fine to medium.	urated;								4.5
43.80 4.70		43.74	END OF HOLE: 4.70m (Hole Collapse)						\$.4 ****		 1, 4, 7	
43.5 5.0									4.0.7. 10 4.40	12	10, 10, 12	5.0
‡												
<u> </u>												
43.0 5.5												5.5
<u>†</u>												
42.5 6.0												6.0
1												
+												-
42.0 6.5												6.5
‡												
‡												
Explanations:	Refer to	"Geolog	gical and Geotechnical Information" sheet for further details.			Re	marks					<u> </u>
Ctonding	▼ Scala	Penetr	rometer Tests Topsoil Clay	Bento	nite		Hand auger at 130 Groundwater encou			/ 2.6mBG	L at the ti	me of
L Out-flow			blows per 50mm rks state otherwise Peat Silt				ling.					
Moisture:			Strength (kPa) Fill Sand	Drill a		Ш						
M = moist W = wet S = saturated			= Residual le To Penetrate Core Loss Gravel	Filter	sand	d						
All dimension	ns in ı	metre		Instrum	ent	Details:		Shear	Vane No.:	Logge	By: C	hecked By:

Hand Auger 70 mm

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA17** Date Augered: Client: Hole Location: 20 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK117 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 47.2m E1747786.5, N5949675.6 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results Water/ △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT; with minor fine sand; dark brown. Dense; moist; non-S SOI plastic; [TOPSOIL]. 47.00 ----**47.0**---SILT;greyish brown with mottled orange. Very stiff; moist; nonplastic; [EAST COAST BAYS FORMATION]. V=158 R=55 0.50m: Grades to trace clay; low plasticity. 0.70m: Grades to minor clay; grey and orange streaks. R=50 1.00m: Becomes clayey. Silty CLAY; grey with mottled orange. Stiff; moist; high V=91 R=39 1.50m: Becomes stiff. V=121 R=65 2.00m: Becomes very stiff. BAYS FORMATION V=91 R=45 2.50m: Becomes stiff. COAST V=71 EAST 3 00m: Becomes wet W Silty SAND; with some clay; light grey with mottled orange. Wet; sand, fine. 3.20m: Becomes saturated. V=79 R=54 Sandy SILT; with some clay; light grey with mottled orange. Stiff; saturated; low plasticity; sand, fine. 43.5 3.40m: Becomes clavev: with some fine sand: medium plasticity. V=84 R=45 Ţ 4.10m: Grades to bluish grey. 4.30m - 4.60m: Becomes sandy; brownish orange. V=67 R=54 4.60m: Becomes clayey; with minor fine sand; dark grey. V=153 R=29 END OF HOLE: 5.00m (Target Depth) 3, 3, 3 3, 3, 4 4, 5, 7 42.0_ 8, 7, 8 8, 8, 8 7 8 8 10, 10, 10 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details Standing
Water Level 1. Hand auger at 88 Upper Orewa Road. Scala Penetrometer Tests Topsoil 2. Groundwater encountered at approximately 4.1mBGL at the time of Clay Bentonite Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete > In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

NOT TO SCALE

N/A

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

			Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz				JAU	GLI	· LO					
Project No.	:	1	oject name:	Pro	oject Loc	No.:								
240065		Rı	ussell Road, Silverdale				d & Upper Orev	wa Road		HA18				
Date Auger			Client:			le Location		01/440	18					
20 Nov 2024 Ground Lev			Vineway Ltd Co-ordinates:	Ho		Depth:	y Dwg 240065 Reason Te		q.	Sheet: Status:				
RL 32.6m	•0		E1747646.9, N5949519.7		00 n	-	Target Dep		u.	1 of 1	.	FINAL		
	_		Geological Description		a.		0.1101		0 1			<u>=</u>		
Elevation (m) Depth (m)	Geological Unit	Legend	In accordance with NZGS Guidelines (200)5)	Water / Moisture	Complea	Soil She Strength (Scala Penetrom		In S			
(m) (epth (olog C	Leg	Refer to "Geotechnical and Geological Inform	nation"	ter / N	Samples	△ Residual	Peak	(blows/50	mm)	Test Data/R	esults # 3		
		TS W	sheet for explanation of legend and abbrevia Topsoil; dark brownish grey; [TOPSOIL].	auons	Wa		50 100 15	0 200	5 10	15		Ba		
32.5 32.40 0.20	SOI L	× × × —————————————————————————————————										1		
‡		×××	Clayey SILT; brownish grey with mottled orange and d Very stiff; moist; medium plasticity; [EAST COAST BA											
32.0		<u> </u>	FORMATION].				Δ .				~	V=147 R=52		
+		× × × × × ×										-		
\prod_{10}		× × ×										V=129 10		
31.5		× × ×					Δ •				~	R=40		
31.30 1.30		× × ×	Clie. Cl. A.V. limbs and with model of any of the											
1.5		×	Sllty CLAY; light grey with mottled orange. Very stiff; m medium plasticity.	noist;			Δ .				~	V=120 _ R=37 1.5_		
31.0		×	1									1 - 37		
‡		× ×												
30.5	Z		2.00m: Becomes stiff.				Δ •				~	V=89 R=31		
+	MATIC	×										-		
Ŧ.	FORI	× ×										V=166		
30.0	3AYS	×	2.50m: Becomes very stiff.		М		^	•			~	V=166 R=64 -		
‡	EAST COAST BAYS FORMATION	<u> </u>										1		
3.0	00 1	×	2.80m: Grades to brownish orange with trace fine sand	u.				•			× -	V=181 _{3.0} R=64		
29.5	EAS	×										K-04 -		
±		× ×										_		
29.10 3.5 3.50		× × .	Sandy SILT; light grey with mottled orange. Very stiff; i	moist;			A •				~	V=129 _{3.5} R=43		
+		×	non-plastic.									-		
<u></u>		× .× ×										V-245 40		
28.5		× × ×	4.00m: Grades to brownish orange.								~	V=215+4.0—		
‡		×××	4.30m: Grades to light grey.											
4.5		^ × × ×	4.50m. Grades to light grey.				Δ	•			~	V=178 _{4.5} R=55		
28.0		×	,											
 ‡		×××	4.80m: Grades to brownish orange.						4			_		
27.5 5.0 5.00		×:···	END OF HOLE: 5.00m (Target Depth)	-				•	\$ 4	1	4, 4, 4	V=215+5.0-		
‡									4 4		4, 4, 4 5, 6, 5			
5.5									6 5		5, 5, 6 7, 7, 6	- 5.5 		
27.0									5		10, 10, 15	-		
±									7 0 10 7 0 11	o		-		
6.0									6			6.0		
Ŧ														
Ŧ														
26.0												6.5		
‡														
Ct			ogical and Geotechnical Information" sheet for further details.			- 11	marks land auger at 88 U	Ipper Ores	va Road					
▼ Standing Water Level			etrometer Tests Ts Topsoil Clay	Bent	onite		o Groundwater er			of drilling.				
Out-flow In-flow	v unl	less rema	arks state otherwise state of the state of t	Grou	t/cor	ncrete								
Moisture: M = moist			r Strength (kPa) Fill Sand	Drill a	arisir	ngs								
W = wet S = saturated			ble To Penetrate Core Loss Gravel	Filter	san	d								
All dimensi	ons ir	n metr	es Contractor (if applicable):	Instrum	ent	Details:		Shear	Vane No.:	Logge	d By: C	hecked By:		

Hand Auger 70 mm

GEO3588-B

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project name: Project Location: No.: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA19** Date Augered: Client: Hole Location: 18 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK121 Ground Level: Co-ordinates: Hole Depth: Reason Terminated: Sheet: Status: RL 45.1m E1747300.6, N5949479.1 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results Water/ △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT; with minor clay; with trace fine sand; dark brown. Very stiff; moist; low plasticity; [TOPSOIL]. Silty CLAY; grey with mottled orange. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=159 R=61 V=150 R=83 1.60m: Grades to some silt. V=123 R=67 BAYS FORMATION V=126 R=86 COAST 2.80m: Becomes wet. V=126 EAST 3.20m: Becomes saturated. V=77 R=41 3.50m: Becomes stiff. V=64 V=64 R=37 END OF HOLE: 5.00m (Target Depth) 2, 2, 3 6, 6, 8 8, 8 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 132 Upper Orewa Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater encountered at approximately 2.96mBGL at the time of Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 70 mm

GEO3588-B

NOT TO SCALE

N/A

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

	K	CHRISTCHURCH 8011 Ph: 03.379.4402 E: www.rileychch.co.nz E: www.rileychc.co.nz										HAND AUGER LOG											
Project No.: Project name:							Pro	ject L	ocatio	n:		No.:											
240065 Russell Road, Silverdale								Russell Road & Upper Orewa Road															
Date Augered: Client:									e Loc			HA20											
18 Nov 2024 Vineway Ltd Ground Level: Co-ordinates: F								-	Refer to Riley D			_					Sheet: Status:						
							1	lole Depth: .00 m			Reason Terminated: Refusal					1 of		Status: FINAL					
1										ь,	_		_	- Cord			1		1 01		<u> </u>		
ig _	(m)	Geological Unit	힏			_		scription		ŀ	Water / Moisture				Soil Sh ength		_{Bo}	Scala netron		lr lr	Situ	Depth (m) Backfill / Install	
Elevation (m)	Depth (m)	olog Uni	Legend	, In Refe				S Guidelines Seological Ir		n"	Ž	Samp	- 1		-			ows/50			sting /Results	(m) /	
□	Ğ	Ğ		shee				end and abb		ns	Wate				iduai 100 1	● Peak 50 200	5	10	15	Data	rtesuits	Dept	
51.40	0.10	P	× ×	× 1		rootlets; da																- 8 8	
‡			××	Clayey				. Stiff; moist; I RMATION].	medium														
51.00	0.50		××												_						V=86 ₀	.5_0	
+			×	Silty CL brown.	.AY; bro Stiff; mo	wnish grey oist; high p	y with mot lasticity.	tled orange a	nd dark					Ī							× R=50	.5_XX	
Ŧ				_																			
50.5	1.0			××							м			Δ .							V=99 1 R=20	. 1	
50.30	1.20		×								IVI										11-20	丗	
+								e sand; light g n plasticity.	grey with													$+\Box$	
50.0	1.5	NO												Δ :	•						∨ V=84 R=17 ¹	5-]	
‡		MATI																				$\exists H$	
‡		BAYS FORMATION																				18	
49.5	2.0	AYS		 										Δ (•						∨ V=81 ≺ R=30 ²	╗	
49.20	2.30			2.10m:	Become	es wet.																$\exists \exists$	
Ŧ		EAST COAST	×	Silty CL		n trace fine	e sand; br	own. Stiff; we	t; medium												\/=77	$\exists \exists$	
49.0	2.5	EAST		plastion	.y.									A	•						∨ V=77 ≻ R=30 ²	5	
48.70	2.80			×																		$\exists \exists$	
48.5	3.0		× ×					vnish grey. Ve to medium, aı		ick.				Δ							V=109 ₃	Ħ	
Ŧ				×							w										* R=34	-8	
48.20	3.30		×		ND wit	th trace are	aval: brau	nish grey. Me	dium dona													$\exists \exists$	
48.0	3.5		×			c; gravel, fi			edium dens	se,											3	5_	
‡			×																			坦	
47.70	3.80		× ,	Sandy				vnish grey wit		_							1 1					1	
47.50	4.0		× . · · _v	× orange	mottling າ, angula		f; wet; san	id, fine; grave	l, fine to	}	+			-	-		2 2			1, 1, 1	√-V=235+4	ا ا	
Ŧ				END OF	HOLE	: 4.00m (l	Refusal)										2 3			2, 2, 3		-	
Ŧ																	2 2 2			2, 2, 1 1, 2, 2		7 1	
47.0	4.5																12			1, 1, 1 1, 2, 2	4	.5—	
‡																	1 1			3, 2, 2 3, 2, 3		_	
46.5	5.0																1 1 2			3, 2, 5 3, 3, 10	5	.0.	
+																	3 2			8, 9		-	
Ŧ																	3					7 1	
46.0	5.5																•	5			5	.5	
<u> </u>																	3.	8	0	↓		_	
±																	3;					_	
45.5	6.0																				6	.0	
Ţ																						7 1	
‡																						-	
45.0	6.5																				6	.5	
+																						}	
Ŧ			\perp																				
Explan	ations	: Refe	r to "Ge	eological and (Geotechn	ical Informa	ation" shee	t for further det	tails.			- 11	Rema										
Stan		▼ Sc	ala Pe	enetrometer 1	Γests	≝τs [±] ± Τ	opsoil	Clay		Bento	nite					Upper C			of				
√ - Out-f	low			a in blows pe emarks state		C4 10 10 10	eat	Silt	A.V	Grout		(drilling.										
├── In-flo Moistur	e:	Va	ane Sh	ear Strength	(kPa)	××××	Fill	Sand	2	Drill a													
M = moi W = wet				κ, R = Residu nable To Per		CIL C	ore Loss	Grav		Filter													
S = satu						- Crt		****	65.64							I.e.			T -				
All dir	nensi	ons i	n me	tres Co	ontract	tor (if ap	oplicabl	e):	Ins	trume	ent I	Details	:			Shea	r Vane	No.:	Logg	ed By:	Checked	d By:	

Hand Auger 70 mm

SRO

MAH

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 F: www riley co nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA21** Date Augered: Client: Hole Location: 19 Nov 2024 Vineway Ltd Refer to Riley Dwg 240065-SK123 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 62.9m E1747307.0, N5949843.0 5.00 m FINAL **Target Depth** 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water / Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 Topsoil; some rootlets; dark grey; [TOPSOIL]. S[™] 2 S = Clayey SILT; dark brown with mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. V=135 62.0 R=37 Silty CLAY; brownish grey with mottled orange. Very stiff; moist; high plasticity. V=101 R=31 V=101 R=43 BAYS FORMATION V=67 R=31 2.50m: Becomes stiff. COAST V=95 EAST CLAY; with some silt; with trace sand; light grey with mottled orange. Stiff; moist; high plasticity. V=123 R=61 3.50m: Becomes very stiff. V=83 R=55 4.00m: Becomes wet; stiff. 0, 0, 1 END OF HOLE: 5.00m (Target Depth) 1, 1, 1 2, 2, 2 2, 3, 3 3, 3, 3 2. 2. 3 5, 6, 6 7, 8, 8 7, 7, 7 8, 7, 7 7, 7, 10 10, 10 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 132 Upper Orewa Road. Standing Water Level Scala Penetrometer Tests 2. No groundwater encountered at the time of drilling. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 70 mm

SY

SRO

GEO3588-B

NOT TO SCALE

N/A

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HAND AUGER LOG

(N			Ph: 03.379.4402 Ph: 09.489.7872 E: www.riley.co.nz		HAND AGGER EGG												
Projec	t No.	:	Р	roject name:		Pro	oject Loca	tion:	No.:									
240065 Russell Road, Silverdale							Russell Road & Upper Orewa Road Hole Location: HA22											
Date A	•			Client: Vineway Ltd			le Locatio		2400	NEE SIZ	1122			1	П	422		
							Refer to Riley D					ų.		Sheet: Status:				
RL 58.				E1747257.0, N5949908.0	5.00		•		Reason Terminated: Target Depth					1 of		FINA		
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Informat sheet for explanation of legend and abbreviation) tion" ons	Water / Moisture	Samples	Si ∆ Re	Soil Shear Strength (kPa) A Residual Peak 50 100 150 200 5						Τe	Situ esting /Results	Depth (m) Backfill / Install	
58.60	0.30	TOPSO IL	TS T	SILT; with minor fine sand; dark brown. Very stiff; moist; plastic; [TOPSOIL].	non-												-	
58.5	0.50	•		Silty CLAY; brown; very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].	Г				Δ	•						V=154 _{0.} × R=72	5	
	1.0		× × × × × × × × × × × × × × × × × × ×					A		•						∨ V=148 ∨ R=54	.0_	
57.5	1.5		× × × × × × × × × × × × × × × × × × ×	1.50m: Grades to brownish grey					Δ	•						∨ V=154 ≻ R=72	- - .5	
57.10 57.0	1.80		<u>×</u> ×		ty.	м										V=151	-	
56.70	2.20	ATION	××,	SILT; with some fine sand; brownish orange. Very stiff; m	noist:			*		•						V=151 R=50		
56.50 56.5	2.40	BAYS FORMATION	× × ×	non-plastic. Silty CLAY; with trace fine sand; brownish grey with mottle orange. Very stiff; moist; high plasticity.				A	•	•						∨ V=118 ₂ . ∀ R=34	.5	
56.00	2.90			2.70m: Grades to grey; no mottles.													-	
+3 +3 +	3.0	EAST COAST	××, ××, ××,	SILT; some fine sand; grey with mottled orange. Very stift moist; non-plastic. 3.00m: Grades to orange.	ff;			Δ	•	•						V=118 _{3.} R=30	<u>.</u> −	
55.50.5	3.40 3.5		× ×	Silty CLAY; grey with mottled orange. Stiff; moist; high plasticity.					Δ	•						∨ V=173 _{3.} R=67	- - 5_ -	
55.0	4.0			3.80m: Becomes wet.												∨ V=235+4	_	
‡				4.00m: Becomes hard. 4.20m - 4.40m: Silty sand; brownish orange; gravel; angu	ular to											v v 2001	-	
54.5	4.5			subangular; reddish black.	,	w		A			•					∨ V=208 ∀ R=54	5_	
54.00 54.0 53.90	4.90 5.00			Silty SAND; brownish orange with mottled orange; trace I inclusions. Medium dense; wet; non-plasitic.	black							1 1			 • 1, 1, 1	5.		
53.5				END OF HOLE: 5.00m (Target Depth)								2 2 2 2 4			1, 1, 1 1, 2, 2 2, 4, 3 3, 3, 4			
+ 5 +	5.5											3 3 14 14 14 5			4, 5, 4 5, 5, 5 5, 5, 6 6, 7, 7	5.	5_	
53.0	3.0											55555	6		5, 6, 7 7, 6, 6 7, 6, 7	6.		
52.5												5	6 7 7 6 7		6, 6, 6 7, 7			
+	3.5												6 : 6 : 7 : 6 :			6.	5	
52.0												•	7 7		+		-	
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. Standing Water Level Out-flow In-flow Moisture: Vane Shear Strength (kPa) V = Peak, R = Residual W = wet S = saturated Method Standing Water Level																		
All dim	All dimensions in metres Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By:												By:					

Hand Auger 50 mm

SRO

MAH

MH01 Photographs - 1 to 4



Photo 1: MH01 - depth from 0.0m to 3.8m

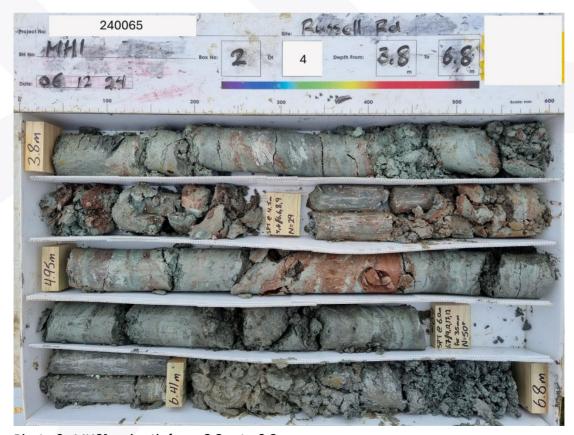


Photo 2: MH01 – depth from 3.8m to 6.8m



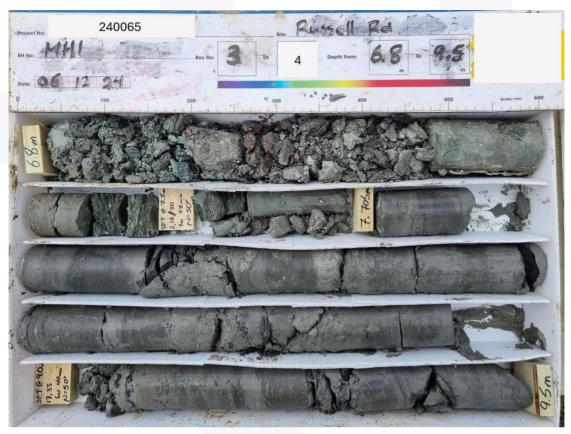


Photo 3: MH01 – depth from 6.8m to 9.5m



Photo 4: MH01 – depth from 9.5m to 12.0m



MH02 Photographs - 5 to 8



Photo 5: MH02 – depth from 0.0m to 3.0m



Photo 6: MH02 – depth from 3.0m to 6.9m





Photo 7: MH02 – depth from 6.9m to 10.0m



Photo 8: MH02 – depth from 10.0m to 12.0m



MH03 - Photos 9 to 13



Photo 9: MH03 - depth from 0.0m to 3.45m



Photo 10: MH03 - depth from 3.45m to 6.45m





Photo 11: MH03 - depth from 6.45m to 9.0m



Photo 12: MH03 – depth from 9.0m to 12.7m





Photo 13: MH03 – depth from 12.7m to 15.09m



MH04 - Photos 14 to 18



Photo 14: MH04 - depth from 0.0m to 3.7m



Photo 15: MH04 – depth from 3.7m to 6.37m



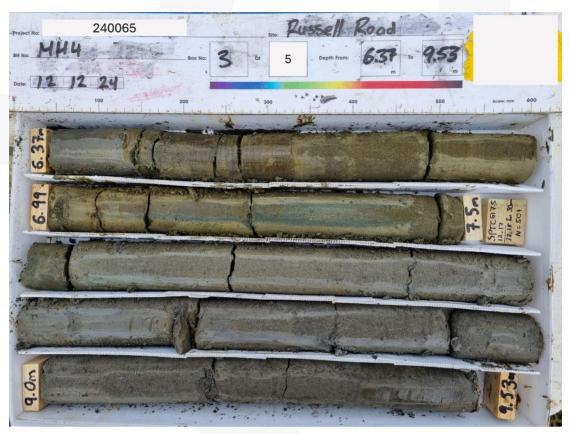


Photo 16: MH04 - depth from 6.37m to 9.53m



Photo 17: MH04 - depth from 9.53m to 12.6m





Photo 18: MH04 - depth from 12.6m to 15.0m



MH05 - Photos 19 - 22



Photo 19: MH05 - depth from 0.0m to 3.0m



Photo 20: MH05 – depth from 3.0m to 5.7m





Photo 21: MH05 - depth from 5.7m to 8.1m



Photo 22: MH05 – depth from 8.1m to 9.37m



MH06 - Photos 23 to 27



Photo 23: MH06 - depth from 0.0m to 4.5m



Photo 24: MH03 – depth from 4.5m to 7.95m





Photo 25: MH06 - depth from 7.95m to 11.0m



Photo 26: MH06 - depth from 11.0m to 14.05m





Photo 27: MH06 - depth from 14.05m to 16.9m



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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK110 **TP01** Date Excavated: **Ground Level** Project No.: Co-ordinates : 28.8 m (m): 240065 07 Nov 2024 E 1747778.0, N 5949469.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.60 m Refusal 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT; with some rootlets; dark brown. Firm; moist; non-plastic; [TOPSOIL]. 58 E 0.20 28.60 SILT; with some sand; whitish grey with mottled orange; some lenses of orange sandy silt. Stiff; moist; low plasticity. [HUKERENUI MUDSTONE] 1.0 0.20m - 1.00m: Grades to grey sandy silt and rootlets. V=82 0.50 -2.00m, 1 M NORTHLAND ALLOCHTHON V=67 Not Encountered R=34 2.00m: Becomes orange with mottled whitish grey; limonite 2.5 25.95 Highly weathered; bluish grey; sheared; SILTSTONE; very weak. Very closely fractured. Interbedded black and grey silt. ₹ 3.0 ∨ UTP 3.5 3.50m: Becomes moderately weathered; bluish grey with 2.90 -4.60m, 2 4.0 24.50 4.30 Slightly weathered; dark grey; SILTSTONE; very weak; closely fractured. Fractures lined with water. 24.20 + 4.54.60 END OF HOLE: 4.60m - Refusal 5.0 SKETCHES / PHOTOS LOCATION PLAN N NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 315° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK113 **TP02** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 06 Nov 2024 E 1747872.0, N 5949491.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT; with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL]. 0.15 35.35 ـ o _ o o D ≥ Clayey SILT; with some rootlets; brown. Firm to stiff; dry; - ^{0.}5.6 medium plasticity; [COLLUVIUM]. Sandy SILT; with trace gravel of siltstone; brownish orange mottled grey. Firm to stiff; moist; non-plastic [EAST COAST BAYS FORMATION]. V=134 1.0 R=64 1.00m: Becomes very stiff. 2.0 1.30m; Becomes whitish brown with mottled orange and pink. V=122 R=40 М Not Encountered BAYS F V=116 SILT; light grey; occasional mottled orange. Very stiff; moist; COAST 32.10 Completely weathered; grey; SILTSTONE; extremely weak; SILT; grey. Very stiff; moist; non-plastic. 3.5 EAST 31.50 Highly weathered; grey; SILTSTONE; very weak; laminated. 4.5 4.50m: Becomes moderately weathered; occasionally 5.0 30.20 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE Remarks: . RILEY Stability: Explanations: Groundwater: Backfill: Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite 53B Russell Road REPORT 2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation. Test pit was backfilled upon completion.
 No groundwater encountered. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 090° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP03** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 06 Nov 2024 E 1747968.0, N 5949674.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT; dark brown; [TOPSOIL]. 58 E 43.60 0.20 SILT; with some sand; with some gravel of residual siltstone; with some lenses of orange sand; whitish grey with mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. 1.0 0.20m - 2.00m: Grades to some rootlets; lense of grey silt. V=146 R=52 1.00 -2.00m, 1 М V=82 COAST BAYS FORMATION Not Encountered V=92 40.30 3.50 Sandy SILT; with some clay; brownish orange with mottled whitish brown and pink. Stiff; moist to wet; medium plasticity. V=52 R=27 4.0 4.00m - 5.00m: Banded locally; some lenses of brownish orange M W 4.00 -4.5 5.00m, 2 5.0 38.50 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE Remarks: REPORT: RILEY . Stability: Groundwater: Backfill: Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite 53B Russell Road 2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation. Test pit was backfilled upon completion.
 No groundwater encountered. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP04** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 06 Nov 2024 E 1747948.0, N 5949597.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.80 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" Depth (Unit U Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT; with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL]. 0.15 <u>г</u> о д 33.15 _ SILT; with some clay; with some sand; with some rootlets; brown. Firm to stiff; moist; low plasticity; [COLLUVIUM]. 0.5 32.60 0.7 Clayey SILT; with some sand; whitish grey with mottled orange. V=128 1.0 R=64 1.00m: Becomes very stiff. 1.5 М V=131 2.0 COAST BAYS FORMATION R=35 Not Encountered 2.5 30.50 SILT; grey. Very stiff; moist; non-plastic. 3.0 ∨ UTP 29.90 EAST Moderately weathered; grey; SANDSTONE; very weak to weak. Interbedded with, Moderately weathered; grey; SILTSTONE; very weak to weak. 3.5 4.0 4.5 END OF HOLE: 4.80m - Target Depth 5.0 SKETCHES / PHOTOS LOCATION PLAN N NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK112 **TP05** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 06 Nov 2024 E 1748126.0, N 5949673.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.50 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (Unit. In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Clayey SILT; with grass over topsoil; with some rootlets; brown with mottled grey. Firm; wet; medium plasticity; [TOPSOIL] TOP 38.00 W 37.80 0.50 Silty SAND; greenish blue. Loose to medium dense; wet; non-plastic. [COLLUVIUM] SILT, with some clay and sand and gravel; bluish grey with mottled brown and whitish grey. Stiff; moist; non-plastic [HUKERENUI MUDSTONE]. V=60 1.0 36.70 М ^{1.5}1.60 SILT, with trace clay; bluish grey. Stiff; moist; low plasticity. ALLOCHTHON Completely weathered; bluish grey; SILTSTONE; extremely V=52 2.0 weak to very weak; sheared and closed spaced fractured. 35.80 Highly weathered; bluish grey; SILTSTONE; extremely weak to very weak; sheared and closely space fractured. NORTHLAND ∨ UTP Moderately weathered; bluish grey with mottled reddish brown; SILTSTONE; very weak 3.5 4.0 ∨ UTP 33.80 END OF HOLE: 4.50m - Target Depth 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE Remarks: REPORT: RILEY . Stability: Explanations: Groundwater: Backfill: Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite 53B Russell Road 2. Test pit was backfilled upon completion.
3. Perched groundwater encountered at 1.0m depth.
4. Pit collapsed between 2.0m and 2.5m on the northern Slow Seep (@1.00m) Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP06** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 06 Nov 2024 E 1748100.0, N 5949574.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.90 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Field Scala Geological Elevation In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) $\widehat{\Xi}$ Depth Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations TOP SILT, with some rootlets and sand and gravel. Medium dense, moist; non-plastic; gravel, fine to medium; [TOPSOIL]. Clayey SILT; with trace sand; fine to medium; brown with 걸롤폴 mottled reddish brown and brownish orange. Stiff; moist; medium plasticity; [COLLUVIUM]. 0.5.6 М Silty SAND, with some rootlets and gravel, with minor cobbles; 26.00 0.90 bluish grey. Stiff; moist; non-plastic; Cobbles of manganese black-stained siltstone [HUKERENUI MUDSTONE]. V=55 1.0 SILT; with residual siltstone gravel; bluish grey. 1.5 1.60m: Becomes saturated. s 24.90 V=58 Highly weathered; bluish grey with mottled reddish sheared; NORTHLAND ALLOCHTHON SILTSTONE; extremely weak 2.5 ∨ UTP Moderately weathered; bluish grey; SILTSTONE; closely fractured; very weak to weak; bands of dark grey siltstone; laminated bluish grey and black. 3.5 4.0 4.5 22.00 4.90 5.0 END OF HOLE: 4.90m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE Remarks: . RILEY Stability: Groundwater: Backfill: Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite 53B Russell Road REPORT 2. Test pit was backfilled upon completion.
3. Perched groundwater encountered at 1.6m depth.
4. Pit collapsed at 1.6m depth on both sides of the pit. Slow Seep (@1.60m) Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: Location: No.: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK113 **TP07** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 05 Nov 2024 E 1748050.0, N 5949448.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.60 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Topsoil; with some rootlets; grey; [TOPSOIL] TOP SILT; with some clay and rootlets; with some interbedded topsoil; orange with mottled grey. Firm to stiff; dry to moist; low plasticity; [COLLUVIUM]. - ^{0.}5.6 COLLUVIUM DΝ 0.60 -0.80m, 1 SILT; with minor clay; with some rootlets and fine sand; brownish grey and orange with mottled dark orange. Firm to stiff; dry to moist; low plasticity. V=79 1.0 SILT; with minor to some clay; with trace fine sand; light grey with mottled orange. Stiff; moist; low plasticity; [HUKERENUI MUDSTONE]. 1.5 1.60m: 200mm to 300mm oxidised lenses. 23.90 20.00 Not Encountered Μ SILT; with trace clay and fine sand; light grey with mottled 2.00 orange. Firm to stiff; moist; low plasticity. 2.30m, 2 NORTHLAND ALLOCHTHON 2.5 23.10 2.80 2.80 -SILT; with minor clay; grey. Very stiff; dry; low plasticity. D 22.80 — ^{3.9}3.10 3.10m, 3 SILT; with trace clay and fine sand; light grey with mottled orange. Very stiff; moist; low plasticity. М 22.30 - 3.5.60 √ UTP SILT; with minor clay; grey. Very stiff to hard; dry; low plasticity. 22.00 3.90 4.0 SAND; with some silt; brownish grey with mottled orange D Loose; dry; non-plastic.

SAND; with some silt; brownish grey with mottled dark orange Loose; dry; highly oxidised lenses. Recovered as platy 100 x 21.70 + 4.20 4 20 -4.50m, 4 21.30 4.5 100mm, 100 x 300mm, 200 x 400mm blocks. END OF HOLE: 4.60m - Target Depth 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY . Stability: **Explanations:** Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 045° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO RS

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK112 **TP08** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 05 Nov 2024 E 1748303.0, N 5949507.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.70 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock 0.15 Topsoil; with some rootlets; grey; [TOPSOIL] o _ o o SILT; with minor to fine sand; with trace clay; orange and light grey with mottled dark orange. Stiff to very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION]. 0.5 1.0 0.70m; Grades to light grey with mottled orange. V=110 R=40 1.30m: Grades to dark brownish orange; highly oxidised lenses; interbedded highly oxidised sandier lenses around 100-200mm thick at approximately 500mm intervals. COAST BAYS FORMATION V=172 Not Encountered R=49 3.00m: Grades to hard 4.0 42.20 4.40 SILT; with trace clay; with trace fine sand; light grey with mottled 4.5 41.90 orange and dark orange. Very stiff; dry to moist; low plasticity. 4.70 4.50m: Sand is recovered as weakly cemented gravels. 5.0 END OF HOLE: 4.70m - Target Depth 6.0 SKETCHES / PHOTOS LOCATION PLAN ated with CORE-GS by Gero (lios) NOT TO SCALE REPORT: RILEY . Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 55 Russell Road **√** None Bentonite Test pit was backfilled upon completion. No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP09** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 07 Nov 2024 E 1748172.0, N 5949488.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark grey. Firm; dry; non-plastic; [TOPSOIL]. TOP D Sandy SILT, with trace rootlets and gravel. Firm; dry; non-plastic; sand, fine to coarse; gravel, fine; [EAST COAST BAYS FORMATION]. 25.90 0.50 SILT, with some sand; brownish orange mottled whitish grey. Firm to stiff; moist; non-plastic; sand, fine to medium. V=79 1.0 1.50m: Becomes whitish grey mottled orange. Becomes sandy. V=113 R=37 BAYS FORMATION М Not Encountered V=82 COAST EAST V=70 SILT; grey. Firm; wet; non-plastic; Bands of orange Silty fine to medium SAND, with trace gravel; whitish grey and 4.5 red and brownish orange bands. Medium dense; wet; gravel 4.60m: Lenses of dark grey in the corner of the pit. 5.0 5.00m: Becomes brownish orange 21.10 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: 53A Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP10** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 04 Nov 2024 E 1748270.0, N 5949432.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.10 m Refusal 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. 요요등 0.20 38.50 SILT, with some clay, with minor rootlets; orange and light grey mottled dark orange. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. Μ 0.5 0.70 38.00 SILT, with some sand, with trace clay; orange and light grey mottled dark orange. Very stiff; dry to moist; low plasticity; sand, V=153 1.0 R=56 COAST BAYS FORMATION 1.5 1.50 -1.80m, 1 V=130 Not Encountered אחו 2.10m: Highly oxidised dark brownish orange V=214 Sandy SILT; light grey mottled orange and dark orange. Very 2.5 2.40 stiff; dry to moist; non-plastic; sand, fine to medium. 2.70m, 2 SILT, with some sand, with minor clay; orange and dark orange mottled light grey. Very stiff; dry to moist; low plasticity; sand, fine; Highly oxidised. 3.40 -3.60m, 3 ^{3.}§.60 35.10 SILT, with trace clay and sand; dark grey. Very stiff; moist; low plasticity; sand, fine. М 34.60 + 4.9.10 ∨ UTP 4.0 4.00m: Locally very hard. Recovered as platy blocks; 100x100mm and 200-300x300mm. END OF HOLE: 4.10m - Refusal 4.5 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY . Stability: Explanations: Groundwater: Backfill: Remarks: . 55 Russell Road. . Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO RS

REPORT: RILEY .

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP12** Date Excavated: **Ground Level** Project No.: Co-ordinates : 17.6 m (m): 04 Nov 2024 E 1748301.0, N 5949330.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 3.70 m Refusal 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Testing (blows / 50mm) Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. TOPS 17.25 TS 0.35 SILT, with some clay; dark orange and orange mottled light grey. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. V=122 0.5 R=70 1.0 V=108 SILT, with minor clay; orange and light grey mottled dark orange. Stiff to very stiff; moist; low plasticity. R=58 BAYS FORMATION 16.00 - ^{1.5}1.60 Not Encountered Sandy SILT; light grey mottled orange and dark orange. Very stiff; moist to wet; non-plastic; sand, fine to medium. V=125 2.0 M COAST 2.5 2.7 EAST ∨ UTP SILT with trace clay, dark grey. Very stiff to hard; moist; non-plastic to low plasticity; Interbedded with, SAND; dark grey. Very dense; moist. Moderately thin beds approx. 100-200mm. Locally cemented. Recovered as platy 100-300mm x 100mm blocks. 3.0 3.5 13.90 END OF HOLE: 3.70m - Refusal 4.0 4.5 5.0 **SKETCHES / PHOTOS** LOCATION PLAN NOT TO SCALE Stability: Explanations: Groundwater: Backfill: Remarks: . 55 Russell Road. . Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO RS

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E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP13** Date Excavated: **Ground Level** Co-ordinates : Project No.: (m): 240065 04 Nov 2024 E 1748399.0, N 5949419.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.50 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Minor rootlets [TOPSOIL]. TOP SILT, with some clay, with minor rootlets; light grey and orange mottled dark orange. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. **.** 0.5 V=113 1.0 1.5 V=156 BAYS FORMATION 2.0 Not Encounte 2.20m, 1 2.20m - 2.30m: Hard pan layer. Highly weathered; dark orange М 32.00 + 2.50 Sandy SILT; brownish grey mottled orange. Very stiff; moist; non-plastic; sand, fine. COAST EAST SILT, with trace sand; dark grey. Very stiff; moist; non-plastic; 31.20 Sandy SILT; brownish grey mottled orange and dark orange. Very stiff; moist; non-plastic; sand, fine. 3.5 4.0 30.00 END OF HOLE: 4.50m - Target Depth 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY ' Stability: Groundwater: Backfill: Remarks: 55 Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

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E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP14** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 04 Nov 2024 E 1748388.0, N 5949334.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.60 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Depth (Testing (blows / 50mm) Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. ᅙᅙ 0.25 SILT, with some rootlets and clay; brownish grey and grey mottled orange. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. ^{0.}ð.60 Clayey SILT, with some rootlets; light grey mottled orange. Very stiff; moist; medium plasticity. V=108 22.00 R=66 Sandy SILT; light grey mottled orange. Very stiff; moist; nonplastic; sand, fine to medium. 1.5 COAST BAYS FORMATION V=183 Not Encountered 2.0 20.50 + 2.50 M V=183 SILT, with trace clay; dark grey. Very stiff; moist; low plasticity. 3.0 3.5 4.0 ∨ UTP 4.5 END OF HOLE: 4.60m - Target Depth 5.0 SKETCHES / PHOTOS LOCATION PLAN with CORE-GS by Gero NOT TO SCALE REPORT: RILEY ' Stability: Explanations: Groundwater: Backfill: Remarks: 55 Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

REPORT: RILEY '

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E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP15** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 04 Nov 2024 E 1748322.0, N 5949285.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 2.40 m Refusal 1 of 1 Soil Moisture **Geological Description** Groundwater Elevation (m) Depth (m) Field Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Testing (blows / 50mm) Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. SILT, with some rootlets and clay; light grey and orange mottled dark orange. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. 0.5 BAYS FORMATION V=122 0.45m: Dark brownish orange oxidation. 1.0 М ^{1.5}1.60 ∨ UTP 11.10 COAST 1.60m - 1.70m: Highly weathered brownish orange oxidation. Fine to medium SAND, with some silt; dark grey. Medium EAST 2.0 dense; moist; non-plastic ∨ UTP 2.00m: Recovered as platy 250x100mm, 300x200mm. HTP 2.5 END OF HOLE: 2.40m - Refusal 3.0 3.5 4.0 4.5 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 55 Russell Road None Bentonite Test pit was backfilled upon completion. Groundwater inflow from north and west at 2.4m depth.
 Pit collapsed on the eastern side at 1.5m depth. Slow Seep (@2.40m) Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 270° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

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E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK115 **TP16** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 04 Nov 2024 E 1748371.0, N 5949139.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.60 m No more reach 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005)
Refer to "Geotechnical and Geological Information" Depth (Unit. Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations TOPSOIL; grey; Some rootlets [TOPSOIL]. TOP 30.10 Clayey SILT, with some rootlets; orange mottled dark orange. Very stiff; dry to moist; medium plasticity; [EAST COAST BAYS FORMATION]. 0.5 ×× V=108 1.0 1.00 -R=50 1.20m. 2 29.10 SILT, with trace clay; light grey mottled light orange. Stiff to very 1.5 stiff; dry; low plasticity. BAYS FORMATION V=102 2.0 Not Encountered 2.00 -R=44 2.20m, 3 V=133 1 2.30m, 1 R=50 D 27.90 25.50 $\frac{\frac{x}{x} \frac{x}{x}}{\frac{x}{x} \frac{x}{x}}$ SILT, with minor clay; light grey mottled orange and dark orange. Stiff to very stiff; dry; low plasticity. V=107 COAST 2.70m: Dark orange oxidation. 3.0 EAST 3.5 V=122 4.0 R=56 25.80 4.5 END OF HOLE: 4.60m - No more reach 5.0 SKETCHES / PHOTOS LOCATION PLAN 0 NOT TO SCALE REPORT: RILEY ' Stability: Explanations: Groundwater: Backfill: Remarks: 55 Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 270° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK116 **TP17** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 04 Nov 2024 E 1748259.0, N 5949055.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.50 m No more reach 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Field Scala Elevation In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) $\widehat{\Xi}$ Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. ᅙᅙ 0.25 SILT, with some rootlets and clay; grey mottled orange and dark orange. Stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. • ^{0.}∂.60 SILT, with minor rootlets and clay; light orange and grey mottled dark orange. Stiff; moist; low plasticity. V=92 1.0 R=53 2.0 BAYS FORMATION V=76 R=27 V=81 Μ R=75 COAST V=168 R=75 EAST 26.90 3.9.10 2.90m - 3.10m: Dark orange oxidation SILT, with trace clay; grey. Very stiff; moist; low plasticity. 26.50 3.50 SILT, with trace sand; greenish grey; sand, fine; Laminated 2-6mm. Interbedded with, SILT, with minor clay; dark grey. Very stiff; moist; low plasticity to non-plastic; Laminated 2-3mm. Dark grey laminations have a sheen along the face. 4.0 V=160 3.50m: Breaks apart approximately along dark grey layers. 25.50 END OF HOLE: 4.50m - No more reach 5.0 6.0 SKETCHES / PHOTOS LOCATION PLAN N NOT TO SCALE REPORT: RILEY ' Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 55 Russell Road None Bentonite Test pit was backfilled upon completion. Groundwater inflow at 2.9m depth from west and south.
 Hole collapse on the south face from 0.25m to 3.1m Slow Seep (@2.90m) Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 270° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK115 **TP18** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 05 Nov 2024 E 1748284.2, N 5949223.3 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Depth (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Unit U Testing (blows / 50mm) Lab Tests Data/Results Soil Rock TOPSOIL; dark grey; Some rootlets [TOPSOIL]. TS SILT, with some clay; orange and light grey with dark orange mottles. Very stiff; dry to moist; low plasticity; [EAST COAST BAYS FORMATION]. 0.5 1.0 V=157 R=85 1.5 29.00 20.00 V=105 COAST BAYS FORMATION R=61 SILT, with minor clay and sand; dark orange and orange mottled light grey. Very stiff; dry to moist; low plasticity; sand, fine Intermixed with, Not Encountered 3.0 DΝ SILT, with some sand and minor clay; Pink, grey and orange. Stiff; moist; low plasticity. EAST V=95 4.0 26.80 4.20 SILT, with trace clay and sand; light grey mottled pink and orange. Stiff; moist; low plasticity; sand, fine. 4.5 М 4.50m: Becomes very stiff to hard and highly oxidised; dark 26.00 END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY ' Stability: Explanations: Groundwater: Backfill: Remarks: S5 Russell Road.
 Test pit was backfilled upon completion.
 Excavating between 2.0m - 4.2m depth was very messy.
 No groundwater encountered. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Pit remained stable for the duration of the excavation. ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 RS SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK112 **TP19** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 06 Nov 2024 E 1748187.0, N 5949645.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; sand, fine to medium; [TOPSOIL]. TOP D 37.10 SILT, with some gravel; grey mottled orange. Stiff; moist; medium plasticity; gravel, fine; [HUKERENUI MUDSTONE]. 0.5 0.30m - 0.70m: Some rootlets. Grey sand tracing rootlets. V=95 1.0 Μ 1.5 ∨ UTP 2.0 NORTHLAND ALLOCHTHON Moderately weathered; bluish grey; SILTSTONE; very weak; Not Encountered Sheared and closely fractured 3.0 3.00m: Becomes slightly weathered 4.5 Moderately weathered; brownish orange; SILTSTONE; very weak; Lenses of orange fine to medium sand and reddish brown END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: **Explanations:** Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Northland Allochthon boundary was at 2.0m on north face, as per the log, and 2.5m on the southern face. ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP20** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 06 Nov 2024 E 1748029.0, N 5949605.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT, with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL]. 58 E D 0.20 32.70 SILT, with some sand, with trace gravel; whitish grey mottled orange. Stiff; moist; medium plasticity; gravel, fine; [HUKERENUI MUDSTONE]. 0.5 V=104 1.0 R=34 М 1.5 2.0 ∨ UTP 2.0 NORTHLAND ALLOCHTHON Not Encountered Moderately weathered; bluish grey; SILTSTONE; very weak; 2.5 Sheared and closely fractured 3.0 ∨ UTP 3.30m: Becomes bluish grey mottled reddish brown. 4.5 END OF HOLE: 5.00m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** 0 NOT TO SCALE REPORT: RILEY ' Stability: Groundwater: Backfill: Remarks: . 53B Russell Road. . Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP21** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 07 Nov 2024 E 1747868.0, N 5949701.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.60 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT, with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL]. 요요등 D 0.20 50.30 SILT, with some rootlets and sand; light brown mottled dark grey and brownish orange. Firm to stiff; moist; non-plastic; sand, fine to coarse; [EAST COAST BAYS FORMATION]. 0.5 V=110 _{1.0} SILT, with trace sand; pink mottled grey. Firm to stiff; moist; 1.0 R=29 Sandy SILT; pink mottled orange. Stiff; moist. 1.5 1.60m: Locally cemented. 48.50 2.00 V=66 R=24 Silty SAND; orange banded grey and pink and black. Medium COAST BAYS FORMATION 2.5 47.80 2.70 2.60m: Locally cemented. Fine to coarse SAND, with some silt and gravel; orange and 3.0 pink and black and grey. Medium dense; gravel, fine to medium; Locally cemented. Gravel is limonite. 3.00m - 4.20m: Limonite layer, recovered as gravel. EAST 4.0 46.30 4.20 Highly weathered; grey; SILTSTONE; very weak; Orange staining. Bands of fine to medium silty sand. Sand bands are 4.5 5.0 END OF HOLE: 5.60m - Target Depth 6.0 SKETCHES / PHOTOS LOCATION PLAN 0 NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: . 53B Russell Road. . Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT Groundwater inflow at 5.0m depth.
 Hit remained stable for the duration of the excavation. Slow Seep (@5.00m) Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP22** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 07 Nov 2024 E 1747860.0, N 5949583.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL]. 41.15 _ 0.15 D D O Z D SILT, with minor rootlets and clay and sand; brown, Firm; dry; 0.5 non-plastic; [EAST COAST BAYS FORMATION]. SILT, with some clay, with trace sand; brownish orange mottled light grey and brown. Firm to stiff; moist; medium plasticity. V=110 _{1.4} 1.0 R=46 1.5 М V=85 2.0 COAST BAYS FORMATION 2.20m: Becomes bluish grey mottled orange. Not Encountered Sandy SILT, with some clay; brownish orange speckled bluish 2.5 grey. Firm to stiff; moist; medium plasticity. V=101 38.10 Highly weathered; grey; SILTSTONE; extremely weak. - ^{3.}§.60 3.50m: Locally hard to excavate. Completely weathered; bluish grey; SILTSTONE; very weak; Bands of blue and black 37.20 + 4.4.10 Highly weathered; bluish grey; SANDSTONE; Closely fractured. Highly weathered; bluish grey; SILTSTONE; very weak. 36.30 5.00 Moderately weathered; bluish grey; SILTSTONE; very weak. 36.00 5.30 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK111 **TP23** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 07 Nov 2024 E 1747810.0, N 5949536.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT; dark brown. Firm; dry; non-plastic; [TOPSOIL] TOP D SILT, with some rootlets and sand; grey. Firm; moist; non-plastic; sand, fine; [HUKERENUI MUDSTONE]. ^{0.}ð.60 0.30m - 0.40m: Becomes grey mottled dark brown Clayey SILT, with some sand; brownish orange mottled whitish grey. Stiff; moist. ×× V=124 1.0 R=60 2.0 V=58 М R=27 NORTHLAND ALLOCHTHON 3.00m: Becomes whitish grey mottled orange. 32.50 SILT, with trace sand; bluish grey mottled reddish brown and dark grey. Stiff; moist; non-plastic. 32.30 3.70 Highly weathered; bluish grey; SILTSTONE; very weak; ^{4.}4.10 31.90 Slightly weathered; dark grey; SILTSTONE; very weak; Interbedded with, Slightly weathered; dark grey; SANDSTONE; very weak; closely fractured. Fractures are wet. 4.5 31.00 END OF HOLE: 5.00m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** N NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: . 53B Russell Road. . Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT Groundwater inflow at 4.9m depth.
 Hit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow (@4.90m) Spoil/arisings Dug towards 090° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK114 **TP24** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 07 Nov 2024 E 1748170.0, N 5949413.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.90 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark grey. Firm; dry; non-TOP plastic; sand, fine; [TOPSOIL]. Sandy SILT, with some rootlets; brownish orange mottled **.** 0.5 whitish grey. Stiff; dry; non-plastic; [EAST COAST BAYS FORMATION]. V=79 1.0 D 1.5 BAYS FORMATION 1.80m: Limonite layer V=92 2.0 R=27 Not Encountered 26.20 Silty SAND; brownish orange. Medium dense; moist. 25.90 SILT; grey. Stiff; moist; Thinly bedded. М COAST 2.60m: Locally cemented clasts of siltstone V=96 Sandy SILT; brownish orange mottled grey. Stiff; wet; sand, fine EAST to medium; Some lenses of sand. ^{3.}§.60 Silty fine to medium SAND, with trace gravel; brownish orange. Medium dense; wet; gravel, fine. Highly weathered; grey; SILTSTONE; extremely weak; Thinly bedded. 4.0 ∨ UTP Silty fine to medium SAND; brown. Medium dense; wet. 4.5 w 23.80 4.70 Moderately weathered; light grey; SILTSTONE; extremely 4.90 23.60 5.0 END OF HOLE: 4.90m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: 53B Russell Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK120 **TP25** Date Excavated: Ground Level Project No.: Co-ordinates : (m): 19 Nov 2024 E 1747762.0, N 5950221.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.50 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and clay and sand; dark grey. Firm; dry to moist; non-plastic; sand, fine; [TOPSOIL]. TOP 82.00 D٨ SILT, with some clay, with trace rootlets and sand; brown with 81.80 0.50 brownish orange mottles. Stiff; moist to dry; medium plasticity; [EAST COAST BAYS FORMATION]. SILT, with some rootlets and clay and sand, with trace gravel; 1.0 brownish orange mottled whitish grey. Firm; moist; medium plasticity; gravel, limonite. V=153 R=64 1.00 -2.00m, 1 V=128 М R=67 FORMATION Not Encountered 2.5 79.50 V=81 BAYS SILT, with some clay, with minor rootlets and sand; whitish grey 3.0 mottled brownish orange. Firm to stiff; moist; medium plasticity COAST 78.80 EAST Completely weathered; whitish grey banded red mottled orange; SILTSTONE; extremely weak; With some rootlets and bands of sand and some silt; grey. Medium dense; wet. 3.50 w 1.00m, 2 4.00 78.30 ∨ UTP Highly weathered; bluish grey; laminated; SILTSTONE; extremely weak. Interbedded with, Completely weathered; bluish grey; SANDSTONE; extremely 4.5 4 00 -5.50m, 3 5.0 76.80 END OF HOLE: 5.50m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: . 130 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite REPORT No groundwater, seepage or pooling encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Roots present down to 4.0m. JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK120 **TP26** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 19 Nov 2024 E 1747665.0, N 5950279.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.10 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Field Scala Elevation (m) In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and clay and sand; dark brown. Firm; 모임 D 0.20 55.80 dry; non-plastic; [TOPSOIL]. М Clavey SILT, with some rootlets, with trace sand; brown, Firm; 0.50 moist; medium plasticity; [EAST COAST BAYS FORMATION]. SILT, with some clay, with minor rootlets and sand; whitish grey mottled brownish orange and orange. Firm to stiff; dry to moist; V=122 medium plasticity; sand, fine. 1.0 R=64 D١ 1.5 BAYS FORMATION V=95 53.90 2.0 R=20 Clayey SILT, with some rootlets, with trace sand; orange mottled whitish grey. Firm to stiff; moist; medium plasticity; sand, fine; Hard limonite layers. × 2.5 COAST V=55 Clayey sandy SILT; light grey and some brownish orange mottles. Firm; moist; medium plasticity; sand, fine. × × × × EAST 3.5 52.20 Silty SAND; grey. Medium dense; moist to wet. М 4.0 w 51.70 V=49 Sandy SILT, with some gravel; bluish grey. Firm; wet to saturated; medium plasticity; gravel, coarse; Pockets of sand; 4.5 dark green, fine. 51.20 4.80 Highly weathered; bluish grey; laminated; SILTSTONE; extremely weak. Interbedded with, 50.90 - 5.6 Highly weathered; bluish grey; SANDSTONE; very weak END OF HOLE: 5.10m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion.
 Groundwater encountered at 4.3m with quite a fast REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 4. Collapse on the SE side of the pit, first from 4.3m to 5.5m and then from 2.5m to 5.5m. JSULTANTS LTD, Rapid Inflow (@4.30m) Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** SRO GEO1706 AΒ

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK120 **TP27** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 19 Nov 2024 E 1747596.0, N 5950134.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.40 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Depth (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" Unit U Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL]. TOP D SILT, with some sand, with minor rootlets; whitish grey mottled brown mottled orange. Firm; dry to moist; medium plasticity; Some bands of fine sand; brown [EAST COAST BAYS FORMATION]. 0.5 1.0 V=119 R=64 אחו 1.10 -2.00m, 1 V=76 BAYS FORMATION R=31 2.50m: Grades to orange mottled grey with hard layers of limonite. Firm; moist. COAST V=67 R=23 EAST 49.70 Completely weathered; bluish grey; SILTSTONE; extremely weak; Closely fractured. Interbedded with, Silty SAND; brown and red; saturated. 4.60 -5.0 49.10 5.20 Highly weathered; bluish grey; laminated; SILTSTONE; very weak. Interbedded with, Highly weathered; bluish grey; SANDSTONE; very weak. Cracks and fractures are lined with water. 5.20 -5.40 48.90 5.5 END OF HOLE: 5.40m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite 2. Test pit was backfilled upon completion.
3. Groundwater and pooling encountered at 5.2m.
4. Localised collapse of pit wall from 5.0m to 5.4m. REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 315° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

. RILEY

REPORT

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP28** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 19 Nov 2024 E 1747686.0, N 5950066.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations TOP SILT, with some rootlets and clay; dark brown. Firm; dry to D moist; non-plastic; [TOPSOIL]. COLLU SILT, with some clay, with minor rootlets, with trace sand; 0.5 brown. Firm; moist; medium plasticity; sand, fine; [COLLUVIUM]. SILT, with some rootlets; whitish grey mottled orange. Firm; moist; low plasticity; [EAST COAST BAYS FORMATION]. V=89 68.50 Sandy SILT, with some rootlets; orange mottled grey. Firm; 68.30 1.30 moist; non-plastic. SILT, with minor clay, with trace rootlets and sand; whitish grey mottled orange. Firm; moist; low plasticity. 1.5 Sandy SILT, with some rootlets; orange mottled grey. Firm; R=27 2.0 М BAYS FORMATION Not Encountered SILT, with trace rootlets and sand; whitish grey mottled orange. 2.5 Stiff to very stiff; moist; low plasticity. V=127 3.0 COAST 3.5 Silty SAND; light grey. Medium dense; moist to wet. Completely weathered; bluish grey and some red bands; SILTSTONE; extremely weak. Interbedded with, Completely weathered; bluish grey SANDSTONE; extremely weak. Residual sand is wet. 4.5 64.60 Highly weathered; bluish grey; laminated; SILTSTONE; 64.30 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. **√** None Bentonite 2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 045° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP29** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 19 Nov 2024 E 1747588.0, N 5950043.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 6.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Field Scala Elevation (m) In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005)
Refer to "Geotechnical and Geological Information" Depth (Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with minor sand; dark grey. Firm; dry; non-plastic; ᅙᅙ D 0.25 [TOPSOIL]. Silty CLAY, with some rootlets, with trace sand; brown, Firm; moist; medium plasticity to high plasticity; sand, fine; Roots lined with sandy silt; grey [EAST COAST BAYS FORMATION]. 0.5 V=90 1.0 1.5 1.50m: Grades to brown mottled light grey V=137 R=64 2.0 BAYS FORMATION 2.5 48.20 Not Encountered V=96 SILT, with some rootlets and clay and sand; whitish grey mottled brownish orange. Firm; moist; medium plasticity; sand, fine; Some bands of brownish orange sand. 3.0 COAST 3.5 3.7 Completely weathered; light grey banded orange; fine fabric, laminated; SILTSTONE; extremely weak. 47.00 V=98 ∨ V=35 R=27 Silty fine to medium SAND; brownish grey. Medium dense; wet. 4.5 5.0 w 5.00m: Grades to brownish grey and bluish grey with some moderately thick (500mm thick) lenses of silt; bluish grey and brownish orange. Firm; wet; non-plastic. 45.00 END OF HOLE: 6.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. **√** None Bentonite 2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Small collapse of pit wall from 5m to 6m. REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 045° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK124 **TP30** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747351.0, N 5950037.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Field Scala Elevation (m) In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some clay, with trace rootlets and sand; dark brown 요요등 D 0.20 48.80 Firm; dry; low plasticity; [TOPSOIL]. Clayey SILT, with minor rootlets and sand; brown and grey and brownish orange. Stiff; dry to moist; low plasticity; Brown sandy silt tracing roots [EAST COAST BAYS FORMATION]. $\times \times$ 0.5 × × D١ 0.50 -V=140 R=70 1.0 SILT, with some clay, with trace rootlets and sand; whitish grey mottled orange. Firm; moist; low plasticity. 1.5 1.50m: Limonite laver. 1.50 -2.10m, 2 V=76 COAST BAYS FORMATION R=32 Not Encountered 2.5 46.20 2 50 -3.10m, 3 Clayey SILT, with trace rootlets and sand; brownish orange and some bands of whitish grey. Stiff to very stiff; moist; medium plasticity; Roots traced with brown sandy silt. 3.0 ×× V=119 M EAST 45.55 SILT, with minor clay, with trace sand; whitish grey and some brownish orange mottles. Stiff to very stiff; moist; low plasticity; Banded/bedded. 3.45 -4.10m, 4 4.0 V=150 4.5 4.50m: Becomes very stiff to hard; locally cemented. 5.0 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: **Explanations:** Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite 2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Pit remained stable for the duration of the excavation. REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP31** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747439.0, N 5949983.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some clay, with trace rootlets and sand; dark brown D٨ Firm; dry to moist; low plasticity; [TOPSOIL]. TS 39.70 Clayey SILT, with some rootlets; brown. Firm; moist; low plasticity; [EAST COAST BAYS FORMATION]. Silty SAND, with some rootlets; brownish orange with rare light brown mottles. Medium dense; Bands of sandy silt. 1.0 1.5 2.0 FORMATION 37.90 М Not Encountered SILT; whitish grey mottled pink and orange. stiff to very stiff; moist; low plasticity. Interbedded with, Fine SAND, with some silt; grey and orange. Medium dense; 2.5 BAYS moist to wet. V=191 3.0 COAST R=60 3.5 36.40 3.80 SILT; grey banded pink and mottled orange. Very stiff to hard; 36.10 + 4.4.10 moist; low plasticity; Bands of orange silty sand and some ∨ UTP 4.0 limonite W Fine SAND, with some silt; greyish brown and brownish orange. 35.70 SILT, with minor sand; grey and pink and orange. Very stiff; moist; Some bands of orange sand, fine, and limonite М 5.0 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion. REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP32** Date Excavated: Ground Level Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747577.0, N 5949965.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.70 m Refusal 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Clayey SILT, with some rootlets, with trace sand; dark grey 58 E 0.20 41.30 Firm; dry; low plasticity; [TOPSOIL]. Clayey SILT, with some rootlets; brown and grey and brownish D orange. Stiff, dry; low plasticity to medium plasticity; Roots traced with sandy silt; brown [EAST COAST BAYS FORMATION]. 0.5 0.80 40.70 SILT, with some sand, with trace rootlets and clay; whitish grey V=119 Ŧ 1.0 mottled orange. Stiff; dry to moist; low plasticity. R=50 1.5 DΝ COAST BAYS FORMATION V=89 R=37 Not Encountered 39.00 + 2.50 Sandy SILT; grey mottled orange. Firm; wet; sand, fine to w 38.80 2.70 medium. SILT; grey mottled orange. Very stiff; moist; low plasticity; Some bands of sand; grey; fine to medium. V=146 3.0 EAST М 38.00 Silty fine to medium SAND; grey mottled orange. Medium 37.80 3.70 W 37.60 3.90 SAND, with minor silt and gravel; bluish grey with some orange mottles. Medium dense to dense; wet; gravel, fine to medium, 4.0 ∨ UTP Highly weathered; fine fabric, laminated; SILTSTONE; very 4.5 36.80 4.7 END OF HOLE: 4.70m - Refusal 5.0 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE RILEY Stability: Groundwater: Backfill: Remarks: . 130 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Recovered one intact piece that was 0.8m wide Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP33** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747640.0, N 5949902.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.40 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Clayey SILT, with some rootlets; dark grey. Firm; moist; medium TOPS M plasticity; [TOPSOIL]. 47.35 0.35 Clayey SILT, with minor rootlets and sand; brown and mottled 0.5 brownish orange. Stiff to very stiff; dry to moist; [EAST COAST BAYS FORMATION]. DN V=107 Sandy SILT, with some clay; orange. Stiff; moist; medium 46.10 - 1.5.60 SILT, with some sand; whitish grey mottled orange. Stiff; moist; Some bands of brown sandy silt and some bands of brown silty sand. V=96 BAYS FORMATION 2.0 R=32 Not Encountered 2.5 COAST 3.0 44.50 3.20 V=119 М 3.00m: Band of grey sand with pinkish brown band within it. R=35 EAST SILT, with some sand; whitish grey banded red. Stiff; moist; low plasticity; Some limonite 3.5 4.0 V=72 Completely weathered; bluish grey; SANDSTONE; extremely 43.00 4.70 Sandy SILT; light grey. Stiff; moist; medium plasticity; Thin bands of sand; fine to medium. 42.70 Completely weathered; bluish grey; fine fabric, laminated; SILTSTONE; extremely weak. 5.5 Completely weathered; grey mottled orange; SILTSTONE; very weak: Limonite band. END OF HOLE: 5.40m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. ✓ None Bentonite Test pit was backfilled upon completion. REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 090° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP34** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747710.0, N 5949950.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.50 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Field Scala Elevation (m) Geological In-Situ Samples Legend Strength Penetrometer Unit. In accordance with NZGS Guidelines (2005) Depth (Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with trace rootlets and sand; dark grey. Firm; dry; low plasticity; [TOPSOIL]. ᅙᅙ D 0.25 SILT, with some clay, with trace rootlets and sand; whitish grey mottled orange and brown. Very stiff; moist; medium plasticity; Roots traced with silty sand; brown, fine [EAST COAST BAYS FORMATION]. 0.5 43.20 0.80 SILT, with some sand, with minor clay, with trace rootlets; whitish grey mottled brownish orange. Stiff to very stiff; moist; low plasticity; sand, fine. V=159 1.0 1.5 М Sandy SILT; whitish grey. Stiff to very stiff; moist; low plasticity; V=113 2.0 Some mottled orange bands of sand with some silt; sand, brown, fine to medium. R=34 FORMATION Not Encountered V=111 COAST BAYS 40.50 EAST Sandy SILT; orange. Stiff; wet. W V=73 R=43 40.00 40.00 SILT, with some clay; whitish grey with some thinly laminated to laminated orange bands (1- 3mm). Stiff; moist to wet; Some bands of sandy silt; sand, fine. M W 4.5 39.00 Silty SAND; grey with some orange bands and red patches; Some bands of extremely weak siltstone 38.50 5.40m: Becomes reddish brown with locally cemented END OF HOLE: 5.50m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion. REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK119 **TP35** Date Excavated: Ground Level Project No.: Co-ordinates : (m): 20 Nov 2024 E 1747885.0, N 5949893.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.20 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Depth (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and clay, with trace sand; dark brownish grey. Firm; moist; medium plasticity; [TOPSOIL]. × Clayey SILT, with trace rootlets and sand; whitish grey mottled brownish orange. Stiff to very stiff; moist; medium plasticity; sand, fine; Roots traced by sand silt; greyish brown; [EAST COAST BAYS FORMATION]. 0.5 1.0 V=104 R=40 1.5 BAYS FORMATION 69.70 22.00 SILT, with some clay and sand; whitish grey mottled orange and brownish red. Stiff; moist; low plasticity; sand, fine; Bands of Not Encountered М 69.20 + 2.50 Sandy SILT; pink and whitish grey and orange and dark reddish brown. Stiff to very stiff; moist; non-plastic. COAST V=113 3.0 R=32 EAST 68.20 Fine to medium SAND, with some silt; brownish orange. Medium dense. Interbedded with, SILT; light grey. Firm to stiff, moist, thinly bedded. 4.0 67.10 Completely weathered; bluish grey; SANDSTONE; extremely weak; Some bands of siltstone. 4.80 66.90 Completely weathered; brown and orange banded; SANDSTONE; extremely weak; Limonite layers. Completely weathered; bluish grey; SANDSTONE; extremely ^{5.0}5.10 66.60 weak; Some bands of siltstone 5.5 END OF HOLE: 5.20m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 130 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Stiff to very stiff to excavate with bucket between 0.1m Rapid Inflow Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK119 **TP36** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 25 Nov 2024 E 1747734.0, N 5949820.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.40 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations TOP SILT, with some clay, with minor rootlets and sand; dark brown. Firm to stiff; moist; low plasticity; [TOPSOIL]. Clayey SILT, with some rootlets and sand; brown mottled grey and brownish orange. Stiff; moist; medium plasticity; Bands of fine sand; orange. Roots traced with sandy silt; grey [EAST COAST BAYS FORMATION]. ×× 0.5 1.0 V=90 R=52 1.10 -1.5 2.00m, 1 М 2.0 V=78 R=34 45.30 2.20 COAST BAYS FORMATION SILT, with some rootlets and sand, with minor clay; whitish grey mottled brownish orange. Firm to stiff; moist; low plasticity; Some bands of sand; brownish grey. 2.5 t Encounter 2.20 -3.30m, 2 š 3.0 V=99 Silty fine SAND; orange. Medium dense; wet. 3.80 43.70 Silty fine to medium SAND; brownish grey mottled orange. 4.0 Medium dense; wet; Some bands of silt. 3.80 w 4.5 5.0 42.30 5.20 Completely weathered, bluish grey SANDSTONE. Extremely weak. Interbedded with, 5.20 -5.40 42.10 Completely weathered, bluish grey SILTSTONE. Extremely weak. Laminated; wet. 5.5 END OF HOLE: 5.40m - Target Depth SKETCHES / PHOTOS LOCATION PLAN N NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: 88 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 045° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: Location: No.: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK117 **TP37** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 25 Nov 2024 E 1747679.0, N 5949752.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with trace rootlets and clay and sand; dark brown. Firm to TOP D stiff; dry; non-plastic; [TOPSOIL]. SILT, with trace rootlets and sand; whitish grey mottled brownish orange. Very stiff; moist; low plasticity; sand, fine; Roots traced by brown silt with trace sand; [EAST COAST BAYS FORMATION]. 0.5 V=140 1.0 R=52 1.5 39.00 SILT; orange with whitish grey bands. Very stiff to hard; moist; 38.70 BAYS FORMATION 2.00 Fine to medium SAND, with some silt, with trace rootlets; grey mottled brownish orange with occasional black spots (3 - 5 mm wide). Medium dense; wet. 3.0 COAST EAST W 3.80m - 4.00m: Orange layer. 36.10 Completely weathered, bluish grey, SANDSTONE. Very weak. Interbedded with, 35.80 Completely weathered, bluish grey, SILTSTONE. Very weak. Thinly bedded. Highly weathered; bluish grey; SANDSTONE; extremely weak. END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS LOCATION PLAN N NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: 2. Test pit was backfilled upon completion.
3. Groundwater and pooling encountered at 4.0m.
4. Collapse on East and South sides of pit wall from 3.5m to 4.0m. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK117 **TP38** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 25 Nov 2024 E 1747786.0, N 5949738.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.70 m Refusal 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer Depth (Unit. In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and sand; dark brown. Firm to stiff; dry TOP to moist; non-plastic; [TOPSOIL]. Sandy SILT, with some rootlets; whitish grey mottled brownish orange. Firm to stiff; moist; low plasticity; Limonite bands; [EAST COAST BAYS FORMATION]. 0.5 1.0 V=90 R=34 М 1.00 -1.5 2.00m, 1 BAYS FORMATION V=148 51.20 2.00 R=49 SILT, with some clay and sand; orange with some bands/laminations of whitish grey. Firm to stiff; moist; low plasticity. 2.5 COAST 50.40 Sandy SILT; whitish grey. Firm; moist; Bands of fine to medium SAND; grey with orange mottles. Medium dense; wet. V=82 3.0 M W EAST 49.80 Completely weathered; bluish grey; SANDSTONE; extremely 3.5 3.60m: Becomes banded reddish brown limonite 4.0 49.00 4.20 Highly weathered, bluish grey with reddish brown mottles, SANDSTONE; Extremely weak to very weak. Reddish brown mottles are wet. Interbedded with, 4.5 Highly weathered, bluish grey with reddish brown mottles, SILTSTONE. Extremely weak. Thinly bedded. 48.50 4.7 END OF HOLE: 4.70m - Refusal 5.0 SKETCHES / PHOTOS LOCATION PLAN (soil) NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 88 Upper Orewa Road. None Bentonite 2. Test pit was backfilled upon completion.
3. Groundwater and water ponding encountered 4. The pit remained stable for the duration of the REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK110 **TP39** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 25 Nov 2024 E 1747688.0, N 5949589.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.60 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Sandy SILT, with some rootlets; grey. Firm; dry; non-plastic; TOP D sand, fine; [TOPSOIL]. SILT, with some rootlets and sand, with minor clay; brown and 0.5 grey and brownish orange. Stiff; dry to moist; low plasticity; [EAST COAST BAYS FORMATION]. 0.30 -0.90m, 1 34.10 0.90 SILT, with minor clay, with trace rootlets and sand; whitish grey mottled orange. Stiff to very stiff; dry to moist. V=134 1.0 R=70 2.0 1.00 -2.00m, 2 D١ V=104 2.00m: Becomes some sand with pockets of fine to medium (up to 300 mm thick) grey sand. BAYS FORMATION Not Encountered V=133 R=50 COAST 31.50 Silty fine to medium SAND; grey mottled orange. Medium dense 3.50 -M W .10m, 3 30.90 + 4.4.10 4.00m: Trace large gravel to cobbles of grey sandstone and ∨ UTP Completely weathered, bluish grey, SILTSTONE. Extremely weak. Interbedded with, Completely weathered, bluish grey, SANDSTONE. Extremely 4.5 4.10 -W 5.60m, 4 5.0 END OF HOLE: 5.60m - Target Depth 6.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 88 Upper Orewa Road None Bentonite Test pit was backfilled upon completion REPORT No Groundwater or pooling encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 315° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK110 **TP40** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 22 Nov 2024 E 1747674.0, N 5949432.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and clay; dark brown. Firm; moist; 요요등 0.20 25.80 medium plasticity; [TOPSOIL]. CLAY; orange brown. Stiff to very stiff; moist; medium plasticity; 0.5 [EAST COAST BAYS FORMATION]. 0.80 25.20 CLAY, with some silt; greyish brown. Stiff; moist; medium V=107 Ŧ 1.0 R=34 1.5 COAST BAYS FORMATION V=61 М 2.0 Not Encountered 23.50 SILT; light brown laminated orange. Firm to stiff; moist; medium V=107 3.0 EAST 3.5 4.00 22.00 V=98 Highly weathered, bluish grey MUDSTONE; extremely weak, interbedded with; SILT; grey mottled brown. 21.50 Highly weathered; grey; MUDSTONE; very weak. Interbedded with Highly weathered; grey; SANDSTONE; very weak; Some lenses 21.00 of hard SILT with some sand; grey. END OF HOLE: 5.00m - Target Depth **SKETCHES / PHOTOS LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: Explanations: Groundwater: Backfill: Remarks: 88 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK121 **TP41** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 18 Nov 2024 E 1747272.0, N 5949455.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.40 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Depth (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some clay, with trace rootlets and sand; dark grey TOP 51.70 Firm; moist; medium plasticity; sand, fine; [TOPSOIL]. SILT, with some sand, with minor clay; brownish orange mottled light grey. Stiff to very stiff; moist; low plasticity; sand, fine to medium; [EAST COAST BAYS FORMATION]. 0.5 0.30m - 1.20m: Sandy SILT, with some rootlets; grey; sand, fine; Cracks along roots line easily. 1.0 V=110 1.00 -2.00m, 1 М V=90 R=34 COAST BAYS FORMATION V=52 48.80 Completely weathered; banded light grey and red; SILTSTONE; extremely weak Sandy SILT; grey mottled orange. Firm; saturated; low plasticity. s 3.20 -47.90 + 4.4.10 V=79 Completely weathered, light grey mottled orange, SILTSTONE. Very weak. Interbedded with, Silty fine to medium SAND, with trace clay; brown, grey and 4.5 black. Medium dense, wet to saturated. 5.0 46.80 5.20 SILT, with some clay, with trace sand; bluish grey. Stiff; moist; medium plasticity. 5.40 М 46.60 5.5 END OF HOLE: 5.40m - Target Depth SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 132 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion REPORT Groundwater and seepage encountered at 3.5 m.
 Collapse on all sides of pit from 3.5m to 5.4m. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. Feels stiff to evacuate Rapid Inflow Spoil/arisings Dug towards 315° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK121 **TP42** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 18 Nov 2024 E 1747199.0, N 5949560.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Field Geological Elevation In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) $\widehat{\Xi}$ Depth Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations 55 의 SILT, with some clay, with minor rootlets and sand; dark grey 34.40 0.20 Firm; moist; medium plasticity; [TOPSOIL]. 0.40 ב≥ב Clavey SILT, with some rootlets, with minor sand; grevish brown. Firm to stiff; moist; sand, fine to coarse; [COLLUVIUM]. Sandy SILT; whitish grey mottled brownish orange. Stiff to very stiff; moist; non-plastic; sand, fine to medium; [EAST COAST BAYS FORMATION]. V=156 1.0 R=52 1.5 V=89 2.0 BAYS FORMATION Not Encountered M Silty SAND; brownish orange. Medium dense; moist. V=67 COAST SILT, with some clay, with trace rootlets and sand; whitish grey mottled brownish orange. Firm to stiff; moist; medium plasticity; 31.30 sand, fine to medium. Sandy SILT, with minor clay; brownish orange mottled light grey. Stiff; moist; medium plasticity. 3.5 30.70 3. SILT, with minor clay, with trace rootlets and sand; light grey. Stiff; moist; medium plasticity; Orange stain around roots. V=95 Fine to medium SAND, with trace silt; grey. Medium dense; M W 29.60 SILT, with some clay; bluish grey. Stiff to very stiff; moist; medium plasticity. М 29.30 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 132 Upper Orewa Road. **√** None Bentonite 2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation. REPORT Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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REPORT

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TEST PIT LOG E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK121 **TP43** Date Excavated: Ground Level Project No.: Co-ordinates : (m): 240065 18 Nov 2024 E 1747327.0, N 5949518.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Description Groundwater Elevation (m) Field Geological In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Unit U Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets, with trace clay and sand; dark grey Firm; dry to moist; non-plastic; sand, fine; [TOPSOIL]. TOP D۱ SILT, with trace rootlets and clay and sand; brownish grey mottled brownish orange. Stiff; moist; non-plastic; Orange staining of roots and lined with grey sand [EAST COAST BAYS FORMATION]. **.** 0.5 V=95 1.0 М 1.5 COAST BAYS FORMATION 2.0 R=27 Completely weathered, light grey, SILTSTONE. Extremely weak. Interbedded with,
Fine to medium SAND, with some silt; grey. Medium dense, 34.10 2.90 3.0 moist to wet. V=67 EAST SILT, with minor sand, with trace rootlets; whitish grey mottled brownish orange. Firm to stiff; medium plasticity; Trace plant M W 3.5 33.10 V=75 R=34 Sandy SILT; brownish orange. Firm; moist to wet; non-plastic; 4.0 Silty fine to medium SAND; light grey. Medium dense; moist to ^{4.}4.60 32.40 Highly weathered; bluish grey; fine fabric, laminated; SILTSTONE; extremely weak. 32.00 5.00 END OF HOLE: 5.00m - Target Depth 5.5 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 132 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion. Groundwater and localised seepage encountered at Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 3.9m with no pooling of water. 4. Collapse on southern wall of the pit between 1.0m to Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate 1.0 m 2.5m.Desiccation and roots extend down to 2.5m minimum. Standing Water Level Moisture: M = moist: Filter sand ✓ Inflow Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: Location: No.: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK110 **TP44** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 18 Nov 2024 E 1747496.0, N 5949504.0 240065 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.20 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Field Scala Elevation (m) In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Depth (Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with minor rootlets and sand; dark grey. Firm; dry; non-요요등 0.20 29.30 plastic; sand, fine; [TOPSOIL]. SILT, with some clay, with trace rootlets and sand; brown. Firm D coast Bays FORMATION]. 0.5 0.90 28.60 V=137 SILT, with some rootlets and sand, with minor clay; whitish grey banded red and mottled brownish orange. Stiff to very stiff; moist; medium plasticity; sand, fine to medium. 1.0 R=64 2.0 1.85m - 2.00m: Bands of brown fine sand. V=81 COAST BAYS FORMATION Not Encountered 2.20m - 2.25m: Bands of brown fine sand. 2.30m - 2.45m: Bands of brown fine sand. 2.80m - 3.00m: Bands of brown fine sand. М EAST √ UTP 26.10 Fine SAND, with trace silt; brown, Medium dense; moist, 3.5 3.60m - 3.65m: Bands of highly weathered; grey and pink and brownish orange and black; siltstone; very weak to extremely weak. Some limonite/manganese. 4.0 ∨ UTP $3.85\mbox{m}$ - $3.90\mbox{m}$: Grey and pink and brownish orange and black limonite/manganese. 4.10m - 4.20m: Grey and pink and brownish orange and black 4.5 4.45m - 4.50m: Grey and pink and brownish orange and black 5.0 4.70m - 4.75m: Grey and pink and brownish orange and black 4.90m - 5.00m: Grey and pink and brownish orange and black limonite/manganese 5.5 END OF HOLE: 5.20m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 132 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion. REPORT No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° 1.0 m UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 SRO AΒ

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP45** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 21 Nov 2024 E 1747445.0, N 5949658.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.70 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005)
Refer to "Geotechnical and Geological Information" Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations LASTO NA WWW NA SAN O SILT; dark brown. Firm; moist; medium plasticity; [TOPSOIL]. 58 E 0.20 35.40 SILT; orange mottled grey. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. 0.5 V=76 SILT, with some sand; orange brown mottled grey. Stiff; moist; medium plasticity. 1.5 2.0 33.40 V=67 BAYS FORMATION SILT, with trace sand; light brown. Firm; moist; medium 2.5 Not Encountered М V=46 3.0 R=21 COAST 3.5 EAST V=46 4.5 5.0 29.90 END OF HOLE: 5.70m - Target Depth 6.0 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: Explanations: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 1.132 Upper Orewa Road. None Bentonite Test pit was backfilled upon completion. No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP46** Date Excavated: **Ground Level** Co-ordinates : Project No.: (m): 240065 22 Nov 2024 E 1747343.0, N 5949728.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Testing (blows / 50mm) Lab Tests Data/Results Soil Rock CLAY; dark brown. Firm; moist; medium plasticity; [TOPSOIL]. TOP CLAY, with some gravel; brown and mottled reddish brown.
Stiff; moist; medium plasticity; gravel, coarse; [EAST COAST 0.5 BAYS FORMATION]. 1.0 ∨ V=76 R=31 BAYS FORMATION М V=61 Not Encountered COAST V=67 EAST 50.90 SILT; orange. Stiff to very stiff; wet; medium plasticity; W 50.70 40.00 V=104 SILT, with some sand; brown. Stiff to very stiff; moist; medium 4.5 49.90 4.80 Sandy SILT; grey. Very stiff; moist; low plasticity; Locally 49.70 5.00 END OF HOLE: 5.00m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: **Explanations:** Groundwater: Backfill: Remarks: 132 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Grout/concrete Slow Seen Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP47** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 22 Nov 2024 E 1747270.0, N 5949659.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m **Target Depth** 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Testing (blows / 50mm) Lab Tests Data/Results Soil Rock Topsoil; Dark brown. Firm; moist; [TOPSOIL]. TOP SILT, with some clay; brown and mottled reddish brown. Firm to stiff; moist; medium plasticity; [COLLUVIUM]. **.** 0.5 1.0 V=82 1.00 -2.00m, 1 М Not Encountered V=89 3.00m: Becomes reddish brown 33.00 SILT, with some clay; grey. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. ST COAST BAYS FORMATION V=67 4.0 32.30 4.20 SILT; grey. Very stiff to hard; dry; low plasticity. 4.00 -4.5 EAST 5.00m, 2 D 31.50 END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: 132 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP48** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 22 Nov 2024 E 1747214.0, N 5949708.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock SILT, with some rootlets and clay; dark brown; dry; low plasticity; [TOPSOIL]. 58 E 44.60 0.20 CLAY, with some silt; greyish orange and orange stains. Stiff; 0.5 moist; [COLLUVIUM] V=46 D 1.00m - 1.80m: SILT; orange. Firm; non-plastic SILT; orange. Firm; moist; medium plasticity. 1.5 SILT; grey mottled orange. Stiff; moist; medium plasticity. 2.0 R=34 2.5 COLLUVIUM V=55 41.00 3.80 SILT, with some sand; brown mottled orange. Firm; moist; 4.0 4.5 40.00 SAND & GRAVEL: brown, Very dense; wet, W 39.80 5.00 END OF HOLE: 5.00m - Target Depth 5.5 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: 1. 132 Upper Orewa Road.
 2. Test pit was backfilled upon completion.
 3. Groundwater encountered at 5.0m.
 4. Pit remained stable for the duration of the excavation. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP49** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 22 Nov 2024 E 1747267.0, N 5949784.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005)
Refer to "Geotechnical and Geological Information" Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations CLAY, with some rootlets; dark brown. Firm; moist; medium plasticity; [TOPSOIL]. 58 E 0.20 70.10 SILT; light orange brown. Stiff; moist; medium plasticity; [EAST 0.5 COAST BAYS FORMATION]. 69.30 V=76 SILT, with some clay; greyish orange. Stiff; moist; medium plasticity; Sub-horizontal bedding. 2.0 1.00 -2.00m, 1 BAYS FORMATION V=82 Not Encountered М 2.50m: Becomes grey with bedding dipping gently downslope to COAST V=82 SILT, with some sand; grey. Stiff; moist; Locally cemented to 3.5 EAST extremely weak siltstone V=82 4.00 -4.5 5.00m, 2 END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** N 0 NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: 1. 132 Upper Orewa Road.
 2. Test pit was backfilled upon completion.
 3. No groundwater was encountered.
 4. Pit remained stable for the duration of the excavation. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, JSULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK122 **TP50** Date Excavated: **Ground Level** Project No.: Co-ordinates : 42.1 m (m): 240065 21 Nov 2024 E 1747440.0, N 5949783.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.30 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit Geological Description Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations SILT, with some rootlets and clay; dark brown to black; moist; medium plasticity; [TOPSOIL]. 58 E 41.90 0.20 CLAY, with some silt; grey mottled orange. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. 0.5 V=80 1.0 1.5 V=92 2.0 COAST BAYS FORMATION R=31 Not Encountered 2.5 М SILT, with some sand; orange. Stiff; moist. 39.10 + 3.00 V=61 SILT, with some clay; orange to brown. Stiff; moist. EAST 3.5 ∨ V=31 R=15 4.0 37.80 SAND; grey. Very dense, moist. Interbedded with, Completely weathered, grey, SILTSTONE; extremely weak. 4.5 5.0 36.80 END OF HOLE: 5.30m - Target Depth 5.5 SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: 1. 132 Upper Orewa Road.
 2. Test pit was backfilled upon completion.
 3. No groundwater was encountered.
 4. Pit remained stable for the duration of the excavation. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 000° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK118 **TP51** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 21 Nov 2024 E 1747437.0, N 5949896.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala Geological In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" Unit U Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations CLAY; dark brown. Stiff; moist; medium plasticity; [TOPSOIL]. TOP М CLAY; black. Soft; wet; Organic [PEAT]. SILT, with some clay; greyish brown. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. 1.0 V=76 V=61 COAST BAYS FORMATION 31.20 SILT, with some sand; light grey. Stiff; moist; low plasticity. 3.0 V=52 EAST 3.5 30.00 V=73 R=40 Highly weathered, grey laminated orange, SILTSTONE; extremely weak. Interbedded with, SILT, with some sand. Very stiff to hard. 4.5 29.00 END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE . RILEY Stability: Groundwater: Backfill: Remarks: . 132 Upper Orewa Road. Test pit was backfilled upon completion. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite REPORT 3. Groundwater encountered at 4.3m.
4. Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, 5. No structure, bedding or shear plane apparent. Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK123 **TP52** Date Excavated: **Ground Level** Project No.: Co-ordinates : (m): 240065 21 Nov 2024 E 1747362.0, N 5949832.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Field Scala In-Situ Samples Legend Strength Penetrometer Depth (In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations Lab Tests Data/Results Soil Rock SILT; dark brown to black. Stiff; dry; [TOPSOIL]. ᅙᅙ D 0.25 SILT, with some clay; brown mottled orange. Stiff to very stiff; moist; [EAST COAST BAYS FORMATION]. 0.5 V=101 1.0 CLAY, with some silt; light brown. Stiff; moist. 1.5 COAST BAYS FORMATION 51.90 V=89 SILT, with some sand; greyish brown. Stiff; moist; medium M Not Encountered 2.5 V=73 EAST SAND; greyish orange. Very dense; moist; uniformly graded. SAND, with some silt; grey. Very dense; moist; uniformly V=73 R=55 49.90 4.00 Highly weathered, grey laminated orange SANDSTONE; extremely weak. 4.5 END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: Scala Penetrometer Tests Raw data in blows per 100mm 132 Upper Orewa Road. **√** None Bentonite Test pit was backfilled upon completion. No groundwater encountered.
 Pit remained stable for the duration of the excavation. Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK123 **TP53** Date Excavated: **Ground Level** Project No.: Co-ordinates : 71.8 m (m): 240065 21 Nov 2024 E 1747175.0, N 5949891.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 4.40 m Refusal 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005)
Refer to "Geotechnical and Geological Information" Testing (blows / 50mm) Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations Topsoil; dark brown; moist; [TOPSOIL]. 모임 0.20 71.60 SILT, with some clay; grey mottled orange. Soft; [EAST COAST BAYS FORMATION]. 0.50 SILT; orange brown. Stiff; moist; medium plasticity. V=31 1.0 1.5 COAST BAYS FORMATION SILT, with some clay; orange brown to brown. Firm; moist; Not Encountered V=85 ± 2.0 М 3.0 EAST V=45 V=46 SILT, with some sand; grey. Very stiff to hard. Locally cemented to siltstone. Interbedded with, Highly weathered, bluish grey SANDSTONE; extremely weak. 4.5 END OF HOLE: 4.40m - Refusal 5.0 SKETCHES / PHOTOS LOCATION PLAN NOT TO SCALE REPORT: RILEY . Stability: Groundwater: Backfill: Remarks: 1. 132 Upper Orewa Road.
 2. Test pit was backfilled upon completion.
 3. No groundwater encountered.
 4. Pit remained stable for the duration of the excavation. Scala Penetrometer Tests Raw data in blows per 100mm None Bentonite Slow Seen Grout/concrete Vane Shear Strength (kPa) V=Peak, R=Residual, ISULTANTS LTD, Rapid Inflow Spoil/arisings Dug towards 090° UTP=Unable to penetrate Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Contractor: Machine Type: Shear Vane ID: Logged By: Checked By: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

TEST PIT LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project: Pit Position: No.: Location: Russell Road, Silverdale Russell Road & Upper Orewa Road Refer to Riley Dwg 240065-SK124 **TP54** Date Excavated: **Ground Level** Co-ordinates : Project No.: 71.8 m (m): 240065 21 Nov 2024 E 1747149.0, N 5950022.0 Reason Terminated: Client: Pit Depth: Sheet: Status: FINAL Vineway Ltd 5.00 m Target Depth 1 of 1 Backfill / Install Soil Moisture Geological Unit **Geological Description** Groundwater Elevation (m) Depth (m) Field Scala In-Situ Samples Legend Strength Penetrometer In accordance with NZGS Guidelines (2005) Testing (blows / 50mm) Refer to "Geotechnical and Geological Information" Lab Tests Data/Results Soil Rock for explanation of material legend and abbreviations CLAY, with some rootlets; dark brown. Firm; moist; [TOPSOIL]. TOP M SILT; light brown. Firm; moist; [COLLUVIUM]. 71.30 0.50 SILT, with some sand; orange mottled brown. Firm; wet. W V=45 1.0 SILT, with some sand; greyish brown. Firm; moist; low plasticity. 1.5 2.0 Not Encountered 2.5 V=45 M Medium to coarse GRAVEL, with some silt and sand; brownish 3.20 68.60 orange. Dense to very dense; moist; sand, medium to coarse 3.5 SILT, with some sand; grey. Firm; moist. 4.0 4.5 SAND, with some gravel; grey. Very dense; [EAST COAST BAYS FORMATION]. END OF HOLE: 5.00m - Target Depth SKETCHES / PHOTOS **LOCATION PLAN** NOT TO SCALE REPORT: RILEY . Stability: **Explanations:** Groundwater: Backfill: Remarks: 1. 132 Upper Orewa Road.
 2. Test pit was backfilled upon completion.
 3. No groundwater was encountered.
 4. Pit remained stable for the duration of the excavation. Scala Penetrometer Tests Raw data in blows per 100mm **√** None Bentonite Grout/concrete Slow Seen Vane Shear Strength (kPa) V=Peak, R=Residual, Rapid Inflow Spoil/arisings Dug towards 045° UTP=Unable to penetrate 1.0 m Standing Water Level Moisture: M = moist: Filter sand W = wet; S = saturated ← Inflow
 Outflow Logged By: Checked By: Contractor: Machine Type: Shear Vane ID: All dimensions in metres Platform Civil 13.5t Excavator **NOT TO SCALE** GEO1706 **CWC** SRO

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4 Fred Thomas Drive Takapuna AUCKLAND 0622

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22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

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-	-	FORMATION	××× ×××	2.00m: Gra	ades to minor fine sand, a	absence of clay; ı	non plastic.												-
40.5_	- - 2.5	S FOR	× × × × ×	2.40m: Gra	ades to trace clay; low pla	asticity.		М										V=185 ₂ . R=49	5_
-	_	BAYSI	××××	2.60m: Gra	ades to grey mottled oran	nge.		"			<u> </u>							R=49	_
40.10	2.90	COAST	× × ×																-
40.0_	_ 3.0	ST CC	×		AND, with trace gravel; re th grey streaks. Medium			1			A		•					V=218 3. R=50	
-	-	EAST	×		3 ,	, ,													-
-	-		×		and a section of the second													V=109	1
39.5_	3 .5		×	3.40m: Gra	ades to trace clay; low pla	asticity.					A		•				,	V=198 _{3.} R=45	5
39.20	3.80		×]											1
39.00	- 4.0		<u>×</u> ×××		T; brown, Hard; moist; m						Δ							V=168 R=40	_
-	_		× ×	Silty CLAY	; grey mottled orange. H	ard; moist; high p	olasticity.											K=40	1
-	_		×																-
38.5-	4.5		<u> </u>										•				,	✓ V=235+4	5
-	_		×																-
38.00	5.00		×	4.80m: Gra	ades to dark grey.													- \/-02F :5	,
38,0	- 5.0			END OF H	OLE: 5.00m (Target De	pth)							•		Ī			-√-¥=235+δ.	-
-	-																		-
37.5	- 5.5																	5.	5_
-	-																		1
-	-																		1
37.0_	<u> 6.0 </u>																	6.	-
-	-																		1
36.5_	_ _ 6.5																	6.	5_
-	-																		1
-	_																		1
F'		<u> </u>						<u>Ш</u>	1	Rem	arke	<u>: i</u>	- :	<u> </u>	:	:			
Sta	nding	▼ Sc		ogical and Geor strometer Tes	technical Information" sheet	000000			1. Har	nd auger a									
▼ Wat	ter Level -flow	Ra	w data in	n blows per 50	Omm I I Opsoil		tonite		2. Gro	oundwater	not en	countere	d at the t	ime of	t drilling.				
> In-fl	ow	v		arks state oth	real Post	/ X	ut/con arisin	crete											
	M = moist																		
	S = saturated																		
	I dimensions in metres Contractor (if applicable): Ins								Detai					Vane N	lo.:	Logge	- 1	Checked	- 1
ı	T TUN	U SC						uge	r 50 n	ım			GEO1	1575		MA	.H	SRC)

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

E	K			Ph	IRISTCHUR : 03.379.440 www.rileych	12	AUCKLAND 0 Ph: 09.489.78 E: www.riley.c	72					П	AN	D A	UĠ		K L	UG	
Proje	ct No.	:	l l	oject nar						-	ct Loca							N	lo.:	_
24006			Ru		ad, Silvero	dale						& Uppe	r Orew	a Road	d			ЦΛ	402	
	Augei c 202			Client: Vineway	. I td						_ocatio	o n: 7 Dwg 24	10065-	SK112				ПА	103	
	nd Le			VIIIEWay	Co-ord	inates:			-	Der				minate	ed:	一 !	Shee	t:	Status:	_
RL 27						55.5, N59	949683.9		1.80		••••	Refus				- 1	1 of 1		FINAL	_
_		<u>-</u>			Geolo	ogical De	scription			D 5			oil She	or		ala				国
Elevation (m)	Depth (m)	Geological Unit	Legend	ln a		•	• 6 Guidelines	(2005)	100	Water / Moisture	amples		ength (k		Peneti	romet			Situ esting ਵ	Backfill / Install
	Sept) Egi	Leg	Refer to	o "Geotech	nical and 0	Geological In end and abbi	formation	า" รู		ampies	△ Resid	dual •	Peak	(blows	s/0mr	m)		Results	ckfill
			TS W				Very stiff; mois) }	×		50	100 150	200	5 ′	10 1	5		- Be	B
27.20	0.20	SOI L	× × × —————	plasticity;	[TOPSOIL].				_										-	
27.0	-	_	× × ×		LT; brownish [EAST COAS		ry stiff; moist; n DRMATION].	nedium												
1	- 0.5	Į (<u> </u>									A		•				,	V=171 _{0.5} R=57	
26.60	0.80	DRM/	<u> </u>																-	
26.5	- - 1.0	BAYS FORMATION	××		r; with trace moist; mediu		ht grey mottled	d orange.		и									- ✓ V=235+1.0—	
26.20	- 1.0 - 1.20	T BA	×	1.00m: Be	comes hard														V-235+	
+	•	COAST	× × ×	Sandy SIL	T, with trace	gravel; redo	dish brown. Ha	rd; moist;											_	
26.0	- 1.5	EAST	` × .^ . × . ×	·															– ✓ UTP 1.5	
1	-	ш	× .× ×	1.50m: Gr	ades to brow	vnish grey.													-	
25.60 25.5	1.80		× · · × ·	END OF H	HOLE: 1.80m	(Refusal)			-										~-UTP	
+	_ 2.0			2.15 0	.022. 1.00	(rtoraca.)													2.0-	
7																			-	
25.0	•																		-	
‡	- 2.5																		2.5—	
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24.5	- - 3.0																		3.0	
+	•																		-	
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24.0	_ 3.5																		3.5	
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1	4.0																		4.0	
+	-																		-	
23.0	-																			
‡	- 4.5																		4.5—	
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22.5	- 5.0																		5.0-	
1	-																		_	
22.0	-																		-	
72.0	- 5.5																		5.5	
‡	-																		-	
21.5	-																		=	
1	- 6.0																		6.0—	
1	-																		-	
21.0	- - 6.5																		6.5	
Ŧ	-																		-	
1	-																		-	
20.5	•												<u> </u>						-	
						rmation" shee	et for further deta	ails.			- 11	narks and auger	at 55 Pi	issell Ra	ad					
▼ Wat		Naw data in blows per John Land								ite					ntered at th	he tim	e of dr	illing.		
Out-				arks state oth		Peat	Silt	\geq	Grout/o	concret	e									
Moistu M = mo	re:			Strength (k	Pa)	Fill	Sand	<u>>></u>	Drill ari	sings										
W = we S = sati	t			ole To Penet	rate cu	Core Loss	Grave		Filter s	and										
		One i	n metr	es Con	tractor (if	applicab	 le):	Inst	rume	nt De	⊒ ∟ tails:		I	Shear	Vane No	o.:	ogae	d By:	Checked E	
			iii iii iii cii co							ger 50				GEO1			S		SRO	•

22 Moorhouse Avenue 4 Fred Thomas Drive Addington Takapuna AUCKL AND 0622 Pb. 03 273 4403

HAND AUGER LOG

				03.379.44 vww.rileyc		Ph: 09.489.78 E: www.riley.co						•		-	•				
Project No.	:		ject nam						-	t Loca							N	lo.:	_
240065			ssell Roa	d, Silve	rdale					II Road	- ''	er Ore	wa Ro	ad		_	ЦΛ	404	
Date Auger 05 Dec 2024			Client: Vineway	l td						.ocatio to Riley		240064	5_SK11	14			ПР	104	
Ground Lev			Villeway		dinates:				Dep				ermina			She	et:	Status:	
RL 31.6m				E1748	375.0, N59	949404.0		2.00	-		Refu	ısal				1 of	1	FINA	L
r E	<u>B</u>			Geo	logical De	escription		1			,	Soil Sh	ear		Scal	 а		City	stall
Elevation (m)	Geological Unit	Legend				S Guidelines Geological In		Water / Moisture	Sa	amples		rength		l (b	enetroi lows/5		Te	າ Situ esting ຼີ /Results ຊ	Backfill / Install
			sheet fo	or explan	nation of lege	end and abbr	reviations	_			1		• Peal	- 1	5 10	15	Data	Tresuits #	Bacl
31.5 31.40 0.20	POS J	× × × × × × × × × × × × × × × × × × ×	moist; low	plasticity;	[TOPSOIL].	otlets; dark gre		†;											
Ť		× × ×	plasticity; [EAST CO	sn grey. Very s AST BAYS FC	stiff; moist; med DRMATION].	ium											V=159	-
31.0	NOIL	× × ×									4	` .						V=159 _{0.5} R=70	1
30.70 0.90	RMA.	× × × ×																•	1
1.0	'S FO	×××	Silty CLAY	; with trace	e fine sand; br	rownish grey m	ottled redo	lish N	1					,				√ V=214+1.0	1
30.5	T BA	-,i	1.00m: Bed	•	•	addoty.												-	1
30.10	SOAS	× ×																-	1
30.10 1.5 1.50	EAST COAST BAYS FORMATION	××	Sandy SILT	T; brownis	h orange. Ver	y stiff; moist; no	on-plastic.						•	·				✓ V=214+1.5- -	1
‡	Ш	` × × × ×	1 00 0			d b													1
29.60 2.00		×××			nt grey mottled	a brown.		_	-		1								1
29.5			END OF H	OLE: 2.00	m (Refusal)									•.2	5		2, 2, 2 5, 4, 5	-	1
‡															7 5 .4	13	4, 13, 10 4, 4, 4		1
29.0														8	4		10, 12, 1	5 2.5_	1
‡																10 12 15	₩	-	1
3.0																		3.0_	1
28.5																			1
‡																			1
28.0																		3.5_	1
‡																		-	1
4.0																		4.0_	1
27.5																		-	1
‡																			1
4.5																		4.5_	1
‡																			1
5.0																		5.0-	1
26.5																			1
‡																			1
5.5																		5.5_	1
‡																			1
6.0																		6.0_	1
25.5																		-	1
1																		-	1
6.5																		6.5_	1
+																		-	1
+																		-	_
Explanations					formation" shee	et for further deta	nils.			11	narks and auge	ar at 55	Russall	Road					_
▼ Standing Water Level			rometer Test blows per 50			Benton	te		oundwa				d at the	time of	drilling.				
Out-flow In-flow		vanless remarks state otherwise Peat Silt Vane Shear Strength (kPa)							oncrete										
Moisture: M = moist	Vane Shear Strength (kPa) V = Peak, R = Residual						<u>></u>	Drill ari:	sings										
W = wet S = saturated	UTP = Unable To Penetrate GA Core Loss Gravel						20	Filter sa	and										
	incidité in inicia de						rumer					I			ŀ		Checked	By:	
NOT TO	O SC	ALE	Han	d Aug	jer 50	mm			GE	01706	6	;	SY	SRO					

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

EKIL	Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz		IIAND AU	GER LOG
Project No.:	Project name:	Project Loca	tion:	No.:
240065	Russell Road, Silverdale		& Upper Orewa Road	LAAOE
Date Augered: 05 Dec 2024	Client: Vineway Ltd	Hole Locatio	on: / Dwg 240065-SK114	HA105
Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet: Status:
RL 31.6m	E1748301.3, N5949411.2	3.30 m	Refusal	1 of 1 FINAL
cal (m)	Geological Description	sture	Soil Shear Scal	a In Situ
Elevation (m) Depth (m) Geological Unit	In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information of the control of t		Strength (kPa) Penetror (blows/50	meter i 🕳 i.— i
	sheet for explanation of legend and abbreviation	ons Marie	△ Residual ● Peak	Dmm) Data/Results = Back
31.40 0.20 - 57		plastic;		
	××× SILT; with some clay; brown. Very stiff; moist; low plastic ×× [EAST COAST BAYS FORMATION].	sity;		<u> </u>
0.5 ×	× × × × × × × × × × × × × × × × × × ×	M	A •	V=117 _{0.5} R=50
30.80 - 0.80	× × 0.60m: Grades to brown with grey and orange streaks.	141]]
	Silty CLAY; grey mottled orange. Very stiff; moist; high			V=128 10
30.5	plasticity. 0.90m: Grades to minor fine sand; reddish brown mottled	darev:		R=34
	heavily mottled orange.	3.1,]]
1.5	1.20m: Becomes wet; minor mottling. 1.30m: Grades to some fine sand.		Δ •	V=84 T.5.
1.5 30.0 X X X X X X X X X X X X X X X X X X	1.40m: Grades to minor fine sand; grey mottled orange.			
+ STB/	1.50m: Becomes stiff. 1.60m: Grades to light grey.			V=94
29.5	1.90m: Becomes heavily mottled.	w	A •	V=94 R=20
EAST				1 1
29.10 2.5 2.50	2.40m: Becomes heavily mottled.		Δ •	V=139 - R=23 ^{2.5}
29.0	Silty fine SAND; with trace gravel; brownish orange with specks. Very stiff; moist; non-plastic; gravel; find to media			1
± 200 ± 200	2.60m: Grades to trace clay; absence of grey streaks; bromottled orange.	own		V=151
	× × × × 2.80m: Becomes saturated.	s	A •	V=151 _{3.0} R=17
	Clayey SILT; grey mottled orange. Very stiff; wet; non-pla			<u>-</u>
3.5	3.20m: Grades to trace clay; dark grey with black inclusic heavily orange staining; low plasticity.	Jils,	6 6 6	4, 3, 6 6, 10, 6
28.0	END OF HOLE: 3.30m (Refusal)		\$.68	6, 8, 9 9, 7, 9
			7 9	20
4.0				4.0
				<u> </u>
4.5				4.5—
27.0				<u> </u>
5.0				5.0
]
<u> </u>				
26.0				-
]
6.0				6.0_
+]]
1 6.5				-
25.0				
]]
<u> </u>			<u> </u>	: [
Ctanding	"Geological and Geotechnical Information" sheet for further details.	1. Ha	narks and auger at 55 Russell Road.	
Water Level Raw	data in blows per 50mm	3. Sc	roundwater was not encountered at the cala raw data from 3.90mBGL is 30 blov	
► In-flow	ss remarks state otherwise Peat Silt Salt	Grout/concrete		
M = moist V = F	e Shear Strength (kPa) Peak, R = Residual = Unable To Penetrate Coro Local Cardial	Drill arisings		
S = saturated	Cole Euss Glavel	Filter sand		
All dimensions in NOT TO SCAL	,	and Auger 50 mm	Shear Vane No.: GEO1575	Logged By: Checked By: MAH SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA106** Date Augered: Client: Hole Location: 04 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK114 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 16.8m E1748359.1, N5949307.5 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water / Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 SILT, with trace sand; dark brown. Very stiff; moist; non-plastic; SOI sand, fine; [TOPSOIL]. Silty CLAY; brown with dark brown streaks; Very stiff; moist; 16.5 high plasticity; [COLLUVIUM]. V=134 Silty CLAY; brownish grey mottled orange; Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. 0.80m: Grades to some silt; grey. R=49 SILT; with trace gravel; grey with mottled orange. Very stiff; moist; non-plastic; gravel; fine to medium. V=185 1.5 R=47 1.50m: Grades to no gravel. V=235+2.0 2.00m: Becomes hard. FORMATION 2.30m: Grades to trace clay; low plasticity. V=235+2 2.40m: Becomes wet BAYSF 2.80m: Grades to minor fine sand; grey mottled orange. COAST V=178 3.00m - 3.20m: Heavily mottled. EAST 3.20m: Becomes clayey; trace fine sand; high plasticity. V=141 R=34 W V=158 R=47 4.20m: Grades to dark brown 12.5. V=235+4 CLAY; with some silt; bluish grey. Hard; wet; high plasticity. 12.0 11.80 5. 3. 5 END OF HOLE: 5.00m (Target Depth) 3, 5, 10 9, 9, 12 20 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 55 Russell Road. Standing Water Level Scala Penetrometer Tests Topsoil 2. Groundwater was not encountered at the time of drilling. Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 50 mm

GEO1575

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

			Ph: 03.37 E: www.ri	9.4402 leychch.co.nz	Ph: 09.489.7872 E: www.riley.co.n						•	1731	, D					
Project No	.:	Pro	oject name:					-	Locati							N	lo.:	
240065		Ru	ssell Road, Si	lverdale						- ' '	er Ore	wa Ro	ad		1	114	407	
Date Auge 04 Dec 202			Client: Vineway Ltd						Cation		40068	5-SK11	4			ПА	107	
Ground Le				ordinates:		Ho		Depth				ermina			She	et:	Status	
RL 12.5m				748295.5, N5	949309.3		10 n	•		Refu					1 of		FINA	
	<u></u>		G	eological De	escription	<u> </u>	all				Soil Sh	oor		Caala			•	Ta Ta
Elevation (m) Depth (m)	Geological Unit	Legend		•	S Guidelines (2	005)	Water / Moisture	Sam	ınlee		ength		Pen	Scala etrom	eter		Situ esting	Backfill / Install
Elev Cr	Seok	Leg	Refer to "Ged	otechnical and	Geological Infor	mation"	ter /	Carri	ipies	∆ Resi	idual	Peak	(blov	vs/50i	nm)		/Results	ckfill
12.40 0.10	0 0 0	TS Ψ			mottled orange. F		$\overline{}$			50	100 1	50 200	5	10	15		Š	Ba
+		×××	non-plastic; sand	l, fine; [TOPSOIL]	ļ		M											1
12.10 0.40					nd orange streaks BAYS FORMATIO													_
12.00 0.5 0.50		×	0.20m: Becomes	wet.						A							V=45 R=13 0.5.	_
+	NO E	×	0.25m: Becomes		F													+
11.60 0.90	COAST BAYS FORMATION	××	plasticity.	h grey mottled ora	ange. Firm; satura	ted; high				:							V=86 10	-
11.5 1.0 11.40 1.10	3AYS F	×		trace clay; bluish asticity; sand, fine	n grey mottled orar to medium.	nge. Stiff;				A :	•						R=13	7
‡	OASTI	×× × ×			ange staining, Loo	ose;	S											1
11.0 1.5	EASTC	× × × × ×	saturated; non-pl 1.00m: Becomes										•				✓ V=235+1.5	₫
ŧ		×××	SILT; with minor	clay; dark grey. H	lard; saturated; lov	w plasticity.												}
+		^ × ×	1.40m: Grades to	some fine sand;	trace clay.													-
10.5 10.40 2.10	,	× × ×		minor fine sand;	•					:			•				✓ V=235+2.0	7
+	-	×	END OF HOLE: 2		-		П			- :			-		15_15	▼ 15, 15		_
‡				,														_
10.0 2.5																	2.5	┪
İ																		_
9.5 3.0																	3.0.	-
Ŧ																	3.0	7
‡																		1
9.0 3.5										:							3.5.	1
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8.5 4.0																	4.0.	7
Ŧ										:								1
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8.0 4.5																	4.5	_
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7.5																	5.0	-
7.3 T 3.0																	5.0	7
‡																		1
7.0 - 5.5																	5.5.	_
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ŧ																		_
6.5 - 6.0																	6.0.	+
Ŧ																		-
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6.0 + 6.5																	6.5.	1
‡										:								1
+																		-
	S: Refer	to "Geolo	gical and Geotechnic	al Information" she	et for further details.	•			Rema			_						
Standing Water Level	▼ Sc	ala Penet	trometer Tests	Topsoil	Clay	Bent	onite		2. Gro	undwat		Russell Fountered	Road. at 0.25m	at the t	time of			
← Out-flow ✓ In-flow ✓ Out-flow ✓			blows per 50mm arks state otherwise	Peat	Silt	Grou	ıt/con	crete	drilling	J.								
Moisture:			Strength (kPa)	Fill	Sand	Drill												
M = moist W = wet			t = Residual ole To Penetrate	Core Loss	Gravel	Filter												
S = saturated			Contracts	UK.	7+17	Instrum			le•			Char	ar Vane	No ·	Loca	od By	Checked	Bv.
All dimensi NOT T			N/A	or (if applicab	nej.	Hand A						i	ar vane 01575	140.:		ed By: AH	SRO	- 1

SRO

MAH

GEO1575

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

E	K			Ph:	03.379.4402	Ph: 09.489.7872 E: www.riley.co.n						11	MINI			7 L	N L	UG	
Proje	ct No.	.:	Pro	oject nam	ne:			Pro	oject	Locat	ion:						N	o.:	
24006			Ru	issell Roa	d, Silverdale						& Upper	r Orew	a Road	i				400	
	Augei			Client:						catior		2225	014445				HA	108	
	c 202			Vineway							Dwg 24			.d.		Char	4.	04-4	_
Grou RL 21	nd Le	vel:			Co-ordinates: E1748344.0, N59	10163.0		0 1e L 00 m	Depth	:	Targe		minate	d:	- 1	Shee 1 of		Status FINA	
NL Z I	.0111				E1746344.0, N39	949103.0	5.0	_			rarge	і Беріі	1	1		1 01	ı	_ FIIN/	\L
5	Ê	<u>8</u>	ъ		Geological De	scription		Water / Moisture				oil She			cala		In	Situ	ıstall
levation (m)	Depth (m)	Jogi	Legend	In ac	cordance with NZGS	Guidelines (2	005)	/ Moi	Sam	ples	Stre	ngth (k	Pa)	Pene (blow			Te		æ ±
E E	Dep	Geological Unit	Le		"Geotechnical and G or explanation of lege			ater			△ Resid			`			Data	Results	Depth (m) Backfill / Instal
24.5			TS,		grey. Very stiff; moist; no			≥			50 1	100 150	200	5 :	10 1	15			<u> </u>
21.5 21.40	0.20	SOI L	× × × × × × × × × × × × × × × × × × ×	[TOPSOIL]	<u>. </u>														1
1	•		\times \times \times		T; brown mottled orange EAST COAST BAYS FO		; medium												1
21.0	_ 0.5		× × × ×								A	•					,	V=143 _{o.} R=46	5
21.0			× × × :																7 1
1			×××																1
20.5	_ 1.0		\times \times	1.00m: Gra	ades to light grey mottled	orange.					Δ	•					,	V=131 _{1.} R=43	0
20.5			× × × :		3 3 7	J													7
1			× × ×																1
20.0	_ 1.5		× × ×								4	•					,	V=110 ₁ . R=46	5
19.80	1.80		× × × :																7
	•		× × ×		T; brownish grey mottled	orange. Very stif	ff; moist;	1											1
19.5	- 2.0	N N	. × . × .	non-plastic							Δ	•					,	V=153 R=55	0
+	-	COAST BAYS FORMATION	×××																-
1	•	-OR	×××									: :						V 405	1
19.0	- 2.5	YSF	· · × · ·					М			Δ	•					,	V=125 ₂ R=43	5
+	-	T B/	× .× ×																-
- ‡	-	OAS	× ×															\/-110	1
18.5	- 3.0	EAST (× ×								Δ.	•					,	V=110 _{3.} R=43	0
+	-	ы	× × ×																-
10.10	-		* × ×															\/=0E	1
18.10	3.5		×	Silty CLAY	; with trace fine sand; ligl	ht grey mottled bi	rown. Stiff;				A	•					,	V=95 R=46	5
+	-		×	moist; med	lium plasticity.														- 1
- 1	•		×															V=122 ₄ .	-
17.5	- 4.0		× × ×	4.00m: Bed	comes very stiff.						Δ	•					,	R=64	0
17.30	4.30																		<u> </u>
+	•		× ×	Silty CLAY	; bluish grey. Very stiff; n	noist; high plastic	city.											V=107 ₄	-
17.0	- 4.5		-,								•						,	R=55 ⁴	_
1			× ×																1
16.60	- - 5.0													1					
16.5	•			END OF H	OLE: 5.00m (Target De	pth)								1 0 2			1, 1, 2 1, 2, 4	* V 214	-
7	-													1 4 4			4, 4, 4		7
1	- 5.5													4			4, 4, 4 10, 10, 10	5.	5
16.0	-													3	10		Ĺ		_
+	-														10	[•		-
- 1	6.0																	6.	0_
15.5	•																		1
1	•																		<u> </u>
+	- 6.5																	6.	5
15.0																			1
‡	-																		1
Evala	natic =	<u> </u>		. ,				Ш		Rem	arks	: :	:	<u> </u>	-	:			
Star	nding	▼ Sc		gical and Geot trometer Test	echnical Information" sheet				1. Har	nd auger					-				
▼ Wat √ - Out-	er Level flow	Ra	w data in	blows per 50	Omm Topson		onite		2. Gro	oundwate	r was no	ot encour	ntered at	the tim	ne of d	rilling.			
> In-fl	ow	v		arks state other	a a a reat	Grou	ıt/con	crete											
Moistu M = mo	ist			Strength (kP t = Residual	Pa) Fill	Sand	Drill	arisin	gs										
W = we S = sati				ole To Penetr	ate Core Loss	Gravel	Filter	sand	d										
All dimensions in metres Contractor (if applicable): Instru								ent	Detai	ls:			Shear	Vane N	o.:	Logge	ed By:	Checked	By:
	OT T			N/A	· •	Hand A	uge	r 50 n	nm			GEO1				Υ	SRC	- 1	

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

E	K	L		Ph	HRISTCHURCH 8011 a: 03.379.4402 www.rileychch.co.nz	AUCKLAND 06 Ph: 09.489.787 E: www.riley.co	'2					П	AN	D AU	GE	K L	UG	
Proje	ct No.	.:	Pr	oject nar				Pr	oject	Locat	ion:					N	lo.:	
2400			Ru		ad, Silverdale			4—			& Uppe	r Orew	a Road	t	1	114	400	
	Auge ec 202			Client:	, I td			1	ole Lo			10065	SK116			HA	109	
	nd Le			Vineway	Co-ordinates:		-	_	Depth		Dwg 24		minate	.q.	Shee	et:	Status	
RL 27		•0			E1748305.0, N5	5949108.0		.00 r	•		l .	t Deptl		.u.	1 of		FIN	
_		_			Geological D	escription	<u>'</u>	l e l				ail Cha		01-			•	
Elevation (m)	Depth (m)	Geological Unit	Legend	In a	accordance with NZG	-	(2005)	Water / Moisture	Sam	nples		oil Shea ength (k		Scala Penetrom			Situ esting	Depth (m) Backfill / Install
≣leva (r	Sept) jeg	Leg	Refer t	o "Geotechnical and for explanation of le	Geological Info	ormation"	Iter/	Can	ipies	△ Resid	lual •	Peak	(blows/0r	nm)		Results	oth (m
			TS W		trace rootlets; dark gre			×			50	100 150	200	5 10	15			B B
27.30	0.20	SOI J	× × × —————————————————————————————————	plastic; sa	and, fine; [TOPSOIL].			_										1
-	- -		<u>×</u> ××	Very stiff;	LT; with trace rootlets; to moist; medium plasticity													1
27.0_	_ 0.5 _		<u>×</u> ××	FORMAT	IONJ.						A	•					V=125 ₀ R=46	5
26.80	0.70		×		Y; light grey mottled ora	nge. Very stiff; m	oist; medium	+										1
26.5_	- 1.0		×	plasticity.													V=107 ₁ . R=37	_
-	-		×								-						* R=37	7
-	-		× ×															7
26.0_	1.5		×								4	•					V=104 ₁ R=46	5
-	- -		× -×															1
-	- -		×	1.80m: Gı	rades to brownish orang	e with reddish bro	own streaks.											1
25.5-	- 2.0	N O	×	2.00m: Be	ecomes stiff.			l _M			A •						V=61 R=21	0
25.30	2.20	BAYS FORMATION	×× ×		n some clay; with trace f		brown with	-										-
25.0_	- - 2.5	FOR	× × ×	orange st	reaks. Stiff; moist; medi	um plasticity.					A						V=61 ₂ R=34	-
-	-	BAYS	×××														* R=34	-
-	-	COAST	××× ×××															7
24.5_	3.0) T	× × ×									•					V=85 R=49	0_
-	-	EAST (××.××															1
-	- -		× × ×														1/-400	1
24.0_	_ 3.5 _		x××,	3.50m: Be	ecomes very stiff.						Δ.	•					V=122 ₃ R=55	5
23.70	3.80		××××															1
23.5_	- - 4.0		× ^	Silty CLA	Y; bluish grey. Stiff; moi	st; high plasticity.											V=76 4	.0_
-	<u>-</u>		×														R=46	_
-	-		× -×	4.20m: Be	ecomes wet.													-
23.0	4.5		×	4.50m: Be	ecomes very stiff.			,,				•					V=140 R=73	5
-	-		×					W										7
22.50 22.5	5.00		× ×														V=171	1
22.5	 5.0 · · · · · · · · · · · · · · · · · · ·			END OF H	HOLE: 5.00m (Target D	Depth)						1	•				V=171 R=107	-
-	-																	1
22.0_	- - 5.5																5.	5
-	- -																	1
-	- -																	1
21.5_	- 6.0																6.	0
-	-																	1
21.0_	- - 6.5																6.	5_
-	-																	-
-	-																	7
									<u> </u>		<u> </u>	<u> </u>	<u> </u>		1			<u> </u>
_ Sta	nding	- 6-			otechnical Information" sh					1. Ha	a rks nd auger							
▼ Wat	er Level	Ra	aw data in	trometer Tes blows per 5	50mm 1 opsoil	Clay	Be	ntonite	€	2. Gro	oundwate	r was no	t encour	ntered at the t	me of d	rilling.		
├─ In-fl	ow	•		Strongth (k	D.) FOOT	Silt	/ X		ncrete									
Moistu M = mo W = we	oist	V :	= Peak, R	Strength (k	2000	Sand	8.0	II arisi										
S = sat		UI	r = Unal	ole To Pene	trate the Core Los	s Gravel	Filt	er san	nd									
	mensi NOT T		n metr	es Con N/A	tractor (if applical	ble):	Instrui Hand							Vane No.:			Checked	-
	1011	J 30	~	111/7			I rianu	, luge				- 1	GEO1	100	, ວ	Υ	SRC	,

22 Moorhouse Avenue Addington Addington CHRISTCHURCH 8011 AUCKLAND 0622

HAND AUGER LOG

\subseteq				Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz					• •	AII						
Proje	ct No.	:	Pr	oject name:	1	Pro	ject Loc	ation:						N	lo.:	
2400			Ru	issell Road, Silverdale				d & Upper	Orev	va Road	t				440	
	Auger			Client: Vineway Ltd			le Locati	on: ey Dwg 24	0065	CV116				HP	110	
	nd Lev			Co-ordinates:			Depth:			rminate	ed:		She	et:	Status	
RL 32				E1748184.7, N5949038.7	4.30		-	Refus			-		1 of	1	FINA	
_		_		Geological Description		al		9,	il She	or		Scala			•	Tall I
Elevation (m)	Depth (m)	Geological Unit	Legend	In accordance with NZGS Guidelines (200	5)	Water / Moisture	Samples	Stre	ngth (I		Pen	etrom			Situ esting	Backfill / Install
Elev	Jept	Seol U	Leg	Refer to "Geotechnical and Geological Information sheet for explanation of legend and abbreviate	ation"	ater/	Campics	∆ Resid	ual •	Peak	(blov	vs/50i	nm)		/Results	ckfill
32.40	0.10	0 0	TS_W	SILT; with trace organics and sand; dark brown with ora		<u>×</u>		50 1	00 150	200	5 :	10	15		d	3 8
	-		× × ×	streaks. Very stiff; moist; non-plastic; sand; fine; [TOPS	OĬL].											1
1	-	COLLUVI	× × ×	Clayey SILT; dark brownish grey with orange and light streaks. Very stiff; moist; medium plasticity; [COLLUVIL												1
32.00 32.0	0.5	_	×	Silty CLAY; light grey mottled orange. Very stiff; moist;	high			Δ	•						V=119 _{0.5} R=60	_
1	-		×	plasticity; [EAST COAST BAYS FORMATION].												1
31.5	- - - 1.0		<u>×</u>												V=87	-
31.3_	- 1.0		× ×	1.00m: Becomes stiff.											R=45 1.0	7
1	-		×			М										1
31.0	- - 1.5		<u> </u>					Δ.							V=86 R=44	1
30.80	1.70		×			▼									11 44	1
1	-	N O	<u>× × ×</u>	Clayey SILT; brownish grey mottled orange. Stiff; moist medium plasticity.	;											_
30.5-	_ 2.0	BAYS FORMATION	× × ×	2.00m: Becomes very stiff.				A	•						V=138 R=34 ^{2.0}	1
30.30	2.20	FOR	× × × ×	Silty CLAY; dark grey. Very stiff; moist; high plasticity.												-
	-	3AYS	×													7
30.0— 29.90	2.60	COAST	×	2.50m: Becomes hard.						•					∨ V=235+².5	7
1	-	00 1	××, × × × ×	SILT; with some clay; dark grey, Hard; moist to wet; low plasticity.		w										1
29.5	- - 3.0	EAST	× × × ×	2.70m: Become wet.	F	\dashv									✓ V=235+³.0	_
=	-		××××	2.90m: Become saturated.												1
-	-		× × ×													7
29.0	3.5		(× ×							•					✓ V=235+ ^{3.5}	7
1	-		×× × ×			s										1
	-		×××													1
28.5_	4 .0		××.××							•					∨ V=235+4.0	_
28.20	4.30		×××													
28.0	- - 4.5			END OF HOLE: 4.30m (Refusal)							•.	6.8 10		6, 8, 10 10, 8, 7	4.5	_
-	-											6 10		6, 7, 6 6, 6, 5	4.0	7
1	-											6 :		8, 6, 8 9, 8, 10		7
27.5	- 5.0										•	6 8		12, 10	5.0	7
1	-											9		İ		7
1	- -											10		•		1
27.0	- 5.5														5.5	_
1	-															1
26.5	- - 6.0														6.0	_
-	-															-
1	-															7
26.0	- 6.5														6.5	1
1	-															1
1	-															1
Evnla	nations		-4- 86 :				Re	marks	: :	:	<u> </u>	-:-	:			_
Star	ndina			gical and Geotechnical Information" sheet for further details.	Det	.14.	1.1	Hand auger				tho #	ne of d	rillina		
Wat	-flow	Ra	aw data in	blows per 50mm	Bento			Groundwater	encou	mered at	ı./ma	uie III	ile oi a	ıımıy.		
├─ In-fl Moistu				Other att (LD)	Grout/											
M = mc W = we	ist	V	= Peak, R	R = Residual	Drill ar											
S = sat			ir - Unat	ole To Penetrate Core Loss Gravel	Filters	and	<u> </u>									
	mensi NOT T		n metro		I nstrume Hand Au					Shear GEO1		No.:		ed By: AH	Checked SRO	-
		J 30		' ''' '		ات	20 /////			GEU1	515	l	IVI	ALI	SNU	

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4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA111** Date Augered: Client: Hole Location: 04 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK115 **Ground Level:** Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 29.9m E1748244.0, N5949125.0 5.00 m FINAL **Target Depth** 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 SILT; dark brown. Very stiff; moist; low plasticity; [TOPSOIL]. 2 S = SILT; with some clay; brown mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. V=113 Silty CLAY; light grey with mottled orange. Stiff; moist; high plasticity. R=46 V=89 V=82 R=37 BAYS FORMATION V=79 R=34 2.50m: Grades to brownish orange COAST 2.80m: Becomes wet. V=110 EAST 3.00m: Becomes very stiff. V=143 _{3.} R=70 CLAY, with some silt; bluish grey. Very stiff; wet; high plasticity. W V=140 R=67 V=198 R=89 ¥ 2, 2, 2 2, 3, 4 END OF HOLE: 5.00m (Target Depth) 8, 10, 12 12 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 55 Russell Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater encountered at 4.7m at the time of drilling. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres **NOT TO SCALE**

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Proje	ct No.	:	Pr	oject nar	•				Р	roject	Locat	tion:					N	lo.:	_
2400			Ru		ad, Silverd	ale						& Upper	r Orew	a Road	t		114	440	
	Augei			Client:	, l +d						catio		0065	21/11/1			ΗP	112	
	nd Le			Vineway	Co-ordi	nates:		ı	_	Depti		Dwg 24		minate	vq.	She	et.	Status:	_
RL 15		•0					949298.0		3.00	•		Target				1 01		FINAL	
_		_			Geolo	ogical De	scription		a.	I			oil Shea		0				<u>=</u>
Elevation (m)	Depth (m)	Geological Unit	Legend	ln a		•	Guidelines			Son	nples		กgth (k		Sca Penetro			າ Situ esting ຊີ	Backfill / Install
Elev.	Sept) Egi	Leg	Refer to	o "Geotechi	nical and (Geological I	nformation	ter	Oan	прісз	△ Resid	ual •	Peak	(blows/	0mm)		Results	ckfill
			TS W				ootlets; dark g			_		50 1	00 150	200	5 10	15		Dei	Ba
15.60	0.20	SOI J	× × × —————————————————————————————————	moist; low	plasticity; [To	OPSOIL].			"",									1	
15.5	- -		××××		LT; brownish [EAST COAS		ry stiff; moist; DRMATION].	medium										.,	
1	- 0.5		<u> </u>									4	Δ (•				V=171 _{0.5} R=92	
15.0	<u>-</u>		\times \times \times															_	
-	- 10		<u>×</u> ×××															V=168 R=82	
	-	NOT NO	<u>×</u> ×××															R=82	
14.5_	-	RMA	<u>× × ×</u>																
14.30	1.51.50	BAYS FORMATION	× × ×	Cilt. Cl A	V. limbt		\/		м			Δ	•					V=134 _{1.5} R=82	
1	- -	T BA)	×	plasticity.	r; light grey n	nottied oran	ge. Very stiff;	moist; meai	um										
14.0	-	EAST COAST	×																
1	- 2.0	STC	× ×									<u> </u>	•					V=107 _{2.0} R=52	
13.5	-) i																-	
-	2.5		× -×															V=174 R=79 ^{2.5}	
	-											^						* R=79	
13.0	-		×																
12.80	3.03.00		××						_	1			•					V=140 R=76	
1	-			END OF F	HOLE: 3.00m	(Target De	epth)											1	
12.5_	-																	-	
-	_ 3.5 _																	3.5	
12.0	- -																	_	
-	- - 4.0																	4.0	
1	-																	_	
11.5_	-																	+	
	4 .5																	4.5—	
	-																		
11.0-	-																	1	
1	- 5.0																	5.0—	
10.5_	- -																	1	
1	- - 5.5																	- 5.5 	
	-																		
10.0_	-																		
-	6.0																	6.0	
9.5	-																	-	
-	-																	-	
1	- 0.5																	6.5	
9.0	-																	-	
-	•													<u> </u>				-	
- Star	ndina	_				mation" shee	et for further de	tails.			1	n arks nd auger a	at 55 Ru	ıssell Ro	ad.				
▼ Wat	er Level	Ra	w data in	trometer Tes blows per 5	0mm =====	Topsoil	Clay		Bentonit	te					d at the tim	e of drilli	ng.		
├─ In-fl	ow	•		arks state oth	46 46 46	Peat	Silt	\geq	Grout/co	oncrete									
Moistu M = mo	ist			Strength (k t = Residual	Pa)	Fill	Sand		Drill aris	ings									
W = we S = sat		U1	TP = Unal	ole To Penet	trate cn.	Core Loss	Grav	rel	Filter sa	nd									
					tractor (if	applicab	le):	1		t Deta					Vane No.	: Log	ged By:	Checked E	y:
1	T TO	o sc	ons in metres OSCALE Contractor (if applicable):						d Aug	er 50 ı	mm			GEO1	706		SY	SRO	

22 Moorhouse Avenue Addington Takapuna AUCKLAND 6622

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(3.379.4402 vw.rileychch.co.nz	Ph: 09.489.7872 E: www.riley.co.r						•	., ., .		.0	-			
Proje	ct No.	:	Pro	oject name):			Pro	oject	Locati	on:						N	lo.:	
2400			Ru	ssell Road	, Silverdale						- ' '	er Ore	wa Roa	ad		_			
	Auger			Client:						cation							HA	113	
	ec 202			Vineway L									-SK114			<u> </u>		1	
Grou RL 2	nd Le	vel:			Co-ordinates:	040262.0			Depth	:			ermina	ted:		She		Status	
KL Z	1.4111	1			E1748211.0, N5		2.0	80 m	1		Refu	sai		_		1 of	1	FINA	
on	Ē	<u>8</u>	Б		Geological De	escription		Water / Moisture				Soil Sh		_	Scala		Ir	Situ	Depth (m) Backfill / Install
Elevation (m)	Depth (m)	Jog	Legend		ordance with NZG Geotechnical and			₩/	Sam	ples	Str	ength	(kPa)		netrom ows/50		Τe	esting	€ =
Ele	Dep	Geological Unit	Le		explanation of leg			/ater				idual 100 1	• Peak	5		15	Data	/Results	sackf
		SOI L	TS _W W,		ace sand; dark grey. \	/ery stiff; moist; no	on-plastic;	>			30	100 1	70 200	1	- 10	13] "
21.20	0.20	<u> </u>	× × × ;	sand, fine; [T	OPSOIL].	stiff: maist: madiu		1											+ 1
21.0 — 20.90	0.50		× × × ×		AST COAST BAYS FO													V=140	7
-	- 0.5		××. ×		ome clay; with trace fir bist; low plasticity.	ne sand; brownish	orange.	1			•	•						R=58	-
-	_		* × × × [×] ×	very sun, mo	oist, low plasticity.														վ
20.5_	_ 1.0	N N	××								Δ.							V=128	
20.20	1.20	MATIC	××× ×××								- :							* R=27	-
-	-	FOR	××	Silty CLAY; I plasticity.	ight grey mottled oran	ige. Very stiff; moi	ist; medium	1											7
20.0_	_ 1.5	AYS		plastiony.				M			Δ							V=140 R=31	5
19.80	1.60	COAST BAYS FORMATION	×		some silt; with some fi		y mottled	1										K-31	<u> </u>
19.5	_	COA		orange. Very	stiff; moist; medium į	olasticity.													+ 1
19.5-	_ 2.0	EAST									Δ	•						V=116 2	0_
_	_																		1
19.0_	-			2.20m: Beco	mes low plasticity.														1
18.90	2.5		× ×	Sandy SILT;	dark reddish brown. I	Hard; moist; non-p	olastic.	$\mid \cdot \mid$										V UTP 2	5
18.60	2.80		×		es to dark brown and														7
18.5_	-		^ · X		LE: 2.80m (Refusal)	bidok.		\Box						7	\$. ₈		8, 8, 15	✓ UTP	-
-	<u> </u>			END OF THO	LE. Z.OOM (Nordodi)											12	12, 4, 4 8, 8, 8	3.)
	_																8, 10, 10 12		<u> </u>
18.0_	Ī														9 10 10	12	↓		1
-	_ 3.5																	3.	<u>`</u>
-	-																		1
17.5_	4.0																	4.	L
-	_																		+ 1
-	_																		7 1
17.0-	- 4.5																	4:	5_
_	_																		1
16.5—	_																		-
-	5.0																	5.	o
-	-																		7
16.0_	-																		1
-	- 5.5																	5.	5
-	_																		- 1
15.5_	Ī																		.]
-	- 6.0																	6.	-
-	-																		1
15.0_	- - 6.5																	6.	5
-	_																		+ 1
-	-																		7
14.5—												- :			<u> </u>	-			<u>Щ</u>
					chnical Information" she	et for further details.				Rema		er at 55 l	Russell F	Road					
▼ Wat	nding ter Level			rometer Tests blows per 50m	nm Topsoil	Clay	Bent	tonite					ncounter		e time o	f drilling	J.		
Out In-fl				rks state other		Silt	Grou	ut/con	crete										
Moistu M = mo	re:			Strength (kPa) Fill	Sand	Drill	arisin	gs										
W = we S = sat	et			. = Residual ble To Penetrat	e CA Core Loss	Gravel	Filte	r sand	Ŀ										
		or: '	n mast.	oo Contro	actor (if applicab	ile).	Instrum	ent	Detai	ls.			Shar	r Vane	No :	Logo	ed By:	Checked	I Bv
	mensi NOT T		Hand A						1) 1706			eu by. SY	SRC					

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

رك	K	L		Ph:	RISTCHURCH 8011 03.379.4402 www.rileychch.co.nz	AUCKLAND 06: Ph: 09.489.7872 E: www.riley.co.	2					HAN	D AU	GER	(L	JG	
Proje	ct No.	:	Pr	oject nam				Pr	oject l	Locati	ion:				N	0.:	
2400			Ru		d, Silverdale							Drewa Road	t t	1		444	
	Augei ec 202			Client: Vineway	l td			1	le Lo			065-SK114			ПА	114	
	nd Le			Villeway	Co-ordinates:		Н	_	Depth			Terminate	ed:	Sheet	:	Status	
RL 1	7.5m				E1748157.6, N	5949317.1		.00 n	•		Target [Depth		1 of 1		FINA	١L
Ē	Ê	<u>8</u>			Geological [Description		sture			Soil	Shear	Scala			0.1	stall
Elevation (m)	Depth (m)	Geological Unit	Legend	In ac	cordance with NZ	GS Guidelines (2	2005)	Water / Moisture	Sam	ples	Streng	gth (kPa)	Penetrom (blows/0r		Te	Situ sting	Backfill / Install
Ele	Dep	ge Ge	٦		"Geotechnical and or explanation of le			Vater			ı	l ● Peak 0 150 200	5 10	15	Data/	Results	Backf
_		08 -	TS _w w		minor sand, with trace	rootlets; dark brov	wn. Firm;	<u>></u> D			30 100	190 200	3 10				1
17.20	0.30	TOPSO	TS T		astic; [TOPSOIL].			<u> </u>									1
17.0_	_ 0.5		× ×	Silty CLAY: plasticity; [I	; grey streaked orang EAST COAST BAYS	e. Very stiff; moist; FORMATION].	high				Δ.				,	V=226 R=85	_
-	_		×													R=85	1
-	_		<u> </u>														+
16.5_	1.0		×								Δ	•			`	V=174 _{1.0} R=81	-
-			<u>×</u>														7
-	Ī		× ^													V=192	1
16.0_	_ 1.5		×								A	•			`	R=101	7
-	-		<u> </u>														1
15.5	- - 2.0		×								Δ	•				V=154 R=88 ^{2.0}	1
-	_	NOIT	×													11-00	1
-	_	RMA	× ×														1
15.0_	_ 2.5	'S FO	×									•			`	√ V=232+ ^{2.5}	1
-	_	T BA)	<u> </u>					M									-
14.5_	3.0	COAST BAYS FORMATION	×													V=148 _{3.0}	7
-	- 5.0	EAST (<u>×</u>								△					R=80	7
-		ш	× ×	3.20m: Loc	ally stiff												1
14.0_	_ 3.5		×								Δ.				,	V=106 _{3.5} , R=58	1
-	-		<u> </u>														1
-	-		×													V=103	1
13.5_	_ 4.0 _		×								A •				`	V=103 R=46	1
-	<u> </u>		× ×	4.10m: Tra	ce sand; orange.												1
13.10	4.40 4.5		××××	SILT, with	some clay; dark grey.	Very stiff; moist; lo	ow plasticity.	-			Δ	•			,	V=128 R=73 4.5	_
-	_		× × × × × ×													11-73	1
-			× ×	{													1
12.5 	 5.00		××××	`	ides to hard.	5 "		╀								⊭-UTP5.0	\pm
-	_			END OF HO	OLE: 5.00m (Target	Depth)											1
12.0_	- - 5.5															5.5.	_
-																	1
-	_																+
11.5_	6.0															6.0.	-
-																	7
-	- - - 6.5																1
11.0_	- 6.5															6.5.	7
-	_																1
-									<u> </u>								<u> </u>
Sta	ndina				echnical Information" sl	neet for further detail	's.			Rema 1. Har		53B Russell F	Road.				
▼ Wa	ter Level	Ra	w data in	trometer Test blows per 50	mm i lopsoii	Clay	Be	ntonite	•			ot encountere					
├─ In-f	low			arks state other	th at at	Silt	× >		ncrete								
Moistu M = mo	oist	V :	= Peak, R	Strength (kP		Sand	8.0	ll arisir	* II								
W = we S = sa		UT	TP = Unal	ole To Penetr	ate ta Core Lo	ss Gravel	Filt	er san	d								
	mensi NOT T		n metr	es Cont	ractor (if applica	ible):	Instrui Hand			ls:		i	Vane No.:	Logged		Checked	-
	1011	J 30/	~LE	17/7			I Hallu /	uye				VANE	.Z31	JMA		SRO	

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

5	K	CHRISTCHURCH 8011 AUCKLAND 0622 Ph: 03.379.4402 E: www.rileychc.oc.nz E: www.rileyco.nz										HAND AUGER LOG									
Proje	Project No.: Project name:								oject L	_ocat	ion: No.:										
240065 Russell Road, Silverdale								Rι	ıssell F	Road 8	& Upper	Orewa I	Road								
Date Augered: Client:								1	ole Loc							│ HA115					
06 Dec 2024 Vineway Ltd Ground Level: Co-ordinates:							- 1				Dwg 240			.	Cha	ot:	Ctatu				
RL 12		vei:				Hole Depth: 3.00 m				Reason Terminated: Target Depth			She 1 of		Statu FIN	s: IAL					
_	-	<u>8</u>			Geological D	Description	•	ture			So	il Shear		Sca	ıla	Ī .		stall			
Elevation (m)	Depth (m)	Geological Unit	Legend	In accordance with NZGS Guidelines (200 Refer to "Geotechnical and Geological Inform sheet for explanation of legend and abbrevia			ormation"	Water / Moisture	Sam	ples	Strer	ngth (kPa nal ● Pe no 150 2	eak	Penetro (blows/	ometer 0mm)	Te	n Situ esting /Results	Depth (m) Backfill / Install			
12.0— 11.90	- - - 0.40	TOPSOIL	TS [±] ± TS [±] ± TS		some sand, with trace lastic; [TOPSOIL].	rootlets; dark brov	vn. Firm;	D													
11.5	_ 0.5 - -		** * * * * * * * * * * *		trace rootlets and sand [EAST COAST BAYS I		f; moist; low	М			Δ •						V=95 R=36	0.5			
11.30	- 1.0. 1.00 - 1.0. 1.30	NOIL	*	CORE LO	SS (wet).						A •						V=80 R=36	1.0			
	_ 1.5 _	YS FORMATION	× ×	Silty CLA	/ ; grey streaked orange	e. Stiff; wet; high pl	lasticity.				Δ.						V=56 R=27	1.5			
10.5	- - - 2.0	EAST COAST BAYS	× ×					w									∨ UTP	2.0			
10.0	- - - - 2.5	EAS.	× ×								Δ •						V=83 R=32	2.5—			
9.49.5	- - 2.85		× ×]			
9.30	3.00		×××	SILT, with	trace sand; grey. Hard	l; moist; low plastic	city.										V=85	-			
-	-			END OF H	OLE: 3.00m (Target	Depth)					*						R=35	-			
9.0	- -																	1			
+	3.5																	3.5			
1	-																	-			
8.5	-																	1			
1	- 4.0																	4.0			
+	-																	-			
8.0	-																	7			
1	- 4.5																	4.5			
1	-																	_			
7.5	-																	+			
1	- 5.0																	5.0			
1	-																	1			
7.0	-																				
+	- 5.5																	5.5			
- I	-																	7			
6.5	-																	7			
1	- 6.0																	6.0			
6.0	-																	1			
+	-																	6.5			
7	- 0.3																	-			
5.5	-																	1			
	-																				
Expla	nations	S: Refer	to "Geolo	gical and Geo	technical Information" sh	eet for further detail:	s.			Rem											
	ndina	▼ Sc	ala Penet	rometer Tes	sts Topsoil	Clay		ntonite	,		nd auger a oundwater			oad. 0.93 mBGI	_ @ 16:4	3.					
√ - Out-	-flow			blows per 5 rks state otl	oumm Lass	Silt			ncrete		•										
├─ In-fl		•		Strength (k	as as a Feat	Sand	22.3	ll arisir													
M = mo W = we	ist	V =	Peak, R	= Residual	2000	20000	2.0		- II												
S = sat		UI	unat	ne 10 Penet	trate the Core Los	ss Gravel	Filt	er san	u												
			n metre	-	tractor (if applica	ble):	Instru			s:		1		Vane No.	"	jed By:	l .	-			
r	T TO	U SC/	4LE	N/A			Hand A	⊸uge	71			V	ANE:	231	∣ Jľ	ИΑС	SR	J			

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.nz

HAND AUGER LOG

	Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz																					
Project No.	ect No.: Project name:								oject	Locati	ocation: No.:											
240065											& Upper Orewa Road						118446					
Date Augered: Client: 09 Dec 2024 Vineway Ltd								Į.		cation							HA116					
Ground Level:			vineway	Co-ordinates:			н	Hole Depth:			Dwg 240065-SK114 Reason Terminated:						Sheet: St		Statu	e.		
RL 17.3m			E1748180.0, N5949361.3				1.60 m			Refusal						1 of		FIN				
				Geologic				_				0 11	01						<u> </u>			
Elevation (m)	Geological Unit	Legend	In a	ccordance with			2005)	Water / Moisture	C		S	Soil : Streng	Shear th (kP			Scala etrom			n Situ	Depth (m) Backfill / Install		
(n (n	등	Leg	Refer to	"Geotechnical	and Geolog	gical Info	rmation"	ter / N	Sam		ΔRe	esidual	• F	Peak	(blov	ws/50	mm)		esting a/Results	th (m)		
				for explanation of				Wal				0 100			5	10	15			Ba		
‡	TOPSO	TS TS TS TS TS TS TS TS TS TS TS TS TS T		trace rootlets and [TOPSOIL].	sand; dark b	rown. Firm	ı; dry; low	D												_		
17.00 0.30		,×,×	SILT, with	some clay and sa	nd; brownish	orange str	reaked grey	\vdash												-		
T 0.5	4TIOI	× × × × ×		Stiff; moist; low p							Δ	•							V=61 R=25	0.5		
‡	DRM,	, × × ,		•																1		
16.5	YS F(×××						М												_		
1.0	COAST BAYS FORMATION	^ × × × × ×									Δ	•							V=60 R=20	1.0		
16.0	OAS	£×°××																		-		
15.80 1.5. 1.50	EAST (××× ×	1.40m - 1.	50m: Wet				w														
15.70 1.60	9	××∵×	\	trace sand; dark of	grey. Hard; m	oist; low pl	asticity.	M						-			20		✓ UTP	1.5		
15.5			END OF H	IOLE: 1.60m (Re	fusal)			1									20	▼ _{20, 20}		=		
2.0																				2.0		
+																				-		
15.0																				7		
2.5																				2.5		
‡																				_		
14.5																				_		
3.0																				3.0		
Ŧ																				-		
14.0																				1		
3.5																				3.5		
13.5																				-		
Ŧ																						
‡ 4.0																				4.0		
13.0																				_		
4.5																				4.5—		
+																				+		
12.5																				7		
5.0																				5.0.		
‡																				_		
12.0																				_		
5.5																				5.5-		
Ŧ																				7		
11.5																				1		
6.0																				6.0		
11.0																				_		
- 65																				6.5_		
Ŧ																				-		
10.5																				1		
<u>t</u>		<u> </u>												<u>:</u>			<u> </u>	<u> </u>				
Explanations Standing Water Level Out-flow In-flow Moisture: M = moist W = wet S = saturated	▼ Sc Ra un Va V:	ala Penet aw data in less rema ine Shear = Peak, R	gical and Geo rometer Tes blows per 5 trks state oth Strength (kf = Residual ble To Penet	Omm Pea	soil	Clay Silt Sand Gravel	Ber Gro	ntonite out/cor I arisir er san	ncrete		d Aug groun la rav la rav	ndwate w data	r recore from 1	ded at t .6mBG	the time L recor	ded 29	blows	for 50mr s for 20m	n. m and rec	orded		
All dimensi	one i	n motre	Cont	tractor (if app	licable).		Instrur	nent	Detai	ls:			-	Shear	Vane	No ·	Logo	ed Bv	Checke	d Bv		

Hand Auger

VANE231

22 Moorhouse Avenue Addington

4 Fred Thomas Drive Takapuna

2	CHRISTCHURCH 8011 AUCKLAND 0622 Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz										HAND AUGER LOG									
Project l	roject No.: Project name:							Pr	oject L	ocat	on: No.:									
240065	240065 Russell Road, Silverdale							Rι	ıssell R	Road 8	& Upper	Orewa	Road							
Date Augered: Client:									ole Loc					HA117						
09 Dec 2				Vineway						_	Dwg 240									
Ground RL 23.2r		el:		Co-ordinates:					Hole Depth: 5.00 m			n Term	inate	d:	She		Status			
NL 23.21	<u>''</u>				E1748142.5, N59		3.		11		Target	Бериі			1 of	<u> </u>	FIN			
Б <u>(</u> Е		Geological Unit	Þ		Geological De	scription		Water / Moisture				il Shear		Scala		In	Situ	Depth (m) Backfill / Install		
Elevation (m)		Slog Unit	Legend	In a	ccordance with NZGS o "Geotechnical and 0	Guidelines (20	005) mation"	/ Mc	Samp	oles		ngth (kP	· 1	Penetron (blows/0			esting	(E)		
	ן צ	Š	ٽ		for explanation of lege			Vater			∆ Residu	ıal ● P 00 150 :		, 5 10	15	Data	Results	Depth 3ack		
	0.20	2027	× ×		ILT with some sand; brow	vn, dry, low plastic	city, very	_					:					7		
23.00 23.0	0.20	- 07	×××	stiff. [TOP	'SOILJ. Y; brownish orange. Very	stiff: drv: medium	plasticity.	1										_		
+		ŀ	_×		DAST BAYS FORMATION		pidotioity,										V=148 .			
+0.5			×								^						V=148 o R=68	-3-		
22.5			×××															1		
1.0											Δ						V=116 ₁ R=61			
22.00	1.20		××_					D									R=61	-		
+					th some silt; brownish ora	nge streaked light	grey.											7		
1.5				Ottili, di y, i	nigri plasticity.						Δ (•					V=100 ₁ R=64	.5		
21.5																	K-04	1		
+																		+		
1 2.0		z									Δ •						V=68 ₂ R=32	.0.		
21.0		ATIO																1		
20.90	2.30	BAYS FORMATION	×××		some clay and sand; bro		eaked light		ł									_		
2.5		YSF	× × × ×	grey. Stiff;	; moist; medium plasticity	to high plasticity.					Δ (•					V=100 ₂ R=39	.5—		
20.50	2.70	T BA	×××	CLAV wit	h some silt, with minor sa	and: brownish oran	nge Stiff:	-										7		
‡		COAST			h plasticity.	ina, brownish oran	ige . Ouii,										\/=00	1		
3.0		EAST (A •						V=89 R=26	.0		
20.0		a)		3.20m: Lic	ght grey and orange.													-		
19.70	3.50	ŀ			, , , ,												V=81 ₃	4		
			× ×	Silty CLAN	Y, with some sand; grey.	Stiff to very stiff; m	noist; high	м			∆ ●						R=40	1.5		
19.5				plasticity.				"										1		
14.0			××_								Δ						V=177 R=71			
19.0			× ^														* R=71	4		
19.0		-	×															7		
4.5		ŀ	× -×								Δ		.				V=195 R=64	.5_		
18.5			×														11-04	_		
<u> </u>			× ×					푁										-		
18.20 5.0	5.00	_	<u> </u>	END OF I	101 F 500 (T T	(1.)						<u> </u>	-					.0.		
18.0				END OF F	HOLE: 5.00m (Target De	:pm)												7		
‡																		1		
± 5.5																	5	i.5		
17.5																		_		
Ŧ																	_			
‡*··																	6	i.0		
17.0																		1		
6.5																	6	.5_		
16.5																		+		
Ŧ																		7		
									<u> </u>									1		
Standing	a			-	otechnical Information" shee	t for further details.				Rema	arks nd auger a	ıt 53A Rıı	ssell R	oad.						
▼ Standing Water Le	evel			trometer Tes blows per 5	tar il Lonsoli	Clay	Ben	onite						4.8mBGL at	the time	of drilling	J.			
Out-flow	,			irks state oth		Silt	Grou	ıt/cor	ncrete											
Moisture: M = moist				Strength (kl	Pa) Fill	Sand	Drill	arisir	ngs											
W = wet S = saturate	ed			i = Residuai ble To Penet	trate Core Loss	Gravel	Filte	r san	ıd											
All dime		ne in	mote	ne Con	tractor (if applicab	le):	Instrum	ent	Detail	s:		s	hear \	Vane No.:	Loan	ed By:	Checke	d Bv:		
		SCA		N/A	(ppcaa	′	Hand A					1	/ANE		JOMU SRO					

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz												TAND AGGENT EGG										
Proje	ct No.	.:	Pro	oject nam	e:	•	Project Location:							• • • • • • • • • • • • • • • • • • •								
240065 Russell Road, Silverdale Date Augered: Client:											& Upper (Road	i	HA118								
	Augei c 202			Client: Vineway	l td				cation	ı: Dwg 240	K112			ПАТТО								
	nd Le			Villeway	Co-ordinates:	Н	Hole Depth			Reasor			ed:		Shee	et:	Status	 i:				
RL 21					E1748161.8, N	N5949534.0		80 n	•		Refusal			1		1	FINAL					
_		_			Geological	Description	'	are			Cail	Chan	_		·I-			<u>'</u>	<u></u>			
Elevation (m)	Depth (m)	Geological Unit	Legend	In ac	cordance with NZ	2005)	Water / Moisture	Son	nples	Streng	Shea gth (kF			cala trome	eter I In		Situ	Depth (m) Backfill / Install				
(m)	ept		Leg	Refer to	"Geotechnical an	rmation"	ter /	San	ipies	△ Residua	al •	Peak	(blow	s/50n	nm)		Results	th (m				
		9			<u>'</u>	legend and abbre		Wai			50 100			5	10	15			Ba			
21.0	-		※ × × i × × ×	Organic SIL [ALLUVIUM		brown. Firm; dry; Ro	ootlets.]			
20.75	• 0.35	5	×××					1											-			
7	_ 0.5		* × ×		「, with some clay; lig ry; low plasticity; roo	tht brown grey mottle otlets.	ed orange.				Δ							V=201 ₀ R=73	5_			
20.5	•		× ×															11 10	1			
1	-		* × · · ·																<u> </u>			
20.0	_ 1.0		× × ×								Δ	•					,	V=131 ₁ R=58	.0			
20.0	•		× × ×																1			
1			××																			
19.60	_ 1.5		× ×	Clayey SIL	 Γ; light grey streaker	d orange. Stiff; moist	 t; high	┨			Δ	•					,	V=138 ₁ R=66	5			
7	•		× × × ×	plasticity.															-			
1	-		× × ×															V-04	1			
19.0	- 2.0		× × × ×								A •						,	V=94 R=47	.0			
1	-	M⊡	× × ×																_			
Ŧ		ALLUVIUM	× × × :															V=58				
18.50 18.5	2.60	₹	× × × ×	Cilt. Cl AV.	harrial and Chiff	i.a. binb mlai.ia	.	4			A •						,	V=58 R=29	-			
1				Organics; v		f; moist; high plasticit	ty;															
18.10	- - 3.0		×								Δ.							V=29 R=16	_			
18.0	-		× ×	Silty CLAY,	with minor organics	s; brownish grey and	black. Soft	1			Δ.							R=16	-			
‡				10 11111, 0010	acou, mgm plasticity	,, e.gaee, 1100a.													1			
1	- - 3.5		×															✓ UTP 3	.5			
17.5	-							▼			• 4							V=34	-			
- 1			×															* R=81	-			
1	- 4.0		× ×	3.90m: Woo	od, hard, brown and	black, 100mm thick.					Δ .							V=45 R=16				
17.0	-		_×															11-10	1			
+	-		×																-			
7	- 4.5		××								Δ φ						,	V=50 R=23	.5			
16.5 16.40	4.70		_×					_											_			
16.30	4.80	LAD	× × × :	speckled br	rown. Hard; moist; hi	with trace organics; g igh plasticity; [HUKE		厂								20	20	√-UTP				
16.0	- 5.0			MUDSTON	-	-D		/										5	.0			
Ī				END OF HO	DLE: 4.80m (Refus	aı)													-			
‡	-																		1			
15.5	- 5.5																	5	5			
+	-																		-			
Ŧ	-																		1			
15.0	- 6.0																	6	<u> </u>			
1																			1			
+	6.5																	6	-			
14.5	-																	ū	-			
- ‡																			1			
	<u> </u>	<u> </u>							<u> </u>				<u>:</u>		<u>:</u>	<u> </u>						
		S: Refer	to "Geolo	gical and Geote	echnical Information" s	sheet for further details	5.			Rema		F05 -		!								
Star Wat	nding er Level			trometer Test	i i Lonsoli	Clay	Ber	tonite	,	2. Gro	id Auger at undwater e	ncoun	tered at	approxir				ing drilling				
Out- ✓ In-flee				blows per 50 arks state othe		Silt	Gro	ut/cor	ncrete	3. Sca	la raw data	from 4	i.8mBG	L record	ed 90	tor 50n	nm.					
Moistu	re:			Strength (kP	a dela della di	Sand	X 3	arisir														
M = mo W = we	t			t = Residual ble To Penetra	ate 👊 Core I	223123 223203	S-1	r san	-													
S = sati	urated		- Cridic		CAL.	2000	4.55															
	mensi NOT T		n metre	es Conti N/A	ractor (if application	able):	Instrum Hand A			ls:		i	Shear VANE	Vane N	lo.:		ed By: US	Checked SRC	- 1			

Hand Auger

VANE569

4 Fred Thomas Drive Takapuna AUCKLAND 0622

EK			Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz				MIND	AU	JEN I	_06
Project No	.:	ı	roject name:		roject Loc					No.:
240065		Ru	ussell Road, Silverdale			d & Upper Orev	va Road			A 4 4 O
Date Auge 09 Dec 202			Client: Vineway Ltd		ole Locat efer to Rile	i on: ey Dwg 240065-	SK112		п	A119
Ground Le			Co-ordinates:	-	Depth:	Reason Te		:	Sheet:	Status:
RL 37.9m			E1748203.0, N5949683.3	3.00	m	Target dept	h		1 of 1	FINAL
Elevation (m)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (2005 Refer to "Geotechnical and Geological Informa sheet for explanation of legend and abbreviati	tion"	Sample	Soil She Strength (I	kPa) Peak	Scala Penetrom (blows/0n	nm)	In Situ Testing ta/Results Results Rectill / Install
37.60	TOPSO	・ エ2 エ2 エ2 エ2 エ	SILT, with trace rootlets and sand; dark brown. Firm; dry plastic; [TOPSOIL].	y; non- D						-
37.5 - 0.5) <u> </u>	× × ×	Silty CLAY; orange. Stiff; moist; high plasticity; [HUKERI MUDSTONE].	ENUI		Δ •				V=93 0.5 R=33
37.0	CHTHON	× × × × × × × × × × × × × × × × × × ×	0.85m - 0.90m: Grey streaked orange and black, trace organics, amorphous organic flecks. 0.90m - 2.20m: Grey streaked orange.			Δ •				V=100 1.0 R=27
36.0	NORTHLAND ALLOCHTHON	× × ×	1.90m: Grades to trace sand. Very Stiff.	M		Δ •	•			V=86 1.5. R=41 -
35.70 2.20	ž	~ ×× ××	SILT, with some sand; dark grey. Hard; moist; low plastic	icity.]
35.5		× × × × × × × × ×	2.50m - 2.70m: Grades to sandy, non-plastic. Becomes	dry.						- ✓ UTP 2.5—
35.0		× × ×	END OF HOLE: 3.00m (Target depth)							
34.5										3.5
34.0										4.0_
33.5										4.5— —
33.0										5.0
32.5										5.5
32.0										6.0_
31.5										6.5
Explanation Standing Water Leve Out-flow Moisture: M = moist W = wet S = saturated	Va Va UT	ala Pene w data in less rema ne Sheai = Peak, F P = Unal	pogical and Geotechnical Information" sheet for further details. Intrometer Tests in blows per 50mm arks state otherwise Peat Silt in Strength (kPa) Fill Sand Residual Propentiate Gravel Gravel	Bentonit Grout/cc Drill aris Filter sa	e 1. 2. oncrete ings	emarks Hand Auger at 53A No groundwater rec	corded at tin	ne of drilling.		
All dimens NOT T			• • • • • • • • • • • • • • • • • • • •	<mark>nstrumen</mark> Hand Aug			Shear V	l l	Logged By JMAC	r: Checked By: SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA120** Date Augered: Client: Hole Location: 09 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK112 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 41.8m 3.65 m FINAL E1748177.1, N5949687.5 Refusal 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Samples Testing (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 Organic SILT with some sand, minor clay and trace rootlets; dark brown. Very stiff, dry to moist, non plastic to low plasticity [TOPSOIL] 41 44.5 SILT, with some clay, with minor sand, with trace rootlets; light greyish brown streaked light grey and brownish orange. Very stiff; moist; low plasticity to medium plasticity; [HUKERENUI V=156 R=37 Clayey SILT, with trace rootlets and sand; light greyish brown streaked brownish orange. Stiff; moist; medium plasticity to high plasticity. 1.0 R=35 Silty CLAY, with trace sand; light grey streaked brownish orange. Very stiff; moist; high plasticity. 40.5_ 1.00m - 1.10m: Grades to brownish red streaked light grey and 1.00m - 1.10.... brownish orange ALLOCHTHON V=100 R=34 CLAY, with some silt, with trace sand; light grey streaked brownish orange. Very stiff; moist; high plasticity. V=129 R=52 NORTHLAND SILT, with some clay, with minor sand; dark grey. Hard; moist; medium plasticity. V=140+23 2.80m - 3.20m: Grades to SILT with some sand and clay. ∨ UTP ∨ UTP 20 **★**15, 20, 20 END OF HOLE: 3.65m (Refusal) 35.0 Remarks Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand Auger at 53B Russell Road Standing
Water Level Scala Penetrometer Tests Groundwater not encountered.
 Scala raw data from 3.7mBGL is 50 blows for 50mm. Topsoil Bentonite Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt 4. Scala raw data from 3.75mBGL is 24 blows for 25mm and recorded Grout/concrete - In-flow bouncing Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel Filter sand S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger

SRO

JOMU

4 Fred Thomas Drive Takapuna AUCKLAND 0622

				Ph	n: 03.379.4402 www.rileychch.co.n:	Ph: 09.489.78	372						MIN!	U A		JL	N L	UG	
Project	No.:			oject nar					oject								N	lo.:	
240065			Ru		ad, Silverdale						& Uppe	r Orew	a Road	t				404	
Date Au 05 Dec 2	-			Client: Vineway	, I td			- 1	ole Lo		n: Dwg 24	10065	SK111				ПА	121	
Ground				villeway	Co-ordinates	s:			Depth		_		minate	ed:		She	et:	Status	
RL 46.9r	m				E1748109.4,			3.00 r	•		1	Termir				1 of	1	FINA	
د (و	_	a			Geologica	l Description		ture			S	oil She	ar		Scala				Ilall
Elevation (m)	5	Geological Unit	Legend	In a	ccordance with N	IZGS Guidelines	(2005)	Water / Moisture	Sam	ples		ength (k		Pene	trome			Situ esting	Backfill / Install
Elev	Leb Ceb	Geol	Lec		o "Geotechnical a for explanation of			ater/			1	lual •		(blov	vs/0m			/Results	ackfil
-			× × × :		LT; greyish brown; le			>			50	100 150	200	5	10	15		Ċ	5 6
46.70	0.20	SOI	×××		Y; light brown mottle			-											7
46.5			×	to mediun	n plasticity; [HUKER	ENUI MUDSTONE]].											V=109	7
+0.5			×								🔼	•						V=109 _{0.5} R=58	7
‡			× ×	0.70m: Br	own. Stiff.														_
46.0											i	•						V=113 R=48	_
1		N O		1.00m: M	ottled grey. Firm.													K=48	_
45.5		Ŧ		1.20m: So	oft to firm.														-
1.5		ILO	×								Δ.		•					V=177 R=64	7
Ŧ		NORTHLAND ALLOCHTHON	<u> </u>																7
45.0		Ή	×															V=116	1
2.0		NOR	××_	2.00m: Sc	oft, moderate to high	plasticity.					Δ	•						V=116 R=40	╛
‡			× ×																_
44.5			×															V=121 R=40 2.5	_
+			<u> </u>															R=40	+
".Ŧ			×	2.80m: Ba	and of fine to coarse	SAND: dark brown													7
43.90 3.0.	3.00		<u>×</u>		rey. Soft to Firm, mo			\perp				•	-			<u> </u>		V=137 R=56	_
‡				<u> </u>	HOLE: 3.00m (Early			-/											7
43.5						,													-
3.5																		3.5	_
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43.0																		4.0	_
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40.0								<u></u>	<u> </u>				<u> </u>		<u> </u>	<u> </u>			<u>1</u>
		Refer	to "Geolo	gical and Geo	otechnical Information	" sheet for further deta	ails.			I	narks	at 52D 1	Succell L	Poad .					
▼ Standing Water L	evel			trometer Tes blows per 5		oil Clay	В	entonite	•		nd Auger oundwate				of dril	lling.			
Out-flow In-flow	V			arks state ot		Silt	G	rout/coi	ncrete										
Moisture: M = moist				Strength (k t = Residual		Sand	D	rill arisiı	ngs										
W = wet S = saturate	ed			ole To Pene		Loss Grave	el 🧰 Fi	lter san	ıd										
All dime		ons i	n metr	es Con	tractor (if appli	cable):	Instru	ment	Detai	∟ <u> </u>		I	Shear	Vane N	lo.:	Logg	ed By:	Checked	By:
		O SC		N/A		•	Hand						VANE				OU	SRO	

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

E	K	L		Ph	RISTCHURC :: 03.379.4402 www.rileychcl	2	AUCKLAND Ph: 09.489.1 E: www.riley	7872						П	AN	υA	U	7 C I	K L	UG	
Proje	ct No.	:		oject nar							ject L								N	o.:	
2400			Ru		ad, Silverd	ale							& Uppe	r Orew	a Road	<u> </u>			114	400	
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	nd Le			vineway	Co-ordi	nates:			_		epth:	_			minate	eq.		Shee	t:	Status	
RL 39		•			l .		949659.4		3.00		optiii.		Targe			,u.		1 of 1		FINA	
_		_			Geolo	gical De	scription	1	<u> </u>	an			9,	oil She	or		aala				冒
Elevation (m)	Depth (m)	Geological Unit	Legend	ln a	ccordance	_	-			Water / Moisture	Samp	Noo		ngth (k		Penet	cala trome	ter		Situ	Depth (m) Backfill / Install
Eleva (n	Septl) Feol	Leg	Refer t	o "Geotechr for explanat	nical and C	Geological	Information	on"	ter / I	Janip	nes	△ Resid	lual •	Peak	(blow	/s/0mr	m)		Results	ckfill
		D S O	TS		some organic				_	Ď			50 1	100 150	200	5	10 1	5		- 1	Ba R
39.15	0.15	0		low plastic	city; [TOPSOII	L].															1
39.0	-				h some silt; g t; high plastici		brown mottle	ed brown. \	/ery											V 474	1
1	- 0.5												Δ.		•					V=171 _{0.5} R=81	1
38.5	-																				1
-	- - 1.0			0.80m: Be	ecomes brown	ish orange	mottled brov	vn.					Δ							V=116 1.0 R=61	7
-	-												:							* R=61	-
38.0	-	_																			7
1	- - 1.5	N	 -	4 50 Da									Δ .							V=81 R=35	_
1	-	COLLUVIUM		1.50m; B6	ecomes stiff.					М											1
37.5	-	0		1.80m: Be	ecomes greyis	h light brow	n mottled br	ownish ora	inge.												1
1	- 2.0			2.00m: Be	ecomes very s	stiff.							Δ	•						V=116 R=45	-
37.10 37.0	2.20		× × × :		LT; light brow		; moist; low p	olasticity.													}
-	- 2.5		× × ×										Δ.							V=97 R=32	-
	-		× × ×										A :							R=32 2	7
36.5	-		× × ×																		7
36.30	- 3.0 · · · · · · · ·		× × ×	2 00m: Ba	ecomes stiff.				}				_ ▲			ļ				V=69 R=34	
1	- -			·	HOLE: 3.00m	(Target De	epth)		/												1
36.0	- -			2.15 0	.022. 0.00	(14.901.20	,p)														1
-	_ 3.5 _																			3.5	
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					otechnical Infor	mation" shee	t for further d	etails.		_		Rem	arks nd auger	at 53B I	المعمالة						_
▼ Wat				trometer Tes blows per 5		Topsoil	Clay	/	Bento	nite						d at time	of drilli	ing.			
→ Out				irks state otl		Peat	Silt	\geq	Grout	/conc	rete										
Moistu M = mo				Strength (k = Residual	Pa)	Fill	San	d 🧞	Drill a	rising	ıs										
W = we S = sat	ŧ			ole To Pene	trate ca	Core Loss	Gra	vel	Filter	sand											
		ons i	n metr	es Con	tractor (if	applicabl	le):	Ins	strume	ent C	L Details	s:			Shear	Vane N	o.: L	Logge	d By:	Checked	By:
	NOT T			N/A	-		and Au	ıger	50 mi	m			VANE	111		DA		SRO	-		

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA123** Date Augered: Client: Hole Location: 05 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK111 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 32.2m 2.50 m FINAL E1748062.8, N5949615.3 Refusal 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT, with some rootlets and clay; dark brown. Stiff; moist; low plasticity; [TOPSOIL]. TS ¥ SILT, with some clay and gravel; dark brown speckled black. Stiff; moist; low plasticity; [COLLUVIUM]. Silty CLAY; brownish orange mottled light brown. Stiff; moist; 31.50**31.**5 Silty CLAY, with minor organics; dark brownish grey mottled brownish orange, speckled black. Stiff; moist; high plasticity. 31.20 Silty CLAY; greyish brown mottled light brown and brownish orange. Stiff; moist; high plasticity. R=29 31.0 ¥ 1.30m: Becomes brownish orange mottled light brown. V=72 R=32 1.70m: Becomes light grey mottled brownish orange ∨ UTP Highly weathered, light grey, MUDSTONE. Extremely weak. [HUKERENUI MUDSTONE]. W ۵ ¥ ۵ ← UTP 3, 3, 2 29.5 CLAY; light grey. Hard, wet, medium plasticity 5. 6. 6 2.40m: Becomes grey. 5, 6, 12 19, 8, 4 END OF HOLE: 2.50m (Refusal) 9, 10, 13 10, 6, 10 12 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand Auger at 53B Russell Road Standing Water Level Scala Penetrometer Tests Groundwater encountered at 0.28mBGL 0.5 hrs post comple
 Recorded bouncing for scala measurement from 3.15mBGL. Groundwater encountered at 0.28mBGL 0.5 hrs post completion. Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres N/A Hand Auger 50 mm

SRO

NOT TO SCALE

N/A

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HAND AUGER LOG

				E: www.rileychch.co.nz E: www.riley.co.n.	z										
Projec	t No.	:		roject name:			-	Locat					N	0.:	
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06 De				Vineway Ltd Co-ordinates:					Dwg 240065 Reason Te		۵.	Shee	.4.	Status	
RL 29		vei.		E1748085.1, N5949584.9		101e 1.50 i	Depth	١.	Refusal	IIIIIIale	u.	1 of		FINA	- 1
1				· · ·		_	ï		Ttoruoui			1 . 0.	<u> </u>		
<u>6</u>	(m)	Geological Unit	рц	Geological Description		Water / Moisture			Soil She Strength (Scala Penetror		ln	Situ	Backfill / Install
Elevation (m)	Depth (m)	olog Uni	Legend	In accordance with NZGS Guidelines (20 Refer to "Geotechnical and Geological Information and Geologica		Ľ,	San	nples			(blows/50			sting {	
ı	De	Ge		sheet for explanation of legend and abbrev		Wate			∆ Residual € 50 100 15		5 10	15	Dala	results :	Back
\dashv		JIC	LS TT	SILT, with some rootlets and clay; dark brown mottle		Ť				:					\Box
<u> </u>		TOPSOIL	T.LS.T.	brown speckled brownish orange. Stiff; moist; low pla [TOPSOIL].	asucity;										1
28.60	0.40		* * * ×	SILT, with some sand; dark brown mottled brown and	d speckled	-								V=81 _{0.5}	+
20.3 T	0.5		× × >	white. Stiff; moist; low plasticity; [COLLUVIUM].		_/			A •	:		:	`	R=32	7
‡			× × ×	Clayey SILT; brownish grey, mottled brown, speckled Stiff; moist; medium plasticity.	d black.										1
28.0	1.0		× × ×	1					Δ.				,	V=56 _{1.0}	1
+		MUIV	× × ×											R=26	+
Ŧ		COLLUVIUM	× × ×												11
27.5	1.5	00	\times \times \times						Δ .				,	V=45 R=19	1
±			× × ×											K=19	<u> </u>
27.10	1.90		× × ×												- 1
27.0 26.90	2.0		× ×	Silty CLAY, with some organics (humus); bluish grey dark brownish dark grey. Stiff; moist; high plasticity.	, mottled	Пм			▲ ●				,	V=61 R=32	4
	2.10			2.00m: Becomes dark brownish dark grey.		1									1
<u> </u>				CLAY, with some silt; dark brownish grey. Stiff; moist plasticity; [HUKERENUI MUDSTONE].	t; high										1
26.5	2.5			2.50m: Becomes grey mottled brownish orange.					A •				`	V=56 R=24	+ $+$
Ŧ															7
‡		NOF												\/-50	1
26.0	3.0	CHTI		3.00m: Becomes brown mottled grey.					△ •				`	V=50 R=29	┧
+		ИГГО													+ 1
Ŧ		NORTHLAND ALLOCHTHON								:				V=129	7
25.5	3.5	THL		3.50m: Becomes grey, very stiff.					Δ •				`	V=129 R=21	- 1
‡		NOR		1											1
25.0	4.0			_									,	/ V=225+4.0	1
24.90	4.10			4.00m: Becomes hard.	k		1								<u> </u>
Ŧ				Slightly weathered MUDSTONE; light grey; extremely recovered as,		s									- 1
24.50 24.5	4.54.50			Silty CLAY; light grey. Hard; saturated; medium plast	ioity.	+					•			⊬-UTP4.5	\dashv
‡				END OF HOLE: 4.50m (Refusal)							•.8	10 :	2, 8, 10 12, 10, 10		1
‡											.•:9	10	10, 9, 5 15, 18, 17		1
24.0	5.0										• :5	15	17, 20	5.0	$+$ \parallel
Ŧ												17 17 20	¥		7
Ŧ															1
23.5	5.5													5.5	11
<u> </u>															1
23.0	6.0													6.0	+
Ŧ										:					-
Ŧ															11
22.5	6.5													6.5	11
İ															1
+															<u> </u>
									<u> </u>	:	<u> </u>				<u> </u>
— Stan				ogical and Geotechnical Information" sheet for further details.				Remail 1. Har	arks nd Auger at 53B	Russell R	oad.				
▼ Wate	r Level			etrometer Tests n blows per 50mm	Be	entonite	е	2. Gro	oundwater encou ala raw data fron	intered at	2.37 mBGL		nm and re	corded	
→ Out-f → In-flo →		√ un	nless rem	arks state otherwise Peat Silt	∭ Gr	out/co	ncrete	bound				. 5 . 51 501	unu 10		
Moistur M = moi				r Strength (kPa) Fill Sand	Dr	ill arisi	ngs								
W = wet S = satu				ble To Penetrate Core Loss Gravel	ter sar	nd									
All dir		ons i	n met	res Contractor (if applicable):	Instru	ment	t Detai	∟ ils:		Shear	Vane No.:	Logg	ed By:	Checked	By:

Hand Auger 50 mm

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

			Ph:	03.379.4402 www.rileychch.co.nz	Ph: 09.489 E: www.rile	9.7872									INL	<i>,</i> –	V	GL	N L	UG	
Project No.	.:	Pr	oject nam	ne:		-		Pro	ject	Locat	ion:								N	lo.:	
240065		Ru	ussell Roa	d, Silverdale				Rus	ssell l	Road	& Up	per	Ore	wa R	oad						.
Date Auge			Client:							catior								1	HA	125)
06 Dec 202			Vineway							Riley	_							ـــا		1	
Ground Le	vel:		•	Co-ordinates: E1748100.2, N		7		l e E 10 m	epth	:	l		n Te dept	rmir	nated	d:		Shed 1 of		Statu	s: IAL
1 1 24.4111							3.0	_	ı		l lai	yeı	uepi	.11	_			1 01		FII	
5 <u>E</u>	Geological Unit	g		Geological	Descriptio	n		Water / Moisture					I She				Scala		In	Situ	Depth (m) Backfill / Install
Elevation (m)	olog	Legend	In ac	ccordance with NZ "Geotechnical ar	GS Guidelin	es (200)5) ation"	/ Mc	Sam	ples			-	kPa)	- !		etron ws/0i		Te	esting	€
	ဗီ			or explanation of l				Nate			1			● Pea 0 20		5	10	15	Data	Results	Depth
24.30 0.10) D O	× × × × × × × × × × × × × × × × × × ×		LT with some sand, v				ĎМ							一						
‡		\times \times \times	[TOPSOIL]		oist, non piastic	to low p	nasticity.														1
24.0		× × ×	Clayey SIL streaked bi	T, with trace rootlets	and sand; ligh stiff; moist; m	it greyish edium pl	brown asticity				_									V=116 R=37	0.5_
+		× × × :	1	sticity; [HUKERENUI	-						-									* R=37	
23.50 0.90		× × ×	0.30m: Gra	ades to light grey stre	aked brownish	n orange.															7
1.0		× ×	Silty CLAY	, with trace rootlets a	and sand; light	grey stre	aked				_ A	•								V=77 R=34	1.0_
23.20 1.20	NOH		brownish o	range. Stiff; moist; hi	gn plasticity.															K-34	<u> </u>
23.0	동		CLAY, with moist; high	n some silt; light grey i plasticity.	mottled brown	ish oranç	ge. Stiff;														-
1.5	ALLO		1					м			Δ	•								V=69 R=39	1.5
‡	AND		-																		1
22.50 1.90	NORTHLAND ALLOCHTHON]																1		
2.0	8	× × × × × × × × × × × × × × × × × × ×		T, with trace sand ar lium plasticity to high		ery stiff;					Δ	•							V=119 R=64	2.0	
22.20 2.20		×-, ×		some clay and sand;		;														<u> </u>	
22.0		× × ×	medium pla	asticity; sand, fine to	coarse.															∨ UTP	25
Ŧ		(× × ×	1																	V 011	-
Ŧ		××, × × × ×	2.70m: Gra	ades to SILT with sor	ne clay, and m	d.														7	
21.5		××Û×													•					✓-V=235-	3.0.
‡			END OF H	OLE: 3.00m (Targe	t depth)																1
21.0																					<u> </u>
3.5																					3.5
Ŧ																					7
20.5																					7
4.0																					4.0—
‡																					11
20.0																					4.5
<u> </u>																					
T																					7
5.0																					5.0_
‡																					1
19.0																					1
5.5																					5.5
±																					<u> </u>
18.5																					_
Ŧ																					-
‡																					1
18.0																					6.5
‡																					
17.5																			<u> </u>		
Front "	<u></u>						Rem	arka					<u> </u>	<u> </u>	:						
Standing										1. Haı	nd Aug						_				
▼ Water Level <- Out-flow	Ra	w data in	Bent			2. Gro	oundwa	ater	not ei	coun	rered	at tim	e ot di	ıllıng.							
In-flow	flow Peat Silt Silt																				
Moisture: M = moist	oist V = Peak, R = Residual								gs												
W = wet S = saturated									i												
All dimensi				ractor (if applic	able):	1	Instrum							Sh	ear \	V ane	No.:	Logg	ed By:	Checke	d By:
NOT T	O SC	ALE	icties , , ,						r 50 n	nm				V/	NE3	303		l JO	MU	SR	o l

4 Fred Thomas Drive Takapuna AUCKLAND 0622

E	K			Ph	n: 03.379.4402 www.rileychch.co.nz	Ph: 09.489.7872 E: www.riley.co.n							MIN.	U A	U	JL	N L	UG	
Proje	ct No.	:	Pr	oject na	me:				oject								N	lo.:	
24006			Ru		ad, Silverdale			_				er Orev	va Road	t		1	114	400	
	Auger			Client:	, l +d			l	ole Lo			10065	CV111				HA	126)
	nd Le			Vineway	Co-ordinates:		Н	_	Depth		Dwg 2		rminate	d.		She	et:	Statu	s.
RL 26					E1748057.5, N59	949562.1		00 r	•	•	Refus					1 of			IAL
_		<u></u>			Geological De	scription		ein				oil She	or		Scala				酉
Elevation (m)	Depth (m)	Geological Unit	Legend	l In a	accordance with NZGS	-	005)	Water / Moisture	Sam	nles		ength (Pene	etrom	eter		Situ	Depth (m) Backfill / Install
Elev)ept	Seol	Leg	Refer t	o "Geotechnical and 0 for explanation of lege	Geological Infor	mation"	ater/	Cam	рюз	∆ Resi	dual •	Peak	(blow	/s/50r	nm)		/Results	pth (m
_			× 74		SILT with some sand and			Š			50	100 15	200	5	10	15			B B
26.00 26.0	0.20	SOI L	× × ×	[TOPSOII	_].														7
1	-		<u>×</u> ××		LT, with trace sand; light tiff; dry; [HUKERENUI MI		eaked											V=110	1
#	- 0.5		<u>×</u> ××								Δ:	•						V=119 R=34	0.5
25.5	- -		× × ×																_
1	- - 1.0		× × ×								A							V=106 R=37	1.0
25.0	-		× × ×															R=37	1
24.80	1.40		<u> </u>																_
-	1 .5		×× × ×× ×	SILT, with	n some clay, with trace sa orange. Hard; dry.	nd; light brownish	grey	1										∨ UTP	1.5.
24.5	-	HON	×××																7
24.30	1.90	NORTHLAND ALLOCHTHON	× × × >	CILTits				l D										V-205	1
	- 2.0	ALL	^× ×		n some clay, with minor sa ly weathered; light grey;						_ A		•					V=205 R=57	2.0—
24.0	-	LAND	× × × (vasively sheared.	OILTOTOTE, CAU	cinicity												1
	- - 2.5	DRTH	* × * × ′]														✓ V=235+	-2.5
23.5		ž	* × × × × ×																
1	-		(1															-
+	_ 3.0		^× ×															∨ UTP	3.0
23.0	-		×																7
1			××× ×	1															
1	- 3.5		* * *	3.50m - 3	.80m: Dark greyish black													∨ UTP	3.5_
22.5 22.40	3.80		×°×,	Himbha	ath and delimbt mass. Oll T	CTONE:t	h	-											1
22.20	4.0 4.00		_	pervasive	athered; light grey; SILT ly sheared.	STONE; extreme	ly weak;	\vdash					- :			-		↓-UTP	4.0.
22.0	•			END OF H	HOLE: 4.00m (Refusal)									5 • 5	● 8 ¹	1	7, 11, 8 5, 5, 4 5, 4, 4		7
1	-													.4			5, 7, 6 9, 8, 5		4.5
	-														7 9 9		5, 5, 6 7, 7, 6		-
21.5	-													5 5 5	8;		8, 12, 18 15, 8, 7		7
1	- 5.0														7		6, 9, 8 9, 9, 7		5.0
21.0														: 1	8 •	.12 	8, 10, 8 10, 10, 1	1	7
1	-														7 9		11, 12, 1 18, 18, 1	9	7
1	- 5.5														9 7 9				5.5
20.5	-														9 10 8 10				7
1	- 6.0														1	1 15			6.0
20.0	-															19 18 18	ļ		1
1	-															19			1
#	- 6.5																		6.5
19.5	-																		1
<u></u>	· 		<u> </u>	<u> </u>					<u> </u>				<u> </u>		<u> </u>				<u></u>
Ctor	dina				otechnical Information" shee	et for further details.					arks	at 53P	Russell F	Road	_				
▼ Wat		Ra	w data ir	trometer Te blows per 5	50mm i opsoii	Clay	Ber	tonite	,						of dri	lling or	on 6/12/2	2024 @16	11.
Out-	ow	√ un	less rema	arks state ot	herwise Peat	Silt	Gro	ut/cor	ncrete										
Moistu M = mo	ist			r Strength (k R = Residual		Sand	Drill	arisir	ngs										
W = we S = sat		U1 	P = Una	ble To Pene	trate Core Loss	Gravel	Filte	er san	d										
			n metr		tractor (if applicab	le):	Instrun			ls:			t	Vane N	No.:			Checke	
1	TOI	o sc	ALE	N/A			Hand A	auge	er				VANE	303		JO	MU	SR	0

4 Fred Thomas Drive Takapuna AUCKLAND 0622

			Ph:	: 03.379.4402 www.rileychch.o	P	h: 09.489.7872 : www.riley.co.i	2					- 11	MIN.	א ט	,,,	JL	N L	UG	
Project No.	:		oject nan		-				_	t Loca							N	lo.:	
240065		Ru		d, Silverdal	е						& Uppe	r Orev	va Road	d		1	ЦΛ	127	,
Date Auger 06 Dec 2024			Client: Vineway	l td						ocatio	n: Dwg 24	10065-	SK113				ПР	121	
Ground Lev			Villeway	Co-ordina	ates:				Dep		<u> </u>		rminate			She	et:	Statu	
RL 28.1m				E1748045		19494.4	İ	1.00	m ·		Refus	sal				1 of	1	FIN	IAL
Elevation (m)	Geological Unit	Legend	Refer to	Geolog ccordance wi o "Geotechnic for explanatio	th NZGS (eological Info	rmation		Sa	mples	Stre	oil She ength (I	(Pa) Peak	Peno (blov	Scala etrom vs/50r	nm)	Te	Situ esting /Results	Depth (m) Backfill / Install
	Fo '	S [™] ™		some rootlets a	and clay; da	ark brown. Hard	i; dry; lov	_	-		50	100 150	200	5	10	15			
27.90 0.20		х _ х _т		TOPSOIL]. '; light brown, m	nottled brow	n. Hard: drv: h	iah	\dashv											_
27.10 1.0. 1.00	NORTHLAND ALLOCHTHON	× × × × ×		HŰKERENUI N														∨ UTP	0.5
27.10 27.0 27.0 27.0 27.0 25.5 26.5 25.5 26.5 27.5 27.6 29.0 20.0	i: Refer to ▼ Scal	a Penet data in	gical and Geo	ts Tomm T		for further details	10000000	Benton	ite	1. Ha 2. Gr	narks ond Augero	er not en	countere	d at time			19, 15, 13 15, 13, 1 14, 16, 1	6	1.0.
Moisture: M = moist W = wet S = saturated	unless remarks state otherwise Peat Silt Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate Oracle Gravel								sings and			9							
		in metres , , ,							it Det ger 50				Shear VANE		NO.:		ed By: AVA	Checke SR	

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

CI	V.			Ph: 03.37 E: www.ri		h: 09.489.7872 : www.riley.co.						•			10				
Project No	o.:		Pro	oject name:				Pr	oject	Locati	ion:						N	lo.:	
240065			Ru	ssell Road, Si	lverdale			Ru	ıssell	Road 8	& Upp	er Ore	wa Roa	ad]			
Date Auge	erec	:		Client:				Но	le Lo	cation	1:						HA	128	
06 Dec 20				Vineway Ltd						<u> </u>			S-SK11						
Ground Lo	eve	:			ordinates:				Depth	1:			ermina	ted:		Shee		Status	
RL 18.9m				E17	748072.8, N59	49430.1	4	.00 n	n		Refu	sal				1 of '	1	FIN	
ج ج	<u>8</u>		_	G	eological Des	scription		Water / Moisture			5	Soil Sh	ear		Scala		lm	Situ	Depth (m) Backfill / Install
Elevation (m) Depth (m)	og i	Onit	Legend		ance with NZGS			Moi	San	nples	Str	ength	(kPa)		netrom			esting	£ =
Ele,	99	٦	Le le		otechnical and G olanation of lege			ater/		-			Peak	(bio	ws/50		Data	/Results	ackfi
			S _w	<u> </u>	h some fine, round			≥			50	100 1	50 200 : :	5	10	15			ăä
18.70 0.:	20 D	, 4	ν ₋		wn. Hard, dry to mo			ДМ											1
18.50 0.	40	×.	* . × .		trace rootlets and . Hard; dry to moist														+
0.5		×	× × ×		ine, rounded; [HUK			\prod						•				√ V=235+).5
‡		×	× × ×	Clayey SILT, with orange. Stiff; moi	n trace sand; light g ist; medium plastici	rey streaked bro ty to high plastic	ownish city.												1
18.00 0.1	90		××																<u> </u>
1.0		F		CLAY, with some Stiff; moist; high	silt; light grey stre	aked brownish o	orange.				À	•						V=84 R=50	1.0_
‡		F		,,															1
17.5		L																	<u> </u>
17.30	60	L		1.50m: Trace sar	nde						Δ	•						V=80 R=27	1.5
-				CLAY, with some	orownish	1											1		
17.0				orange. Stiff; moi	ist; high plasticity.														<u> </u>
2.0	:										A •							V=65 R=25	2.0
‡		-		2.16m: Grades to	trace sands.			м											1
16.5		5 -																	1
2.5		NOR INCAMP ALLOCATION									▲ ●							V=62 R=30	2.5
Ŧ		- E																	7
16.00 2.	90	-						-											1
3.0			× × ×	Clayey SILT, with plasticity.	n trace sand; dark o	rey. Very stiff; r	noist; high				Δ (•						V=77 R=37	3.0
Ŧ			× × ×																7
15.5		×	× × :																1
3.5 3.1	50	×	×. ×	SILT, with some	clay and sand; darl	grey. Very stiff	to hard;	Į▼I			Å	•						V=117 R=50	3.5
+		,	× × ×	moist; low plastic	ity to medium plast	icity.													+
15.00 3.1 14.90 4.0 4.1		ĵ,	×××	Condy CII T with	minor clay; dark g	rov. Vory stiff: n	aciet: leur	-											7
+4.0	_		· · · ·	plasticity; tightly		ey . very sun, n	iioist, iow	\vdash						1	9.0	12	9, 12, 14	₩-UTP	-
‡				END OF HOLE: 4	4.00m (Refusal)											14 20	₹20		
14.5																		,	-
Ŧ																			_
‡																			1
14.0																		,	
Ŧ																			-
‡																			1
13.5																		,	-
+																			-
‡																			1
13.0 6.0																		6	3.0_
+																			-
‡																			1
12.5																		6	3.5
+																			+
‡																			1
12.0	\perp								<u> </u>				<u> </u>						
	ns:	Refer to	"Geolog	gical and Geotechnic	al Information" sheet	for further details				Rema			ا استعاد	E3D D					
Standing Water Leve	el ▼			rometer Tests blows per 50mm	Topsoil	Be	ntonite	,	2. Gro	undwat			53B Russ at approx			BGL at th	ne time of		
Out-flow In-flow	flow unless remarks state otherwise										la raw o	data fro	m 4.15m	BGL is 3	0 blows	s for 25r	nm and b	ouncing	
Moisture:	ure: Vane Shear Strength (kPa) Fill Sand								ncrete ngs	record	ed.								
M = moist W = wet	ist V = Peak, R = Residual The street of th																		
S = saturated	saturated On - Shabe 19 File Loss Graver Graver															-			
All dimens				S Contracto	or (if applicable	e):	Instru			ls:			i	ar Vane	No.:		- 1	Checke	- 1
NOT .	ı U i	σCA	ᄕ	IN/A			Hand A	√uye	1				ı VAN	IE303		i JO	MU	SRO	ا ر

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

E	N			Ph:	: 03.379.4402 www.rileychch.co.nz	Ph: 09.489.7872 E: www.riley.co.r						-	AIN	<i>D F</i>	10	GLI	L	UG	
Proje	ct No.	:	Pr	oject nan	ne:			Pro	oject	Locat	ion:						N	lo.:	
24006	§5		Ru	ıssell Roa	d, Silverdale			Ru	ssell l	Road	& Uppe	r Orev	va Roa	d					
Date	Auger	ed:		Client:				Но	le Lo	catior	1:						HA	129	
	c 202			Vineway				Re	fer to	Riley	Dwg 24	0065-	SK113			,			
	nd Lev	vel:			Co-ordinates:				Depth	:			rminat	ed:		Shee		Status	- 1
RL 26	5.5M				E1748054.3, N5	949377.8	3.	00 n	1		Targe	t dept	n			1 of 1		FIN	
<u> </u>	Ê	<u>8</u>			Geological De	escription		Water / Moisture			S	oil She	ar		Scala	.		City	Depth (m) Backfill / Install
Elevation (m)	Depth (m)	logi.	Legend	In a	ccordance with NZG	S Guidelines (2	005)	Moisi	Sam	ples	Stre	ngth (kPa)		etrom			Situ esting	(E) -
Ee'	Dep	Geological Unit	Le		"Geotechnical and for explanation of leg			ater			△ Resid			,	ws/0r		Data	/Results	ackfi
		l	TS	SILT, with	some sand, with trace r	ootlets: dark brow	n. Firm:	>			50	100 15	0 200	5	10	15			98
26.20	0.30	TOPSO	TS T	dry; low pla	asticity; [TOPSOIL].	,	,	D]
	•		_××		; brownish orange. Very	stiff; moist; high	plasticity;	Н											1
26.0	- 0.5		×	[HUKEREI	NUI MUDSTONE].						Δ		•					V=199 R=55	.5
Ŧ			×	-															7
1			× ×																1
25.50 25.5	_1.0		×××	Silty CLAY	; grey streaked orange.	Very stiff; moist; h	 nigh	1			Δ	•						V=148 ₁ R=61	.0
+		N Q	×	plasticity.															-
- ‡		토	× -	-															1
25.0	1.5	ILO	× × ×	1.50m - 1.	70m: Trace sand; streak	red red. Low plasti	icity.						•					√ V=232+¹	.5
+	-	NORTHLAND ALLOCHTHON						M											-
1		₽	×																
24.5	- 2.0	NOR	× ×										•					✓ V=232+²	.0_
1				2.20m - 2.	30m: Trace sand; streak	ked red. Low plasti	icity.												<u> </u>
24.10	2.40		×××	Silty CLAY	'; orange. Very stiff; moi	st; high plasticity.		1										✓ V=232+²	-
1			×										•					V V-2321-	-
1			×	-															7
23.50 23.5	3.00		××					Ш					•	1				V=171 R=76	.0
1				END OF H	OLE: 3.00m (Target de	epth)												K=70	<u> </u>
+																			-
23.0	3.5																	3	.5
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Evale	nations		-4		4b			Ш		Rem	arks	- 1	:	1 :	-:-	:			믁
Star	iding			ogical and Geo strometer Tes	technical Information" she	et for further details.				1. Hai	nd Auger					ad.			
▼ Wat √ - Out-	er Level flow	Ra	aw data in	n blows per 5 arks state oth	Omm Topsoll		itonite		∠. NO	groundw	ater end	Jountere	u (<i>U</i>) 162	o nrs.					
In-flo Moistu		•			ann real	22.3	ut/con I arisin												
M = mo	ist	3 \ / poog Fill [30] Saliu [20]																	
W = we S = sati		U1	TP = Unal	ble To Peneti	Filte	er sand	d	L_											
			n metr		tractor (if applicab	Instrur			ls:			Shear	Vane	No.:	Logge	ed By:	Checked	d By:	
1	OT TO	o sc	ALE	N/A			Hand A	Auge	r				VANE	E231		JM	AC	SRC)

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

RL 20.4m E174 (a) Comparison of the control of	prdinates: 48033.8, N5949326.9 eological Description nce with NZGS Guidelines (2005) echnical and Geological Informatic anation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL]. e. Very stiff; moist; high plasticity;	Rus Hole D 3.90 m	le Location fer to Riley Depth:	& Upper Orewa Roa		Sheet: 1 of 1	No.: A130 Status: FINAL
Date Augered: Client: 06 Dec 2024 Vineway Ltd Ground Level: Co-c RL 20.4m E174	prdinates: 48033.8, N5949326.9 eological Description nce with NZGS Guidelines (2005) echnical and Geological Informatic anation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL]. e. Very stiff; moist; high plasticity;	Hole D 3.90 m	le Location fer to Riley Depth:	Dwg 240065-SK113 Reason Terminate Refusal Soil Shear Strength (kPa)	ed: Scala Penetrom	Sheet: 1 of 1	Status: FINAL
06 Dec 2024 Vineway Ltd Ground Level: Co-c RL 20.4m E174	48033.8, N5949326.9 cological Description nce with NZGS Guidelines (2005) technical and Geological Informatic lanation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL]. e. Very stiff; moist; high plasticity;	Ref Hole C 3.90 m on" ns	fer to Riley Depth:	Dwg 240065-SK113 Reason Terminate Refusal Soil Shear Strength (kPa)	Scala Penetrom	Sheet: 1 of 1	Status: FINAL
Ground Level: Co-c RL 20.4m E174	48033.8, N5949326.9 cological Description nce with NZGS Guidelines (2005) technical and Geological Informatic lanation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL]. e. Very stiff; moist; high plasticity;	Hole D 3.90 m	Depth:	Reason Terminate Refusal Soil Shear Strength (kPa)	Scala Penetrom	1 of 1	FINAL
RL 20.4m E174	48033.8, N5949326.9 cological Description nce with NZGS Guidelines (2005) technical and Geological Informatic lanation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL]. e. Very stiff; moist; high plasticity;	3.90 m	1	Refusal Soil Shear Strength (kPa)	Scala Penetrom	1 of 1	FINAL
Elevation (m) (m) (m) Coological (m) In accorda Refer to "Geol sheet for expl	nce with NZGS Guidelines (2005) rechnical and Geological Information anation of legend and abbreviation and, with trace rootlets; brown. Firm; dry SOIL].		Samples	Strength (kPa)	Penetrome	eter	stall stall
	SOIL]. e. Very stiff; moist; high plasticity;			50 100 150 200	5 10		In Situ Testing ta/Results Results Rectill / Install
SILT, with some sonon-plastic; [TOPS	e. Very stiff; moist; high plasticity;	- H					
× × Silty CLAY; orange	DSTONEJ.						- -
19.5 1.0	ace sand; orange.	M ▼		A •			V=138 0.5 V=133 1.0 R=56 V=129 1.5 R=58 V=100 2.0 R=38 V=136 2.5 V=176 3.0 V=176 3.0 V=176 3.0 V=176 3.0 V=177 3.5
							=
16.50 3.90 × × ×					ļ	200	-
16.0 4.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5			Rem	arks		² 2√20, 20	4.5—
Explanations: Refer to "Geological and Geotechnica: Standing Water Level Cout-flow In-flow Moisture: M = moist W = wet S = saturated Weight = Countractor V Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate Contractor	Topsoil Clay Peat Silt Fill Sand Core Loss Gravel	Bentonite Grout/cond Drill arising Filter sand	1. Ha 2. Gru 3. Sca 4. Re	narks Ind Auger at 53B Russell f Ind Auger at 53B Russell f Indicate a second and a second at a sec	2.95mBGL @ SL recorded 32 measurement	and 35 blows from 3.95mB	

Hand Auger

4 Fred Thomas Drive Takapuna AUCKLAND 0622

EK			Ph	: 03.379.4402 www.rileychch.co.nz	Ph: 09.489.787	2					ПА	VIAIT	JA	U	JL	N L	UG	
Project No.	.:		oject nar				1	oject L								N	lo.:	
240065		Ru		ad, Silverdale							Orewa I	Road				114	424	
Date Auger 06 Dec 202			Client: Vineway	ı I td			Į.	le Loc			0065-SK	112				ПА	131	
Ground Le			VIIIEWay	Co-ordinates	<u> </u>	Н	_	Depth:	_		n Termi		d:		Shee	et:	Status:	
RL 23.6m				E1747954.3, N			.00 n	•		Target	Depth				1 of	1	FINA	
Elevation (m)	Geological Unit	Legend	Refer to	Geological accordance with NZ o "Geotechnical ar for explanation of I	nd Geological Info	ormation"	Water / Moisture	Samı	ples	Strer	il Shear ngth (kPa µal ● Pe 00 150 2	eak	S Pene (blow	/s/0m		Τe	Situ esting @ /Results	Backfill / Install
23.5 23.40 0.20	SOI	TS WY		trace rootlets and cla			D											T
23.40 0.20 23.40 0.20 23.0 0.5 23.0 1.0 22.5 1.0 21.5 22.0 2.1 21.5 22.0 2.30 20.5 2.10 2.30 20.5 2.10 2.30 20.5 2.10 2.30 20.6 2.30 2.30 20.5 2.10 2.30 20.	NORTHLAND ALLOCHTHON	*	Sity CLAN plasticity; SILT, with plasticity.	orange. Firm; dry; noi y; grey streaked oran; [HUKERENUI MUDS] minor sand; dark bla HOLE: 3.00m (Targe	ge. Very stiff; moist; TONE].	high	M D			A A							V=189 0.5. V=159 1.0. V=158 1.5. V=199 2.0. V=194 2.5. V=232+3.0. 4.0. 4.5.	
17.0																		‡
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Explanations Standing Water Level Out-flow In-flow Moisture: M = moist W = wet S = saturated All dimensi	▼ Sca Rav unle Var V = UTF	rometer Tes blows per 5 rks state oth Strength (kl = Residual ble To Penet	herwise Peat Pa) Fill	Ber	ntonite out/cor I arisir er san	ncrete ngs	2. Gro	nd auger a	at 53B Rus encounter	red @					Checked	By:		
NOT T					Hand A	Auge	r			V	ANE	231			AC	SRO	-	

4 Fred Thomas Drive Takapuna AUCKLAND 0622

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Project No.:			ject nan		-			Pi	roject	Locat	tion:						N	lo.:	
240065				d, Silverdal	е						& Upper	Orew	a Road	d			114	420	
Date Augere 04 Dec 2024	ed:		Client: Vineway	Ltd						Cation	n: Dwg 24	0065	SK113				ПА	132	
Ground Leve	el:		Villeway	Co-ordina	ates:				Depth		Reaso			ed:		Shee	et:	Status	 s:
RL 24m				E1747940		9462.6		2.80 ו	m .		Refusa	al				1 of '	1	FIN	AL
Elevation (m) Depth (m)	ا د	Legend	Refer to	Geologiccordance with "Geotechnic or explanation	th NZGS (al and Ge	Guidelines (eological Info	ormation		San	nples	Strei	oil Sheangth (k	:Pa) Peak	Pene	Scala etrome ws/0m		Τe	i Situ esting /Results	Depth (m) Backfill / Install
23.80 0.20	S J		Clayey SIL	T; grey; dry; lov	w plasticity;	[TOPSOIL].													7
+	×	×		; grey mottled b		; dry; low plas	sticity;												1
23.5 0.5	×			comes brown m		and dark bro	wn, stiff.				A	•						V=148 ₀ . R=68	5_ - - -
22.5 1.5	NORTHLAND ALLOCHTHON	×		comes light bro				D			A.	•						V=97 1. V=129 1. V=206 2	0— — — — 5— — —
21.50 2.50	×		high plastic								A		•					V=209 R=52	
<u> </u>	-			n some silt; grey o high plasticity.		iπ; moist; med	aium											11 02	_
21.20 2.80				OLE: 2.80m (F				_/						1		÷		✓-UTP	-
20.5 3.5 20.0 4.0 19.5 4.5 19.0 5.0 18.5 5.5																		4.	
Standing Water Level	Refer to "Geological and Geotechnical Information" sheet for further details. ▼ Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate Contractor (if applicable): Contractor (if applicabl								e increte ings	1. Ha	narks nd auger a pundwater				BGL @	<u>. 1</u>			
	ions in metres Contractor (if applicable): Ins							rumen d Auge		ils:			Shear VANE	Vane I	No.:		ed By:	Checked	

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: Project name: No.: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA133** Date Augered: Client: Hole Location: 05 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK111 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 32.1m E1748002.0, N5949540.4 2.50 m Refusal 1 of 1 **FINAL Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Samples Testing (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 TO PS Sandy SILT, with some clay, with minor rootlets; dark brown DM Very stiff; dry to moist; low plasticity; [TOPSOIL] Clayey SILT, with minor sand, with trace rootlets; brownish orange streaked brown . Stiff to very stiff; moist; medium plasticity to high plasticity; [HUKERENUI MUDSTONE]. V=114 R=34 31.5 Clayey SILT, with minor sand, with trace rootlets. Stiff; moist; high plasticity. Clayey SILT, with minor sand, with trace rootlets; light grey streaked brownish orange. Very stiff; moist; medium plasticity ALLOCHTHON $\times \times \times$ to high plasticity. R=32 NORTHLAND V=64 R=20 Silty CLAY, with minor sand, with trace rootlets; light grey 30.5 streaked brownish orange dotted black. Stiff; moist; high plasticity; minor organic flecks.

CLAY, with some silt, with minor sand, with trace rootlets; light 30.30 grey streaked light brownish grey and brownish orange. Stiff; 30.0 29.90 moist; high plasticity. CLAY, with some silt and sand; light grey. Very stiff; moist; high plasticity; sand, fine to medium. ٥×, Completely weathered; light grey; SILTSTONE; extremely 3, 18, 18, 20 UTP Gravelly SILT, with some clay and sand; light grey. Hard; moist; low plasticity to medium plasticity. END OF HOLE: 2.50m (Refusal) Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 53B Russell Road. Standing
Water Level Scala Penetrometer Tests Groundwater encountered at 1.72mBGL at time of drilling. Clay Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) Drill arisings M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel Filter sand S = saturated Instrument Details: Shear Vane No.: Logged By: Checked By: Contractor (if applicable): All dimensions in metres N/A Hand Auger 50 mm **NOT TO SCALE** VANE303 **JOMU** SRO

4 Fred Thomas Drive Takapuna

E	K	L		Ph	RISTCHURO :: 03.379.4402 www.rileycho	2	AUCKLAI Ph: 09.48 E: www.ri	39.7872						П	AINI	DA	UG	EK	L	JG	
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	ec 202			Vineway	Co-ordi	natas:							Dwg 24			d.	l	Sheet:		Statuci	
RL 54	nd Le I.9m	vei:			l .	11 ates. 86.5, N59	949719.	.6		101e i 1.00 n	Depth n	1.	ļ	on Terı Termin		ea:	- 1	of 1		Status: FINA	Ĺ
		1			<u> </u>	-															
Elevation (m)	Œ	Geological Unit	힏			gical De	-			Water / Moisture				oil Shea ngth (kl		So Penet	cala	or		Situ	Backfill / Install
eva (m)	Depth (m)	lg 5	Legend	In a Refer to	ccordance of "Geotechi	with NZGS nical and 0	3 Guideli 3eologica	ines (200 al Inform	05) nation"	r/	Sam	ples		- '	•	(blows		3)		ting ĝ Results £	√lll /
ш	۵	ဗြီ			for explana					Wate			△ Resid 50 1	ıuaı ● 100 150	Peak 200	5	10 15		Jala/I	Cesuits #	Back
-	-		7 0 × 0	Silty fine (GRAVEL; gre	y mottled lig	ht brown.	Loose; di	ry;											-	1
54.65	0.25		××××		Y, with some	organics, gr	ev mottled	hrown \	/erv stiff	4										-	1
54.5	- -05	COLLUVIUM	×	dry; low p		organios, gr	cy motacc	a brown.	rery our,											V=180 0.5	1
1	- 0.5	5	×	0 CO D-	\/	e		-4:-14.					A :		•				_	V=180 _{0.5} R=35	-
1	-	8	× -×	0.60III. BI	own. Very sti	ii, iow to mo	iderate pia	asiicity.												-	1
54.0	- - 1.0		×										Δ.							V=164 _{1.0} R=32	1
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-	-)TIO	× ×	Silty CLA' medium p	Y; greyish bro	wn. Very sti	iff; dry; low	v plasticity	y to	7			: -						·	R=77	-
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▼ Wat	er Level	Ra	w data in	trometer Tes blows per 5	0mm 🚉	Topsoil	С	Clay	Be	ntonite	,		oundwate				of drillir	ng.			
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W = we S = sati	ŧ			ole To Penet	trate cn	Core Loss	G	Gravel	Fil	er san	d										
		one i	n metr	os Con	tractor (if	applicah	 le):		Instru	ment	Detai	ls:		T	Shear	Vane No	o.: I	ogged E	3v: 1	Checked	Bv:
	NOT T			N/A			• •		Hand			- '		ı	VANE			JOMU	- 1	SRO	,.

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA135** Date Augered: Client: Hole Location: 04 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK111 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 38.5m E1747903.8, N5949688.5 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Scala Elevation (m) Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 Clayey SILT, with minor sand, with trace rootlets; brown and dark brown streaked dark grey. Stiff; moist; medium plasticity to high plasticity; [ALLUVIUM]. 0.10m: Grades to dark grey streaked light grey and brownish М Silty CLAY, with trace rootlets and sand; light grey streaked brownish orange. Stiff; moist; high plasticity. CLAY, with some silt; brownish grey and black . Soft; moist to wet; high plasticity; Trace organics [black silt and fibrous R=5 organics]. 1.20m: Some sand. V=52 Δá V=37 R=13 Silty fine to medium SAND, with some clay; grey. Firm to stiff; moist to wet; low plasticity to medium plasticity R=34 M W V=80 35.5_ 2.90m: Grades to brownish orange, fine to coarse sand. 3.20m: Brownish orange mixed with light grey. V=111 R=45 V=165 R=47 V=235+4 Sandy SILT, with some clay; dark grey. Hard; moist; low plasticity to medium plasticity; sand, medium; [EAST COAST BAYS FORMATION]. ST BAY S М 33.50**33.5**. 4, 6, 6 7, 6, 7 END OF HOLE: 5.00m (Target Depth) 15, 13, 15 33.0 32.0_ Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 53B Russell Road. Standing Water Level Scala Penetrometer Tests Groundwater encountered at 0.81mBGL at time of drilling.
 Recorded bouncing for scala measurement from 5.4mBGL. Bentonite Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 50 mm

SRO

JOMU

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N/A

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HAND AUGER LOG

(Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz				'						
Proje	ct No.	:	Pr	oject name:		Pro	oject Loc	cation:				N	o.:	
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	ec 2024			Vineway Ltd Co-ordinates:				ey Dwg 24006 Reason 1		. al.	Shee		Ctatus	
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Elevation (m)	(m)	Geological Unit	2	Geological Description		Water / Moisture		Soil S Strength		Scal Penetro			Situ	Depth (m) Backfill / Install
leva m	Depth (m)	e P	Legend	In accordance with NZGS Guidelines (2009) Refer to "Geotechnical and Geological Informations"	ation"	≥ / N	Sample	s ∆ Residual	, ,	(blows/5			sting Results	ckfill /
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-	-	SOIL	aran L2 [™] ari	SILT, with some sand, with minor rootlets and clay; dark mottled brownish orange. Very stiff; dry to moist; non-pl	actic to									-
42.10	0.40	TOPSOIL	^ да Да Т2 да Т2 да	low placticity: ITOPSOIL1		DM								1
42.00 42.00	0.50		^× <u>,</u> ×	SILT, with some clay, with minor sand, with trace rootle	ts;							_	v=104 0.5	5_
1	-		× × ×	brownish orange streaked brown. Stiff; moist; medium plasticity; Organic flecks; [EAST COAST BAYS FORMA	ATION].									<u> </u>
1	-		× × ×	Clayey SILT, with some sand, with trace rootlets; brown	nieh									- 1
41.5	_ 1.0		× × × :	orange and light brownish orange. Stiff; moist; medium plasticity to high plasticity.				•				_	V=75 1.0	.]
1	-		× × ×	0.90m: Grades to high plasticity.										1
41.20	1.30			Silty fine to coarse SAND, with some clay; light grey str	eaked									<u> </u>
41.0_	_ 1.5		×	brownish orange. Stiff; moist; medium plasticity; slow di	ilatancy.			•				\	√ V=70 1.5	š
40.70	1.80		×	1.60m: Grades to moist to wet.										7
	_		×××	1.70m: Dark brownish orange streaked light grey. Grad wet.	es to	м								1
40.50 40.5	2.0		× × × :	Clayey SILT, with minor sand; light grey streaked brown	nish				•			`	V=174 2.0	<u>, </u>
+	-	BAYS FORMATION	× × ×	orange. Very stiff; moist; high plasticity. Clayey SILT; light grey. Very stiff; moist; high plasticity.	/									+ 1
40.10	2.40	RMA	<u> </u>	2.20m: Grades to minor sand; light grey streaked brown	nish] [
40.0	- 2.5	'S FC	×	orange. Silty fine to medium, subrounded to subangular SAND,	with							`	UTP 2.5]
1	-	· BAY	×	minor clay; light brownish orange. Dense, moist, non-platicity.										1
39.5	- - 3.0	COAST	×	2.70m: Grades to light brownish grey.									UTP 3.0	
1	-	ST CC	×			¥						·	OIF S.	7
39.10	3.40	EAST	×											1
39.0	_ 3.5			Silty fine to coarse. rounded to angular SAND, with som		V						_	UTP 3.5	5_
1	-			brownish red. Moist to wet, low plasticity to medium platightly packed.	sticity,									1
+	-													+ 1
38.50	4.04.00			Medium to coarse SAND, with some silt, with minor clay	v: dark				•			\	V=171 4.0	
1	-			grey. Sand, subrounded to angular, white and grey. Har moist; low plasticity.		M W								1
1	-			Completely weathered; dark grey; SANDSTONE; extre	emelv									1
38.0	4 .5			weak.								`	UTP 4.5	<u>; </u>
+	-													<u> </u>
37.50 37.5	5.00]
37.5	- 5.0			END OF HOLE: 5.00m (Target Depth)						3 4		4, 4, 2	- UTP5.0	-
1	-									3 7 4 7		3, 4, 7 7, 7, 6		1
37.0	- - 5.5									6		7, 7, 9 7, 7, 6	5.5	5_
+	-									•, / • 9 • 7		9, 9, 9 10, 9, 9		-
Ŧ	-									67 9 6 9		11, 8, 9 10, 10, 10		7
36.5	6.0									:9	10	10, 9, 9 12, 10, 12	6.0	_
1	-										11 10	10, 9, 14 14, 12, 15		1
1	-										10 10	14, 12, 13		1
36.0	6.5									\$ a	10 : 12		6.5	<u>;</u>
7	-									● ia	10 12 10 14			7
‡	- -									- 14	14 12 15	<u> </u>		1
Expla	nations	. Dofo	r to "Goo!-	gical and Geotechnical Information" sheet for further details.			Re	emarks		<u> </u>	17 14	₹		一
Star	nding			trometer Tests	1 n	m:4 ·	1.1	Hand auger at 53			at time of	drilling		
▼ Wat ⊲ ⊢ Out-	er Level -flow	Ra	aw data in	blows per 50mm lopsoil Clay	Bento			Groundwater end	ountered at	J.JZIIIBGL	at ume Of	urming.		
In-fl Moistu		•		Otherwalth (LDs)	X		ncrete							
M = mc W = we	oist	V :	= Peak, R	Strength (kPa) Fill Sand	Drill a		*							
S = sat		UT	IP = Unab	ole To Penetrate Core Loss Gravel	Filter	san	d L							
All di	mensi	ons i	n metro	es Contractor (if applicable):	nstrum	ent	Details:		Shear	Vane No.:	Logge	ed By:	Checked	By:

Hand Auger 50 mm

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.riley.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: Project name: No.: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA137** Date Augered: Client: Hole Location: 05 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK111 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 32.7m FINAL E1747904.0, N5949531.7 3.00 m Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Samples Testing (blows/0mm) Refer to "Geotechnical and Geological Information" Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 Sandy SILT, with some clay, with minor rootlets; dark brown DM Very stiff; dry to moist; low plasticity to medium plasticity; sand, fine to coarse; [TOPSOIL]. 32 5 SILT, with some clay and sand, with trace rootlets; brownish orange streaked brown. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. V=149 R=50 Clayey SILT, with minor sand, with trace rootlets; brownish orange streaked light grey. Stiff to very stiff; moist; medium plasticity to high plasticity. 31.80 0.70m: Grades to light grey streaked brownish orange. High FORMATION R=42 plasticity. 31.5 0.80m: Grades to some sand, trace gravels (10mm, rounded, completely weathered sandstone); brownish orange streaked V=84 BAYS Silty CLAY, with some sand, with trace rootlets; light grey M streaked brownish orange. Stiff to very stiff; moist; high COAST plasticity. 1.80m - 2.00m: Trace gravels [5mm, rounded, completely V=122 R=40 weathered sandstone]. EAST Clayey SILT, with some sand, with trace rootlets; light grey streaked brownish orange. Stiff to very stiff; moist; high 30.5 V=119 R=47 Silty CLAY, with minor sand, with trace rootlets; dark grey streaked brownish orange. Very stiff; moist; high plasticity 30.0 2.90m: Some sand. V=70 END OF HOLE: 3.00m (Target Depth) Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand Auger at 53B Russell Road Standing Water Level Scala Penetrometer Tests 2. No groundwater encountered at time of drilling. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel Filter sand S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres N/A Hand Auger 50 mm **NOT TO SCALE** VANE303 **JOMU** SRO

NOT TO SCALE

N/A

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA138** Date Augered: Client: Hole Location: 04 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK113 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 33.5m E1747865.6, N5949465.6 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT, with some clay and sand, with minor rootlets; dark brown. Very stiff; dry to moist; medium plasticity to low plasticity; [TOPSOIL]. Clayey SILT, with some sand, with trace rootlets; brownish orange and blackish grey mix. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. V=188 33.00 0.5 0.5 R=54 Clayey SILT, with minor sand, with trace rootlets; grades to light grey with brownish orange streaks. Very stiff; moist; medium plasticity to high plasticity. R=60 V=106 32.0_ R=50 1.50m: Grading to stiff V=67 R=20 BAYS FORMATION R=34 30.80 COAST Silty CLAY, with some sand, with trace rootlets; light grey with streaks of brownish orange. Stiff; moist; high plasticity. V=86 30.5 EAST 3.00m; Sandy CLAY, with some silt; brownish orange mixed with light grey. 3.40m - 3.70m: With trace gravel; gravel, rounded, completely ∨ UTP weathered, Sandstone, 5 mm. Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity. V=134 29.50 ...**29.5.** 4.0. R=59 Sandy SILT, with some clay; light grey mixed with brownish orange. Very stiff; moist; medium plasticity. Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity. V=126 R=57 29.00 4.5.... Sandy SILT, with some clay; brownish orange. Very stiff; moist; medium plasticity. Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity. V=171 R=72 1, 2, 1 1, 2, 2 END OF HOLE: 5.00m (Target Depth) 2, 2, 3 2, 3, 3 3, 5, 5 28.0_ 5, 6, 6 11, 8, 10 10, 12, 13 7, 15, 14 15, 16, 20 Remarks Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 53B Rusell Road Standing
Water Level Scala Penetrometer Tests 2. No Groundwater encountered at 16:55. However, Groundwater was encountered at 4.25mBGL at 08:19 (5/12/24). Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt 3. Scala raw data from 6.45mBGL is 30 blows for 50mm Grout/concrete > In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Filter sand S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger

4 Fred Thomas Drive Takapuna

2	K	IL		Ph	IRISTCHURCH 80 : 03.379.4402 www.rileychch.co.	Ph: 09	LAND 0622 .489.7872 v.riley.co.nz						HA	YNI	D A	\U(ЭΕ	R L	OG	
-	ct No.	:	l l	oject nan	ne:					ject Lo				D				N	lo.:	
24006 Date	Augei	red:	Ru	Client:	nd, Silverdale					ssell Ro le Loca		pper (Jrewa	Road	1			НΔ	139	
05 De	ec 202	4		Vineway						fer to Ri	-									
Grou RL 28	nd Le 3.2m	vel:			Co-ordinat E1747783.4		53.7	4.0		Depth:		eason efusal	Tern	ninate	d:		Shee 1 of		Status FINA	
Elevation (m)	Depth (m)	Geological Unit	Legend		ccordance with		elines (2005)	Water / Moisture	Sample	es	Soil Streng	Shear gth (kF		Pen	Scala etromows/50r			ı Situ esting	Depth (m) Backfill / Install
Ele				sheet t	o "Geotechnical for explanation	of legend ar	nd abbreviation		Water		I	Residua	al ● I D 150		5		15	Data	/Results	Depth (Backfi
28.00	0.20	SOI J	× × × × × × × × ×	brown. Ve plasticity;	some clay and sa ry stiff; dry to mois [TOPSOIL].	st; low plastici	y to medium	/	ВΜ											
27.70	0.5		× × ×	brown with medium pl	LT, with some san n streaks brownish lasticity; [HUKERE ades to moist.	n orange. Very	stiff; wet to mo	ey bist;				Δ	•						V=174 _{0.9} R=59	_ _ _ _
27.0	- - - 1.0 - -		× × ×	Silty CLAY streaks of	∕, with minor sand brownish orange.	, with trace ro Very stiff; mo	otlets; light gre ist; high plastic	y with ity.				Δ	•	•					V=181 _{1.0} R=84	
26.60 26.5	- _ 1.5 1.60	CHTHON	× ×		h some silt, with n ks brownish orang							Δ.	•						V=141 _{1.9} R=55	- - - -
26.0	- 2.0 - - - - 2.50	NORTHLAND ALLOCHTHON							м		A								V=96 R=32	
25.5	2.5 - - - - _ 3.0	NO	× × × × × × × × × × × × × × × × × × ×		LT, with minor san			ey			•	Δ.	•	•					V=139 2.3 R=42 × V=235 3.1	
25.0	- - - - 3.5		× × × × × × × × × × × × × × × × × × ×	3.50m: GF	RAVELS with som	e sand.								•					✓ V=235 ^{3.9}	- - - - -
24.5	- - - 4.0		× × × × × × × × × × × × × × × × × × ×	Hard; mois	some clay and sa st; medium plastic	ity to high plas			Y										↓ - UTP4ι	
24.0	- - -			END OF H	IOLE: 4.00m (Re	fusal)									2 3 4	5		6, 2, 2 4, 3, 5 5, 5, 7 8, 10, 8		
23.5	- 4.5 - -															. 8 8 8	12 14 14	8, 12, 14 14, 13, 1 12, 17, 1 15	5	
23.0	- - 5.0 -															•:	13 12 15 17 15 15	ļ.	5.0	<u>-</u>
23.0	- - - 5.5																		5.	- - -
22.5	- - -																			-
22.0	- - 6.0 -																		6.0	,
† 	- - - 6.5																		6.4	- - i_
21.5	- - -																			
Stor	ndina			gical and Geo	etechnical Information			De-4	nit-	1.	Remarks	uger at				imatel·	3 21	BGL at #	me of drill:-	<u> </u>
Wat Out- In-fle Moistu	-flow ow	Ra v un	w data in less rema	blows per 5 arks state oth Strength (kl	0mm land 10p	et	Silt Sand	Bento Grout	/con	crete	. Ground	water e	ncount	erea at	approx	umately	ა.හ1m	ibul at ti	me of drillir	g.
M = mo W = we S = sat	ist t	V :	= Peak, R	= Residual ble To Penet	2000	e Loss	Sand Gravel	Drill a		*										
	mensi NOT T		n metr	es Cont	tractor (if app	licable):		strume and Au		Details: r			1	Shear VANE		No.:		ed By: MU	Checked SRC	-

NOT TO SCALE

N/A

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

			Ph: 03.379.4402 E: www.rileychch.co.	Ph: 09.489.7872						IMINI	JAU	GEN	LO	G	
Project No.:	:	Pr	oject name:	· · · · · ·		Pro	oject Lo	catio	n:				No.		\dashv
240065		Rı	issell Road, Silverdale			Ru	ssell Ro	ad &	Upper Ore	wa Road		Ι.			İ
Date Auger	ed:		Client:				le Loca						HA1	40	
05 Dec 2024			Vineway Ltd						wg 240065			,			
Ground Lev	el:		Co-ordinate				Depth:		Reason Te		d:	Sheet:	s	tatus:	ŀ
RL 24.7m			E1747710.7	, N5949464.1	5.	00 m	1	_	Target Dep	otn		1 of 1		FINAL	
E E	<u>8</u>	g	Geologic	al Description		Water / Moisture			Soil Sh		Scala		In Sit		Backfill / Install
Elevation (m)	Jogi	Legend		NZGS Guidelines (200		/ Moi	Sample	es	Strength	(kPa)	Penetrom (blows/0r		Testir	u ng <u>ê</u>	1/
Dep	Geological Unit	Le	Refer to "Geotechnical sheet for explanation of			/ater		Δ	Residual		`	´	Data/Re	sults 🙀	ackf
		×××	SILT, with some sand, with r	ninor clay; dark brownish.	Very	П			50 100 1	90 200 : :	5 10 : :	15			Н
24. 24.5 0.25	TOPS	*: × *	stiff; wet to moist; medium p	asticity to low plasticity;		DM								4	
‡		× × ×	Clayey SILT, with some san											_124	
24.10 0.60		× × × ×	orange with black-grey and I medium plasticity; [HUKERE		oist;				A •				∨ R	=124 _{0.5}	
24.0		× ^	Silty CLAY, with minor sand, orange streaks of light grey.											-	
Ŧ I			high plasticity.	oun, moiot, modium place	acity to								V	=84	
23.60 1.10			Ol Oll T	1 - 20 4	1.1.				A					=37	
23.5		\times \times \times	Clayey SILT, with minor san orangewith streaks of light g	d, with trace rootlets; brow rey. Stiff; moist; medium p	vnisn olasticity									_	1
1.5		<u>× × ×</u>	to high plasticity.					_ _						=94 15	
+ 1		× × × × × ×	1.50m: With some sand; sar	d, fine to coarse.				"					* R	=20	
23.0		××××												1	
2.0		× × ×	1.80m: Clayey SILT, with mi plasticity.	nor sand, with trace rootle	ets; high								~ V	=86 2.0	1
22.5	z	\times \times \times				$ \mathbf{v} $							R	=20	
22.35 - 2.35	Ę	× × ×												7	
2.5	LOC	_×	SILT, with some clay and sa mottled light grey. Firm; moi:					_	•				v V	=44 _{2.5}	
22.0	NORTHLAND ALLOCHTHON		plasticity.			м							K		1
21.90 2.80	IL AN	~ × ×	2.75m: Silty CLAY, with mine		redish	1								-	
3.0	JRTH	<u> </u>	orange. Firm; moist; high pla Clayey SILT, with minor san		m to very	ΊΙ			•				∨ V	=34 _{3.0} =	
21.5	ž	× × ×	stiff; medium plasticity to hig		iii to very								1		1
+ 1		\times \times \times	3.00m - 3.10m: With some s to coarse.	and; light brownish grey; s	sand, fine									-	
3.5		× × ×	3.10m - 4.10m: With minor s	and.		$ _{f \Psi} $			A	•			√ V R	=186 _{3.5} =50	
21.0		× × ×				*								1	
<u>†</u>		× × ×													1
20.60 4.10		×_×_×								•			~ V	=235+4.0-	
20.5		×× ×	SILT, with some clay and sa Hard; moist; medium plastici											7	
‡		××××	,	-,,,										1	
4.5		× × ,								•			~ V	=235+ ^{4.5} —	1
19. 39.0 4.76		^× ×												}	1
19.70 5.00		××, ×	Clayey SILT, with minor san moist; medium plasticity to h			1									
- 5.0			coarse. SILT, with some clay and sa	nd: dark grev brown Hard	d: moist	П								5.0-	П
19.5			medium plasticity to low plas		,										
5.5			END OF HOLE: 5.00m (Tai	get Depth)										5.5_	
19.0														-	
19.0														4	
														6.0	
18.5															
+														4	
I 6.5														6.5	
18.0														1	1
<u>†</u>															
						Ш			<u> </u>					1	닉
Explanations Standing			gical and Geotechnical Informatio	n" sheet for further details.			- 11	Remarl . Hand	ks auger at 53E	Russell R	oad.				
Water Level Out-flow			trometer Tests i blows per 50mm	soil Clay	Ben	tonite	2.		ndwater enco			y 3.6mBGl	L at the tim	e of	
✓ In-flow	√ un	less rema	Pea	t Silt	Grou	ıt/con	crete	9							
Moisture: M = moist			Strength (kPa)	Sand	Drill	arisin	ıgs								
W = wet S = saturated				e Loss Gravel	Filte	r sand	d								
All dimension	ons i	n metr		licable):	Instrum	ent	Details:			Shear '	Vane No.:	Logged	By: Ch	ecked E	 3y:

Hand Auger

NOT TO SCALE

N/A

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

(Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz	<u>.</u>					11/~						
Proje	ct No.	:	Pr	oject name:		Pro	oject L	ocati	on:					No	.:	\dashv
24006			Ru	ussell Road, Silverdale	İ	Ru	ssell R	oad 8	Upper	Orewa F	Road		İ			İ
Date A	Auger	ed:		Client:		Но	le Loca	ation	:					HA1	141	
19 De	c 202	4		Vineway Ltd		Re	fer to R	Riley [Dwg 24	0065-SK	110					
Grou		vel:		Co-ordinates:			Depth:	ļ		n Termii	nated	l:	Shee		Status:	
RL 29	m			E1747617.0, N5949466.8	5.0	00 m	1		Target	Depth			1 of	1	FINA	
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (20 Refer to "Geotechnical and Geological Inforr sheet for explanation of legend and abbrevi	nation"	Water / Moisture	Samp	- 1	Strei	il Shear ngth (kPa) ual ● Pe 00 150 20	ak	Sc Penetr (blows	ometer /0mm)	In S Test Data/R	itu ing g esults	Backfill / Install
28.90	0.10) T ()	××××	SILT; with some sand and organics; with trace rootlet brown. Very stiff; dry to moist; non-plastic; [TOPSOIL]	0, 44	DM										\prod
28.60	0.40		× × × × × × × × ×	SILT; with some sand; with minor clay; with trace root brown mixed brownish orange, Very stiff; moist; low p [EAST COAST BAYS FORMATION]. SILT; with some clay; with trace sand and rootlets; br	lasticity;				Δ	•				~	V=129 _{0.5-} R=66	- - -
28.10	0.90		× × × × × × × × ×	orange with dark brown streaks. Very stiff; moist; med plasticity.	dium										V=157	-
28.0	. 1.0		× × ×	Clayey SILT; with trace sand; light grey with brownish streaks. Very stiff; moist; medium plasticity. 1.20m: Grades to brownish orange with light grey stre	·				Δ	•				~	R=70	- - -
27.50	.1.5. 1.50		× × × × × × × × × × × × × × × × × × ×	plasticity. Silty CLAY; with trace sand; brownish orange with light streaks. Very stiff; moist; high plasticity.					Δ	•					V=149 R=66	- - -
27.0	2.0	NO O	× ×						Δ	•				~	V=115 _{2.0-} R=45	- - -
I	0.40	FORMATION	×]
26.60	2.40	/S FC	× × × :	Clayey SILT; with minor sand; brownish orange mottle	ed light				Δ .					~	V=97 _{2.5}	1
‡		ST BAYS	××××	grey. Stiff; moist; medium plasticity to high plasticity. 2.60m: Grades to light grey.		М									R=32	-
26.0	. 3.0	EAST COAST	× × × × × ×						<u>.</u>	•					V=136 _{3.0}]
+		EA	× × × × × × × × × × × × × × × × × × ×	3.00m: Becomes very stiff.											R=47	- - -
1	.3.5		× × × × × × × × × × × × × × ×						Δ	•					V=145 _{3.5} R=40	- - -
25.20	3.80		× × × × × × × × × × × × × × × × × × ×	Clayey SILT; with trace sand; dark grey. Very stiff to h moist; medium plasticity to high plasticity.	nard;				Δ	•					V=196 _{4.0-} R=55	- - - -
24.5	4.5		× × × × × × × × × × × × × × ×								•			~	V=226+4.5-	- - -
24.20	4.80		~~~~ ××^ × × ×	SILT, with some clay and sand; dark grey. Hard; mois plasticity to medium plasticity; sand, fine.	st; low	¥										-
24.00	5.0			END OF HOLE: 5.00m (Target Depth)											UTP5.0-	
‡																
23.5	5.5														5.5=]
1																1
23.0	6.0														6.0-	1
+																1
Ŧ																1
22.5	6.5														6.5_	1
‡																┧ │
																1
Explar Stan Wate Out- In-flo	ding er Level flow ow	▼ Sc Ra ∨ unl	ala Pene w data in less rema	rgical and Geotechnical Information" sheet for further details. trometer Tests Topsoil Clay arks state otherwise Peat Silt Strength (kPa) Fill Sand	Bento	t/con	crete		d auger a	at 88 Upper encountere			ately 4.81m	BGL after d	rilling.	
M = moi W = wet S = satu	st	V =	= Peak, R	R = Residual	Filter		* II									
ΔII dir	nensi	ons i	n metr	es Contractor (if applicable):	Instrum	ent	∟ Details):		Sh	ear V	ane No	.: Logg	ed By: C	hecked	By:

Hand Auger 50 mm

4 Fred Thomas Drive Takapuna

E	K			Ph	HRISTCHURC n: 03.379.4402 www.rileychcl	!	AUCKLAND Ph: 09.489. E: www.rile	7872						П	AN	U P	W	JE	K L	UG	
Proje	ect No.: Project name: Russell Road, Silverdale									Pro	oject L	ocat	ion:						N	lo.:	
2400			Ru		ad, Silverd	ale							- ' '	er Orev	va Roa	d				4 40	
	Augei ec 202			Client: Vineway	, I td						le Loc			10065	-SK110				HA	142	
	nd Le			vineway	Co-ordii	nates:					Depth:		<u> </u>		rminat			Shee	et:	Statu	<u></u>
RL 23					E174754		949477.9		1	00 m	•		Refus			ou.		1 of		FIN	
_		<u></u>			Geolo	gical De	scription	1		all				oil She	or		Caala				重
Elevation (m)	Depth (m)	Geological Unit	Legend		accordance v	vith NZGS	Guideline	es (2005)		Water / Moisture	Samı	ples		ength (Pen	Scala etrom ws/0m		Τe	Situ esting	Depth (m) Backfill / Install
Ele				sheet	for explanat	ion of lege	end and at	obreviatio	_	Water			∆ Resi	dual (5		15	Data	/Results	Depth
23.60	0.20	SOI L	் ⊥2் ஈ்	SILT; with plastic; [T	n some clay an OPSOIL].	id rootlets;	dark brown.	Stiff; dry; n	ion-												1
23.5	-		× ^		Y; brownish or DAST BAYS F			n plasticity;													-
-	_ 0.5		×	[-1-			D			<u> </u>	•						V=100 R=47).5
1	-		<u> </u>																		7
23.0— 22.90	0.90		×××	0.15 0.4				0""												V-112	1
22.70	_ 1.0 1.10	NO O	×	high plast	Y; light brown ticity.	moulea bro	wnish orang	je. Suii; mo	oist;				Δ .	•						V=113 R=45	-0
22.60 22.5	1.20	RMAT	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		ecomes very s SAND; with so		ht brown me	attlad brown	/				A : '	•						V=84 R=24	
22.20	- - 1.5	'S FOF			oose to mediu				111511					•						V=142 R=45	_ 1.5
22.0	-	COAST BAYS FORMATION			AY; light brow			nge. Very s	stiff;	М			A	•						V=113 R=32	_
-	- - 2.0 2.10	1 CO/		Silty fine S orange. M	SAND; with so ledium dense;	me clay; lig moist; slow	ht brown mo dilatancy.	ottled brow	nish											K=32	2.0
21.70	- 2.10	EAST		Silty SAN	D; brown . Me	dium dense	; moist; dila	tant.													_
21.5— 21.40	2.40		î x																	∨ UTP	1
21.30	2.5			medium p	Y; brown mottl plasticity.	ed brownisi	n orange, H	ard; moist;	/	¥										3	2.5
21.0	-		× ×		D; with some or ry; slow dilatan		sh orange n	nottled brov	wn.	D										∨ UTP	_
20.80	- - 3.0		×			•														√-UTP:	3.0
-	-			END OF H	HOLE: 3.00m	(Refusal)														V- 011	-
20.5	-																				1
1	- - 3.5																			;	3.5
-	-																				1
20.0	- -																				_
1	4 .0																			4	4.0
19.5	-																				-
-	-																				
1	- 4.5																			•	-
19.0	-																				-
1	- 5.0																				5.0
1	-																				1
18.5	-																				_
	- 5.5																				5.5
18.0	-																				-
	- 60																				6.0
	-																			,	-
17.5	-																				1
1	- 6.5																				6.5
1	-																				_
17.0	-																				_
		<u> </u>									11	Rem	arke	1 1	- :	_ :	-	:			
_ Star	nding	- 6-		gical and Geo trometer Te	otechnical Infori							1. Hai	nd auger		pper Ore						
▼ Wat	er Level	Ra	w data in	blows per 5	50mm 🚉	Topsoil	Cla	у	Bento			2. Gro	oundwate	er encou	intered a	t approxi	imately	2.54m	BGL afte	r drilling.	
├─ In-fl	ow	v		arks state of	66 86 86 8	Peat	Silt		-		crete										
Moistu M = mo W = we	ist	V :	= Peak, R	Strength (k	2000	Fill	Sar	S-C	Drill a		· II										
S = sat		UT	P = Unal	ole To Pene	trate ta	Core Loss	Gra	ivel	Filter	sand	d										
	mensi		n metr	es Con	tractor (if a	applicabl	e):	ľ			Detail r 50 m				t	Vane	No.:		-	Checke	_
ı	1011	U 36	~LE	11/14				118	anu Al	uye	. 50 111				VAN	= 111		υP	AVA	SR	J

4 Fred Thomas Drive Takapuna

E	K	L		Ph	HRISTCHURG 1: 03.379.440 www.rileycho	2	Ph: 09.48 E: www.r	39.7872						Г	1AN	U F	101	JE	K L	UG	
Proje	pject No.: Project name: 0065 Russell Road, Silverdale									Pr	oject	Locat	tion:						N	lo.:	
24006	35		Ru	ssell Roa	ad, Silverd	lale				Rı	ıssell	Road	& Uppe	r Ore	wa Roa	ıd]			
	Auge			Client:						- 1		catio							HA	143	
	ec 202			Vineway		4							Dwg 24				-	01	-4-	1 01.1	
RL 24	nd Le	vel:			Co-ordi	i nates: 11.9, N59	240505	0		Hole 2.75 r	Depth	1:	Refus		erminat	ed:		She 1 of		Status FINA	
1\L 2-	F.0111			1		-					1		Reius	oai		_		1 01	1		
Elevation (m)	Depth (m)	Geological Unit	Legend		Geolo accordance o "Geotech		Guideli	ines (20		Water / Moisture	Sam	nples		oil Sh ength	iear (kPa)		Scala netrom ws/50r	eter	Te	n Situ esting	Depth (m) Backfill / Install
-				sheet	for explana	tion of lege	end and	abbrev	iations	-			1		● Peak 50 200	5		15	Data	/Results	Back
24.65	0.15	PS OIL	,×,×	plastic; [T		with trace ic	ouers. ve	ery Sun, C	ary, non-	┚	1										1
24.5	- - - 0.5		× × × × × × × ×	brownish	n some clay; v orange streal DAST BAYS I	ks.Very stiff;	moist; me	greyish b edium pl	rown with asticity;	1			•	•						V=129 _{0.9} R=50	-
24.0	- -		× × × ×	Clayey SI streaks. V	LT; with trace /ery stiff; mois	e sand; brow st; medium p	nish oran plasticity to	ge with I	ight grey asticity.												-
23.70	- 1.0 1.10	FORMATION	<u> </u>							 M			A		•					V=179 R=49	_
23.5 23.40	-	FORM	×× ×	SILT; with grey and l sand fine.	n some clay a brownish red.	nd sand; bro . Very stiff; m	ownish ora noist; med	ange mix dium plas	ced light sticity;]
23.30	1.51.50	T BAYS	×× ×		Y; with trace s'			e with lig	ht grey	▼			▲●							V=49 R=32	
23.0	-	EAST COAST			th some silt; v h plasticity.	vith trace sa	nd; light g	rey. Firn	n to stiff;	_											=
22.80 22.70	2.0 2.00	EAS	×		LT; with some					-	1		A							V=68 R=16 UTP	-
22.5	-		×	Silty SAN	D; with minor					-/ _{M-}											1
	- - 2.5		×	slow dilata	ancy.					w										2.	_ j
22.20	2.60 - 2.75				arse SAND,				ith dark												1
22.0	-			<u> </u>	iks. Dense; m		slow dilata	ancy.		_/_						• 4	***************************************	• . 15	↓ 4, 15, 20		+
1	_ 3.0			END OF F	HOLE: 2.75m	(Refusal)												20	•	3.0	_
1	-																				1
21.5	- -																				1
1	3 .5																			3.9	_
21.0	-																				+
21.0	-																				1
1	_ 4.0 _																			4.0	1
20.5	- -																				1
1	- - 4.5																			4 !	_
1	-																			74.4	7
20.0	-																				1
1	- 5.0																			5.0	
+	-																				+
19.5	-																				7
1	- 5.5																			5.9	_
1	-																				1
19.0	-																				-
1	6.0																			6.0	_
1	-																				1
18.5	-																				1
+	6.5																			6.9	_
- I	-																				7
18.0	- -																				1
Fynla	nation	. D. f.	r to "C	mical and O	otechnical Info	rmation" - b	of for for-th	or dots!!:			'	Rem	narks	•		<u> </u>	•	•			
_ Star	nding	- 60		trometer Tes	ata ===					ont- "		1. Ha	nd auger					, 1 15	BCI -#-	r drillina	
▼ Wat		Ra	w data in	blows per 5 arks state ot	50mm 🚉	Topsoil		Clay		entonite			oundwate ala raw da							ı unilliğ.	
├─ In-fl					66 66 66 6 66 66 6	Peat	00000	Silt	/ A	rout/co											
Moistu M = mo	ist	V :	= Peak, F	Strength (k l = Residual	2000	Fill	255353	Sand		rill arisi											
W = we S = sat		T	TP = Unal	ole To Pene	trate ca	Core Loss		Gravel	F	lter sar	nd	L									
All di	mensi	ons i	n metr	es Con	tractor (if	applicabl	le):				Detai				Shea	r Vane	No.:	Logg	ed By:	Checked	Ву:
1	T TO	o sc	ALE	N/A					Hand	Auge	er 50 r	nm			VAN	E569		JC	DMU	SRC	

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND ALIGER LOG

6	K			Ph	: 03.379.4402	Ph: 09.489.7872 E: www.riley.co.n						ı	ıAı	י עו	10	GL	L	UG	
Proje	ct No.	:	Pr	roject nar				Pro	oject	Locat	ion:						N	lo.:	
24006	35		Rı	ussell Roa	ad, Silverdale			Ru	ssell l	Road a	& Upp	er Ore	wa Ro	ad					
Date A	_			Client:						cation							HA	144	
19 De				Vineway									5-SK11			ļ		1	
Groui RL 40		vel:			Co-ordinates: E1747734.6, N59	040690 O		ole I 70 m	Depth	:	Reas		ermina	ted:		Shee 1 of 1		Statu: FIN	- 1
111 40	.0111			1			J.	_	1		Kelu	5aı		_		1 01		l	
E .	Œ	Geological Unit	٦		Geological De	scription		Water / Moisture				Soil Sh			Scala		In	Situ	Depth (m) Backfill / Install
Elevation (m)	Depth (m)	lg S	Legend	In a	ccordance with NZGS o "Geotechnical and 0	Guidelines (20 Seological Infor	005) mation"	Ž M	Sam	ples		ength	` ,	(blo	etrom ws/0r			esting	£ =
ă	De	හි		sheet t	for explanation of lege			Nate					Peak50 200	5	10	15	Data	Results	Depth
40.50 40.5 40.40	0.10 0.20	TOPSO	TS W	SILT; with	some clay and rootlets;	dark brown. Stiff;	dry; non-	D											\Box
40.30	0.30	<u>p</u> –	TS W	7	/; brown. Stiff; moist; med	dium plasticity.		1											1
1	. 0.5		× ×		some clay and rootlets;	dark brown. Stiff;	moist;				Δ							V=95).5_
40.0				non-plastic	c. ⁄; hight greyish brown mo	ottled brown, Stiff:	moist:											R=37	
Ŧ			× -×	high plasti	icity; [EAST COAST BAY	S FORMATION].	,	¥											7
‡	- 1.0		×	-				-			Δ.	•						V=79 R=35	1.0
39.5			×	1														11-00	1
1			× - ×	1.20m - 1.	50m: Grades to some sa	nd.													<u> </u>
39.10 39.0	.1.51.50	NOIT	×	Silty CLAY	Υ; light greyish brown mo	ttled brown Firm	wet high	Н			▲ ●							V=44 R=17	.5
39.0		RMA	×	plasticity.	., ngm groyen zrom me	augu bronnin i iini,													11
‡		EAST COAST BAYS FORMATION	× -	-														1/-70	1
38.5	2.0	BAY	×	2.00m: Be	ecomes stiff.						A •	· :						V=72 R=23	:.0—
1		OAS-						s											_
1	- 2.5	STC									Δ							V=84 R=21	-
38.0		В		-	ades to brownish orange						_							* R=21	
37.80	2.80		ževara.	1	ades to grey. th some silt; grey; Loose	to medium dense	· wet· low												7
37.60	3.00		××	dilatancy;	sand; fine.			Н					•					V=186 R=66	3.0_
37.5			×	Silty CLAY	∕; grey. Very stiff; saturat	ed; high plasticity.													1
‡			×	1															
37.0	3.5		×	3.50m: Be	ecomes hard.													∨ UTP ③	3.5
36.90	3.70		<u> </u>	END OF H	HOLE: 3.70m (Refusal)									+					
\pm	4.0				,													4	
36.5																			-
Ŧ																			7
‡	4.5																	4	1.5
36.0																			1
																			_
35.5	5.0																		5.0
Ŧ																			7
Ŧ																			7
35.0	. 5.5																		5
#																			11
	6.0																	6	3.0
34.5																			_
Ŧ																			7
Ŧ	6.5																	6	5.5
34.0																			11
‡																			
Fynlar	nations		r to "C	ogical and C	etechnical Information" shee	t for further -1-4-11		Ш		Rem	arks		. :			:			믁
Stan	ding			ogical and Geo etrometer Tes	sts P			onite		1. Har	nd auge			rewa Roa at approx		v () 88m	RGL offic	r drilling	
√ Out-				n blows per 5 arks state oth	annia, IIII	Clay				2. 310	an uvval	J. 51100	anto Gu	ωι αρριοί		, 0.00111	LOL and	. Grinnig.	
In-flo Moistur		*		r Strength (ki	D.) ROOM	Silt	× >		crete										
M = moi	ist	V	= Peak, F	R = Residual ble To Penet	2000	Sand	S-10	arisin	- 1										
S = satu			Ulla		tal Core Loss	Gravel	41.50	rsan											
	nensi IOT T		n metr ALE	res Cont	tractor (if applicabl	le):	Instrum Hand A						i	ar Vane IE1051	No.:	Logge JM		Checke SR(

4 Fred Thomas Drive Takapuna AUCKLAND 0622

E	N			Ph	n: 03.379.4402 www.rileychch.co.nz	Ph: 09.489.787 E: www.riley.co	2				"	I/AIN	D AU	GL	N L	UG	
Proje	ct No.	:	Pr	oject naı	me:	<u> </u>		Pr	oject	Locat	ion:				N	lo.:	
24006			Ru		ad, Silverdale						& Upper Ore	wa Road	b	_		445	
	Auger			Client:	. 1 4 4				ole Lo			- 01/447			HA	145	
	nd Le			Vineway	Co-ordinates:		н		Depth		Dwg 24006			She	et.	Status	
RL 40		v C1.			E1747694.1, N	5949815.4		00 r	•	•	Target De			1 of		FINA	
	_	I_	Ī		Geological I	Description		<u>e</u>	ı				Ī			1	T=
tion (Depth (m)	Geological Unit	pus		-	-	2005)	Water / Moisture			Soil Sh Strength		Scal Penetro			Situ	Depth (m) Backfill / Install
Elevation (m)	epth	응드	Legend	Refer t	accordance with NZ o "Geotechnical and	d Geological Info	2005) ormation"	er/N	Sam	ples	△ Residual		(blows/5			esting /Results	Ę Ę
Ш		Ŏ		sheet	for explanation of le	egend and abbre	eviations	Wat			50 100 1		5 10	15			Bac
40.50 40.5	0.20	^F S 기	TS W		n trace sand and rootlet n-plastic; [TOPSOIL].	ts; dark brown. Ver	ry stiff;										+
	-		× ×		Y; orange with grey str		oist; high	1									7
1	- 0.5		-,	plasticity;	[EAST COAST BAYS	FORMATION].					Δ					V=139 _{0.5} R=58	_
40.0	-															11-30	1
1	-																}
+	_ 1.0		×								Δ.	•				V=153 1.0 R=52	
39.5	-		<u> </u>														7
1	-		×													V-424	1
1	_ 1.5		×								A •					V=124 R=49	1
39.0	-		× ×														}
+	-															V=86	
	- 2.0	NOL	× ×	2.00m: Be	ecomes stiff.			l			A •					V=86 R=26 2.0	7
38.5	-	RMA.	×	0.20 0	Come Consider to topics			M									1
1	- 2.5	S FO	×	2.30111 - 2	.60m: Grades to trace	sanu.					Δ .					V=95 R=23	_
38.0	-	. BAY	<u> </u>													N-23	_
1	-	COAST BAYS FORMATION	×														}
+	_ 3.0	EAST C	<u>×</u>	3.00m - 3	.20m: Grades to minor	fine to coarse san	d; reddish				Δ •					V=93 R=32	_
37.5	-	Ā	<u>×</u> _^		h grey streaks and ora												7
37.25	3.45		×													V=96	1
1	_ 3.5 -		×	l '	D; brown. Medium den	•					A					V=96 R=21	7
37.0	- -		× .		.20m: Grades to minor h grey streaks and ora		u, reduisir										1
1	- - 4.0		×								A .					V=128 _{4.0}	_
36.5	-		×	4.00m: Be	ecomes very stiff.			▮								K=41	1
36.30	4.40		×														+
-	4 .5		× ×	Silty CLA' plasticity.	Y; with trace sand; dark	k grey. Hard; wet; l	high					•				✓ V=214+4.5	Ä
36.0	-							w									7
35.75	- 4.95																1
	- 5.0······				parse SAND; with trace ange. Hard; wet; non-pl		ddish brown	\vdash					1	•••12·••18	12, 18, 2	-√-UTP5.0 0	+
35.5	-				HOLE: 5.00m (Target			"						20	12, 18, 2 ▼20		1
1	- - 5.5															5.5	_ i_
35.0	-																1
	-																-
1	- 6.0															6.0	_
34.5	-																1
	- -																1
‡	- 6.5															6.5	
34.0	-																1
																	1
		: Refer	to "Geolo	gical and Geo	otechnical Information" sl	heet for further detail	ls.			Rem							
▼ Wat	nding er Level			trometer Te	La Topsoli	Clay	Ber	itonite	e	2. Gro	nd auger at 88 oundwater enco	ountered at	approximate			er drilling.	
Out-	-flow			rks state ot		Silt	Gro	ut/coi	ncrete		ala raw data fro ala raw data fro						
Moistu	re:			Strength (k		Sand	Drill	arisi	ngs								
M = mo W = we S = sat	t			t = Residual ble To Pene		ss Gravel	Filte	er san	nd								
		one !	n met-	os Con	tractor (if applica	ible):	Instrun	nent	Detail	ls:		Shear	Vane No.:	Logo	ed By:	Checked	Bv.
	mensi NOT T		n metr ALE	es Con			Hand A					VANE			IAC	SRO	•

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA146** Date Augered: Client: Hole Location: 19 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK119 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 46.7m 5.00 m FINAL E1747739.7, N5949866.4 Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) In Situ Legend Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/0mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 D SILT; with some clay and rootlets; dark brown. Very stiff; dry; non-plastic; [TOPSOIL]. Silty CLAY; brown. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=143 0.50m: Becomes brownish orange mottled brown. R=45 1.00m: Becomes stiff. SILT; with some clay; light greyish brown mottled brownish orange. Stiff; moist; low plasticity. V=87 1.25m: Grades to include limonite banding. 1.70m - 1.75m: Grades to silt with some sand; light brownish orange V=92 R=29 BAYS FORMATION V=137 R=40 2.50m: Becomes very stiff. 44.0 COAST Fine SAND; with some silt and clay; brownish orange mottled brown. Medium dense; dry; non-plastic. V=140 EAST SILT; with some clay; light greyish brown mottled brownish orange. Stiff; moist; low plasticity. V=100 ₃ R=34 42.43.0 Fine SAND; with some silt and clay; brownish orange mottled brown. Loose to medium dense; dry; non-plastic. D V=105 4.0 SILT; with some clay; brownish orange. Very stiff; moist; medium plasticity. R=48 42.5 ¥ V=129 R=50 M V=187 R=55 END OF HOLE: 5.00m (Target Depth) 41.5_ Explanations: Refer to "Geological and Geotechnical Information" sheet for further details Standing Water Level 1. Hand auger at 88 Upper Orewa Road. Scala Penetrometer Tests Groundwater encountered at approximately 4.27mBGL after drilling. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres N/A Hand Auger 50 mm

SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

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HAND AUGER LOG

EK.	L		Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz					IAN	U AU	GE	K LC	JG	
Project No.	:	P	roject name:		Pro	oject Loca	ation:				No	.:	
240065		R	ussell Road, Silverdale				d & Upper Orev	wa Road	d	_	1144		İ
Date Auger			Client:			le Locatio		01/110			HA ¹	4/	
19 Dec 2024 Ground Lev			Vineway Ltd Co-ordinates:				y Dwg 240065		.a.	Char	4.	04-4	
RL 43.4m	ver.		E1747790.0, N5949955.9	3.9		Depth:	Reason Te Refusal	rminate	ea:	Shee 1 of 1		Status: FINA	
			· · · · · · · · · · · · · · · · · · ·	1 0.0	_		Trondodi			1 . 0.			
m (m)	Geological Unit	Б	Geological Description		Water / Moisture		Soil She Strength (Scala Penetron		In S	itu	Backfill / Install
Elevation (m) Depth (m)	olog Uni	Legend	In accordance with NZGS Guidelines (200 Refer to "Geotechnical and Geological Inform		Ž	Samples			(blows/50		Test Data/R	ing E	
	g		sheet for explanation of legend and abbrevia		Wate		△ Residual • 50 100 15	● Peak 0 200	5 1 <u>0</u>	15	Data/IV	coulto #	Back
43.25 - 0.15	TO PS OIL		SILT; with some clay and rootlets; dark brown mottled brownish orange. Very stiff; dry; medium plasticity; TC		D								1
‡		× × ×	_1										1
43.0		× × ×	Clayey SILT; brown. Very stiff; moist; medium plasticit COAST BAYS FORMATION].	y; [EAST								V=140 _{0.5}	1
+		× × ×									Ť	R=68	-
42.50 0.90		× × ×											
1.0			Clayey SAND; brownish orange. Medium dense; mois	t; non-			Δ .				~	V=129 _{1.0} R=48	1
42.30 1.10		× × ×	plastic; sand fine. Clayey SILT; brownish orange. Very stiff; moist; mediu	ım								N-40	
42.0		× × ×	plasticity.										+
1.5	NOI	××××	1.50m: Becomes stiff.		м		Δ •					V=68 _{1.5} R=21	1
‡	FORMATION	× × ×											1
41.5	FOR	× × ×											1
2.0	COASTBAYS	\times \times \times					Δ •				~	V=64 R=24	1
Ŧ	\ST E	× × ×	<]
41.0	/00	× × ×										V 400	1
2.5	EAST	× × × × × ×	2.50m: Grades to some fine sand; very stiff.				A				~	V=122 R=37	1
40.60 2.80		×××											+
40.50 2.90		× ,	Silty CLAY; light greyish brown mottled brownish orang	ge. Very	\dashv							V=106 _{3.0}	-
40.30 3.10		× >	SAND; with some clay; brown. Loose to medium dens	e; wet;			A •				~	R=42	1
‡		×	non-plastic; sand; fine. Silty CLAY; brownish orange. Very stiff; wet; high plas	ticity.									1
40.0		×	3.30m: Grades to grey.	,	w						~	V=226+3.5-	1
İ		×	3.50m: Become hard.										1
39.50 3.90		×	-		¥							UTP	1
4.0			END OF HOLE: 3.90m (Refusal)						● · Z	11.	7, 11, 18 717	4.0_	+
Ŧ										17	* 17		1
39.0													1
4.5												4.5-	1
İ													1
38.5												5.0-	1
Ţ ^{s.o}												5.0=	1
‡													1
38.0												5.5_	1
1													<u> </u>
I													
6.0												6.0_	1
‡													
37.0													
6.5												6.5_	+
Ŧ													1
36.5													1
Explanations	: Refer	to "Gen!	ogical and Geotechnical Information" sheet for further details.			Rer	marks	•					၂
Standing Water Level	▼ Sc	ala Pene	etrometer Tests Topsoil Clay	Bento	nite		and auger at 130 roundwater encou			v 3.84m	BGL after d	rillina.	
← Out-flow			parks state otherwise			3. B	ouncing recorded					19.	
In-flow Moisture:			reat ont	/ X		ncrete							
M = moist W = wet	V =	= Peak, I	R = Residual	Drill a		ll ll							
S = saturated	UI	r = Una	able To Penetrate Core Loss Gravel	Filter	san	<u> </u>							
All dimensi	ons ir	n meti	res Contractor (if applicable):	Instrum	ent	Details:		Shear	Vane No.:	Logge	ed By: C	hecked	Ву:

Hand Auger 50 mm

NOT TO SCALE

N/A

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2	K	L		Ph	HRISTCHURCH 8011 : 03.379.4402 www.rileychch.co.nz	AUCKLAND 062 Ph: 09.489.7872 E: www.riley.co.	2				HAN	D AU	GE	R L	OG	
Proje		:	ı	oject nar	me:			ı	oject Loc					N	o.:	
24006 Date		red:	Ru	ssell Roa	ad, Silverdale			-	issell Roa Ie Locati		er Orewa Roa	d	-	НΑ	148	
18 De	c 202	4		Vineway							40065-SK118					
Grou RL 56		vel:			Co-ordinates: E1747697.4, N	5950004.3		ole I .00 n	Depth: ก		on Terminat et Depth	ed:	She 1 of		Status FIN/	
5	(F	g	70		Geological D	Description	•	sture			oil Shear	Scal	a	ln.	Situ	stall
Elevation (m)	Depth (m)	Geological Unit	Legend	Refer to	ccordance with NZ0 o "Geotechnical and for explanation of le	d Geological Info	ormation"	Water / Moisture	Samples	∆ Resid	ength (kPa) dual ● Peak 100 150 200	Penetror (blows/0 5 10		Te	sting Results	Depth (m) Backfill / Install
56.80	0.10) L O	×××		trace sand and rootlet h plasticity; [TOPSOIL]		y stiff;									
56.5			××××	mottled lic	LT; with trace sand and ght grey. Very stiff; mois [EAST COAST BAYS	st: medium plasticit									V=144	-
	- 0.5 -		× × × × × ×	i	rades to light grey; stiff;					^	•			`	V=144 R=63	
56.0	-		× × ×												V=110 ₁₀	-
55.70	- 1.0 - 1.20		× × × :							^	•			`	R=53	-
55.5	-		× ×		Y; with trace sand and streaks. Very stiff; mois		orange with								V=97 1.5	-
	- 1.5		×	1.50m: Be	ecomes stiff.					A	•			`	R=49 1.5	_
55.0	-		× ×												V=112	-
+	- 2.0	ATION	×	2.00m: Be	ecomes very stiff.					A	•			`	V=112 R=49	_
54.5		EAST COAST BAYS FORMATION													V 440]
	- 2.5	BAYS	×					М		A	•			`	V=113 R=50	_
54.0	- -	COAS]
53.90	3.0 3.00 3.20	EAST	××. ××.×	SILT; with	some clay; with minor brownish orange streal	sand; with trace ro	ootlets; light ; medium	1		A	•			`	V=126 _{3.0} R=61	_
53.5	- - -		× × × × × × × × × × × × × × × × × × ×	plasticity. Clayey SI	LT; with minor sand; br	ownish orange with	h light grey	./							V 405	
+	3 .5		× × ×	streaks. V	ery stiff; moist; mediun	n plasticity to high p	plasticity.			Δ.	•			`	V=165 _{3.5} R=68	_
53.10 53.0	3.80		× × × :		Y with trace sand; brow		ght grey	-								
52.90	- 4.0		× × ×	Clayey SI	ery stiff; moist; high pla LT; with minor sand; lig dium plasticity to high p	ght brownish orange	e. Very stiff;	1		A	•			`	V=113 _{4.0} R=47	-
52.5	- -		× × × ×		alam placesty to mgm,	oldonolly.									V-440]
	- 4.5		× × ×	4.50m: Gr	rades to some fine to m	nedium sand; light ເ	grey.	 		A	•			`	V=118 R=52	-
52.0— 51.90	5.00		× × × × × × × × × × × × × × × × × × ×												V=155	-
31.30	- 5.0 -			END OF H	HOLE: 5.00m (Target	Depth)					A	1			V=155 R=133	
51.5	-															-
	- 5.5 -														5.5	
51.0	-															-
	- 6.0 -														6.0	
50.5	-															-
	- 6.5 -														6.5	
50.0	-															-
					otechnical Information" sh	neet for further details	s.	•	- 11	marks	at 130 Upper O	rewa Road				
▼ Wat		Ra	aw data in	trometer Tes blows per 5 arks state oth	50mm Topsoil	Clay		ntonite	2. 0		er encountered a		ly 4.61m	nBGL after	drilling.	
├─ In-flo Moistu	ow re:	Va	ine Shear	Strength (k	m m m reat	Silt Sand	× ×	ut/cor I arisir	Ш							
M = mo W = we S = sate	t			t = Residual ble To Penet	2000	553503 E = 5 **		er san	`							
All di	monei	ons i	n metro	os Con	tractor (if applica	ble):	Instrur	nent	Details:		Shear	Vane No.:	Loga	ed By:	Checked	Bv:

Hand Auger 50 mm

NOT TO SCALE

N/A

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

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HAND AUGER LOG

	Ph: 03.379.4402 Ph: 09.489.7872 E: www.riley.co.nz E: www.riley.co.nz			
Project No.:	Project name:	Project Loca		No.:
240065 Date Augered:	Russell Road, Silverdale Client:	Russell Road Hole Locatio	& Upper Orewa Road	HA149
18 Dec 2024	Vineway Ltd	1	Dwg 240065-SK118	11/11/17
Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet: Status:
RL 41.1m	E1747565.8, N5949994.6	4.50 m	Refusal	1 of 1 FINAL
Elevation (m) Depth (m) Geological Unit	Geological Description In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Informatic sheet for explanation of legend and abbreviation		Soil Shear Strength (kPa) △ Residual • Peak 50 100 150 200 Scala Penetrom (blows/50	neter In Situ
41.00 0.10 ι Δ σ (TS 40.90 0.20 ××		ery D-M		-
0.5	X X X SILT; with some clay; with trace sand and rootlets; dark br mottled grey. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		A •	V=124 R=52
40.30 0.80	with light grey streaks. Very stiff; moist; medium plasticity thigh plasticity.			
40.0	Silty CLAY; with trace sand and rootlets; brownish orange light grey streaks. Very stiff; moist; high plasticity.	Mith	A •	V=119 R=53
1.5 39.5 39.40 1.70 ×			À •	V=116 _{1.5} R=53
H NOIL X	× × × × × × × × × × × × × × × × × × ×		A •	V=100 20 R=37
38.60 2.5 2.50 LS X	<u>×</u> ×	M	Δ •	V=65 R=27
38.5 L BAST CO	brownish orange streaks. Stiff; moist; high plasticity. 2.70m: Grades to light grey with brownish orange streaks.			
	3.00m: Becomes very stiff. Clayery SiLT; with trace sand; dark grey. Very stiff; moist; h	igh	Δ •	V=115 _{3.0} R=23
37.5 ××	3.20m: Grades to minor sand. SILT; with some clay; with trace sand; dark grey. Hard; mc	 ist;	•	V=210 _{3.5} R=55
† \(\hat{\times} \times \ti	× medium plasticity.			
37.0	< ×	¥		VTP 4.0- - - -
	× *		●-5	4.5
5.0	END OF HOLE: 4.50m (Refusal)			5.0 5.5 5.5 5.5
35.0				- 60 -
34.5				6.5
‡				
Standing Water Level Out-flow Moisture: M = moist V Scala R Raw da unless v unless V = Pe	Geological and Geotechnical Information" sheet for further details. Penetrometer Tests ata in blows per 50mm Topsoil Clay Institute of the penetrate Topsoil Silt Silt Shear Strength (kPa) Silt Shear Strength (kPa) Silt Shear Strength (kPa) Silt Schear Strength (k	Bentonite 1. Ha 2. Gr 3. Sc Grout/concrete boun	narks and auger at 130 Upper Orewa Road. begin at a proximate at approximate at a proximate at	s for 50mm and recorded

Hand Auger 50 mm

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N/A

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HAND AUGER LOG

C				Ph: 03.379.4402 Ph: 09.489.7872 E: www.riley.co.nz											
Proje	ct No.	:	Pre	oject name:		Pro	ject L	ocatio	n:				N	0.:	
24006	65		Ru	issell Road, Silverdale					Upper	Orewa Roa	d	_		4=0	
	Auger			Client:	- 1			ation:					HA	150	
	ec 2024			Vineway Ltd	Refer to Riley D					٦					
Grou RL 39	nd Lev	/el:		Co-ordinates:			epth:			n Terminat	ed:	She		Status:	
KL 38	9. 1111			E1747527.0, N5950048.9		0 m			Refusa	11		1 of	l	FINA	=
5	Ê	ca	٥	Geological Description		Water / Moisture				il Shear	Scal		In	Situ	Depth (m) Backfill / Install
Elevation (m)	Depth (m)	ologi Jnit	Legend	In accordance with NZGS Guidelines (2005)		Mo V	Samp	les	Strer	igth (kPa)	Penetroi (blows/5		Te	sting	£ =
음 	Dep	Geological Unit	Le	Refer to "Geotechnical and Geological Information sheet for explanation of legend and abbreviation	s	/ater		4		ıal ● Peak	1 '	,	Data/	Results	Depth (Backfi
38.39.0		TO PS OIL		SILT; with minor sand; with trace clay and rootlets; dark bro	$\overline{}$	-			50 10	0 150 200	5 10	15			
	•		××,×	Very stiff; moist; non-plastic; [TOPSOIL].	/										+
38.60	0.50		× × × × ×	SILT; with some clay; with trace sand and rootlets; dark brownish orange. Very stiff; moist; low plasticity to medium plasticity; [EAST COAST BAYS FORMATION].	JWII									V=116	7
38.5	. 0.5		× × × ×	Clayey SILT; with minor sand; light brownish orange. Very	stiff;				A :	•			`	R=53	<u> </u>
1			× × ×	moist; medium plasticity to high plasticity.											1
+	- - 1.0		× × × :											V=74	, -
38.0 37.90	1.20		× × × ×	1.00m: Grades to light grey streaks; very stiff.									`	R=32	7
-	-		××.×	SILT; with some sand; with minor clay; light grey. Stiff; moil low plasticity.	st;										1
37.60	- 1.5. 1.50		× × × × × ×						Δ .				,	V=92 R=28	-
37.5	-	TION	× × ×	Sandy SILT; with minor clay; light grey. Stiff; moist; low plasticity.										K-20	1
1	-	RMA	× × ×												<u> </u>
37.10 37.0	2.02.00	EAST COAST BAYS FORMATION	×	Silty SAND; light brownish grey. Loose to medium dense;		м			Δ •				`	V=79 R=24	
36.90	2.20	T BA`	× ×	moist; non-plastic; sand; fine to medium.	_										7
36.60	2.50	OAS	× . × ×	Sandy SILT; with minor clay; brownish orange with light gre streaks. Stiff; moist; low plasticity.	ey									V=89	1
36.5	2.5	AST (Silty SAND; light brownish grey. Loose to medium dense; moist; non-plastic; sand; fine to medium.					•				`	R=21 2.5	<u> </u>
1		/ <u>E</u> /	×	moist, non-plastic; sand; line to medium.											1
36.10	- - 3.0		×											UTP 3.0]
36.00 36.0	3.10			Fine to course SAND; with trace gravel; subangular to anguing Dense; moist; non-plastic.	ular.								,	On	+
35.70	3.40		×	Silty SAND; light brownish grey. Medium dense; moist; nor	/	▼									1
35.60	3.5 3.50		×	plastic; sand; fine to medium. Sandy SILT, with minor gravel; brownish orange and brown	nish			4		•			,	V=138 _{3.5} R=15	-
35.5 35.40	3.70			red. Medium dense; moist; non-plastic; gravel, angular, 5m										11-15	1
1	-		× × × × × × × × × × × × × × × × × × ×	Fine to course SAND; with some silt, with trace gravel; brownish orange and brownish red. Medium dense; moist;	/										1
35.00	4.0 4.10		<u>×</u> ××	plastic; gravel, angular, 5mm.	non-						1		`	UTP 4.0)
1	-			Clayey SILT; with trace sand; dark grey. Very stiff to hard; moist; high plasticity.	1						Q -5		5, 15, 18 ♥ 20		1
+	- - 4.5			END OF HOLE: 4.10m (Refusal)								20		4.6	-
34.5	- 4.5													4.3	Ĩ
1															1
1	- 5.0													5.0	_
34.0															<u> </u>
1															-
1	- 5.5													5.5	_
33.5	-														1
1	-														1
33.0	6.0													6.0	
+	-														+
1															1
32.5	- 6.5													6.5	<u> </u>
1	-														1
	-								<u> </u>						
		: Refe	r to "Geolo	gical and Geotechnical Information" sheet for further details.			- 11	Remai							
	nding er Level			trometer Tests Topsoil Clay	nite	:	2. Grou	ndwater	t 130 Upper O encountered a	t approximate			drilling.		
Out- ✓ In-fl-				blows per 50mm Peat Silt	Grout	/conc	Bouncing recorded for scala measurement from 4.2mBGL.								
Moistu	re:			Strength (kPa) Fill Sand	Drill a										
M = mo W = we	t			R = Residual Core Loss Gravel	Filter										
S = sat				CAL (2.45)			Details			Cha	r Vane No.:	1000	od Du	Chacks -	D

Hand Auger 50 mm

4 Fred Thomas Drive Takapuna

5	K			Ph	RISTCHURCH 8011 03.379.4402 www.rileychch.co.nz	HAND AUGER LOG														
Proje		:	ı	oject nan				1	oject L			Orawa Daa	ــــــــــــــــــــــــــــــــــــــ		No.:					
24006 Date		od.	Ru	Client:	d, Silverdale			 	le Lo		• • •	Orewa Roa	ıu		HA151					
18 De	•			Vineway	Ltd		Į.				065-SK124	ļ	l							
Groui	nd Le	vel:			Co-ordinates:			Depth:			n Terminat		She	et:	Statu	s:				
RL 31	.3m				E1747438.4, N5	950030.6	2	.80 n	n		Refusal	<u> </u>		1 of	1	FIN	AL			
5	Ĺ	-g	_		Geological D	escription		sture			Soil	l Shear	So	cala		C:t	stall			
Elevation (m)	Depth (m)	Jnit L	Legend	In a	In accordance with NZGS Guidelines (2005 Refer to "Geotechnical and Geological Informat				Sam	ples	Stren	gth (kPa)		rometer s/50mm)		n Situ esting	£ =			
Ele Ele	Dep	Geological Unit	Le		o "Geotechnical and for explanation of leg			/ater				al • Peak 0 150 200	1 `	,	Data	a/Results	Depth (m) Backfill / Install			
		SOI J	TS _w w		trace clay and sand an	d rootlets; dark bro	own. Firm;	>			30 10	0 130 200		10 15			7			
31.10	0.20	- "	× ×	`	plasticity; [TOPSOIL]. '; orange with grey stream	aks. Stiff; moist; lov	w plasticity;	1									1			
1	. 0.5		×		AST BAYS FORMATIC						Δ					V=95 R=35	0.5_			
Ŧ			<u>×</u>													R=35	-			
30.5	-		× ×					М									7			
‡	1 .0	NO NO									Δ .					V=60 R=20	1.0			
‡		RMA	× -×														1			
30.0	-	S FO	×													\/ 7 0	1			
	1 .5	ВАХ	× ×								Δ •					V=70 R=20	1.5			
29.50 29.5	1.80	DAST	× ×	1.60m: Be	comes wet.												1			
+	- 20	EAST COAST BAYS FORMATION	× × × × ×	Sandy SIL	T; brown. Loose to med	dium dense; wet; n	on-plastic.									∨ UTP	2.0_			
+		ā	× × ×	l	ades to dark grey.			w								V 011	-			
29.0			^ × × ×	2.00m: Be	comes hard.			**									7			
28.70	- 2.5 2.60		× ×													∨ UTP	2.5			
	2.80		× × ×	Clayey SII plastic.	T; with minor sand; da	rk grey. Hard; wet;	non-	1									1			
28.5 28.5				<u> </u>	OLE: 2.80m (Refusal)			\top					.a.	D:920	5, 9, 20 20					
<u> </u>	3.0													20	* 20	;	3.0			
28.0	•																1			
1	- 3.5																3.5			
+	•																-			
27.5																	7			
Ŧ	4.0																4.0			
Ŧ																	-			
27.0																	1			
#	- 4.5																‡.5 —			
26.5																	1			
1	-50																5.0_			
+	•																-			
26.0																	7			
Ŧ	5 .5																5.5			
‡	•																1			
25.5	•																1			
#	6.0															,	6.0			
25.0																	1			
<u> </u>	. 6.5																6.5			
1																	1			
24.5	•																}			
<u>T</u>		<u> </u>									- ules		1 :	<u> </u>						
Stan	dina			gical and Geo trometer Tes	technical Information" she						nd auger at	130 Upper C								
Wate	er Level	Ra	ıw data in	blows per 5	Omm I I Opsoil	Clay		ntonite		3. Sca	ıla raw data	encountered a a from 2.9mB	GL is 22 blo	ows for 50r	nm.	_				
├─ In-flo	ow	•		arks state oth	th the second	Silt	/ X	out/cor	- 11	4. Sca bounc		a from 2.95ml	3GL is 30 b	lows for 10	mm and	recorded				
Moistur M = moi	ist	V =	= Peak, F	Strength (kl c = Residual	2000	Sand	K-(ll arisir	· II											
W = wet		UT	P = Unal	ole To Penet	rate ta Core Los	s Gravel	Filt	er san	d											
A II alia			- mote	Cont	ractor (if applicat	ole):	Instrui	nent	Detail	s:		Shea	r Vane No	o.: Logo	ied Bv.	Checke	d Bv.			

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna

E	K	L		Ph	IRISTCHURC : 03.379.4402 www.rileychch		AUCKLAND 06 Ph: 09.489.787 E: www.riley.co	'2						IAN	D A	וטנ	EK L	UG			
Proje	ct No.	:	Pro	oject nan	ne:		<u> </u>			oject l		• • • • • • • • • • • • • • • • • • •									
24006			Ru		d, Silverda	ale							er Ore	wa Roa	d		LIAAEO				
Date Augered: Client:									l l	le Lo			40065	: CV101			HA152				
18 Dec 2024 Vineway Ltd Ground Level: Co-ordinates:									Refer to Riley Hole Depth:			_				Sh	Sheet: Status:				
RL 32.2m E1747401.2, N5950061.9							50061.9		4.70 n	•	•	Reason Terminat Refusal			cu.		of 1	FIN			
_	<u> </u>	≘ ् ख _ Geological Descript							ture				Soil Shear S			ala			Ilali		
Elevation (m)	Depth (m)	Geological Unit	Legend	Refer to	In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Informat sheet for explanation of legend and abbreviation				Water / Moisture	Sam	ples	Str △ Res	ength	(kPa) ● Peak	Penetr (blows/	ometer 50mm)	. т	n Situ esting a/Results	Depth (m) Backfill / Install		
32.0	0.40	NV 18							ow										-		
31.5	0.5		× × ×	plasticity;	f; grey with or [EAST COAS] comes stiff.	ange streak T BAYS FO	s. Stiff; moist; I RMATION].	high	М			Δ (V=72 R=24	5		
31.0 30.90	- 1.0 1.30		× × ×	1.00m: Be	comes soft.							Δ●						V=18 R=5	<u>-</u>		
30.5	_ 1.5		× × × × × × × × ×	Sandy SIL	T; dark grey.	Very stiff; w	ret; non-plastic.					Δ	•					V=147 R=12	5		
30.0	- 2.0	MATION	× × × × ×									Δ	•	•				∨ V=150 ₂ . ∀ R=17	- - - -		
29.5	• 2.5	EAST COAST BAYS FORMATION	× × × × × × ×									Δ		•				V=171 2. R=31	5		
30.0	. 3.0	EAST COAS	× × × × × × × × × × × × × ×	3.00m: Be	comes hard.				w					•				∨ V=214+³	0_		
29.0 28.90 28.80 28.70	3.30 3.40 3.5		× × × ×	Hard; wet; Sandy SIL	low plasticity		n with dark grey		 /					•				✓ V=214+3.	5		
28.5	4.0		^ × × × × × × × × × ×	plastic. SILT; with low plastic		ith minor sa	ınd; dark grey, l	Hard; wet;	/ \									✓ UTP 4.	-		
28.0	• 4.5		* * * * * * * * * * * * * * * * * * *															4.	5_		
27.50 27.5	4.70		×××	END OF H	IOLE: 4.70m	(Refusal)									+		▼ ₂₀		_		
27.0	5.0			END OF T	10LL. 4.76III	(redusar)												5.			
26.5	- 5.5																	5.	5_		
26.0	6.0																	6.	- - - -		
	. 6.5																	6.	5		
25.5	•																		-		
Explar Stan Wate Out- In-fle Moistur M = mo W = we S = sate	iding er Level flow ow re: ist	▼ Sc Ra un Va V:	ala Penet w data in less rema ne Shear = Peak, R	rometer Tes blows per 5 irks state oth Strength (kl = Residual ble To Penet	onm and the state of the state	Topsoil Peat Fill Core Loss	Clay Silt Sand Gravel		entonite Grout/con Frill arisin	ncrete	2. Gro	nd auge oundwat ala raw o	er enco	untered a m 4.7mB0	rewa Road. t approxima GL is 30 blo	ws for 4	0mm and r	ecorded			
All di	nensi	ons i	n metre	es Conf	tractor (if a	applicabl	e):	Instru	ument	Detail	s:			Shear	Vane No	.: Log	gged By:	Checked	Ву:		

Hand Auger 50 mm

4 Fred Thomas Drive Takapuna

CHRISTCHURCH 8011 Ph: 03.379.4402 E: www.rileychch.co.nz E: www.rileychch.co.nz													П	AN	D A	UG	ושי	K L	UG			
-	ct No.	:		oject nar					1	oject		1										
2400			Ru		ad, Silverdal	е			-			& Uppe	r Orev	va Roa	d		LIAAEO					
	Auger ec 202			Client: Vineway	Hole Location: Refer to Riley Dwg				10065_	SK121			HA153									
	nd Le			Co-ordinates:						Depth		Reason Terminated:					Sheet: Sta		Status			
RL 38				E1747364.7, N5950090.9					.70 r	•		Refus				- 1	1 of 1	-	FIN			
_		_			Geolog	elle				oil She	or					•	酉					
Elevation (m)	Depth (m)	Geological Unit	Legend	ln a	ccordance wi		-	2005)	Water / Moisture	Sam	nples	1	ength (F		Penet	Scala Penetromet			Situ	Depth (m) Backfill / Install		
≣leva (r	Dept) Egi	Leg	Refer to	rmation"	Iter/	Joan	ipics	△ Resid	dual •	Peak (blows		/50mr	m)		Results	oth (m					
			TS W		for explanatio				-			50	100 150	200	5	10 15	5			Ba Ba		
38.00	0.30	TOPSO	TS T		[TOPSOIL].	rootiets, de	ark brown. I iiri	i, moist, ion												1		
38.00 38.0	_		× ×	Silty CLA	Y; grey with orar			igh	1											1		
-	_ 0.5 _		×	plasticity;	[EAST COAST	BAYSFUR	IMATION].					A	•					,	V=86 R=31	0.5		
37.5_	-		×																	_		
-	_ 1.0		× ×																V=95 R=35	1.0_		
-	-		×									-							* R=35	-		
37.0	_		<u>×</u> _×						М											7		
-	1.5		_*	1.40m - 2. streaks; v	.60m: Grades to	trace sand	l; orange with g	grey				A	•						V=111 R=26	1.5		
-	-		×		ecomes very stif	f.														_		
36.5-	-	_	× ×																\ 	1		
-	2.0	BAYS FORMATION	×	2.00m: Be	ecomes stiff.							A •						,	V=57 R=23	2.0—		
36.0-	-	ORM,	<u> </u>																	_		
-	- - 2.5	YSF	×									_							V=111 R=23	-		
35.70	2.60	ST BA	× × × × :	Clayey SI	LT; with trace sa	and; dark gr	rey. Very stiff; v	wet; low	╌			-							* R=23	-		
35.5	_	COAST	× × ×	plasticity.				•												-		
-	3.0	EAST	× × ×									A	•						V=104 R=27	3.0.		
-	-		× × ×																	1		
35.0_			× × ×																\/_400	1		
34.80	3.5		×	Silty CLA	Y; dark grey. Ve	ry stiff; wet;	; high plasticity.		٦.,,			Δ.		•				,	V=182 R=41	i.5		
34.5_	_		×						W											-		
-	4.0		× -×																✓ V=214+	±.0		
-	_			4.00m: Be	ecomes hard.															_		
34.0_	_		×																	_		
_	4.5		<u> </u>	4.50m - 4.	.70m: Grades to	trace sand	l.		¥										✓ UTP 4	.5		
33.60 33.5—	4.70			END OF H	HOLE: 4.70m (I	Pefusal)			-				1 1	- :		•	·14 ₂₀	14 20				
-	- - - 5.0					.o.aoaij											20	., 20		5.0_		
-	-																		,	7		
33.0	_																			7		
-	- 5.5																			5.5_		
-	-																			1		
32.5	-																			1		
-	- 6.0																		6	3.0		
32.0_	_																			_		
-	- - 6.5																		6	3.5.		
-	-																			-		
31.5	_																			-		
										<u> </u>		<u> </u>	<u> </u>	<u> </u>		<u> </u>				1_		
_ Sta	nding	- 60			otechnical Informa	tion" sheet f	for further details	s.			1	ı arks nd auger	at 130 l	Jpper Or	ewa Road	l.						
▼ Wat	ter Level	Ra	w data in	trometer Tes	60mm 🚉 🗓	opsoil	Clay	Ве	ntonite		2. Gr	oundwate	r encou	ntered at	approxim GL is 30 b	ately 4			drilling.			
├─ In-fl	ow			arks state oth	66 66 66 6	eat	Silt	/ X		ncrete												
Moistu M = mo	oist	V :	= Peak, R	Strength (ki R = Residual	2000	ill	Sand	Dri	ll arisi	ngs												
W = we S = sat		UT	TP = Unal	ole To Penet	trate cn. C	ore Loss	Gravel	Filt	er sar	ıd												
			n metr		tractor (if ap	plicable):	Instru							Vane No	o.: L		- 1	Checke	_		
ı	T TOP	O SC	ALE	N/A				Hand	Auge	er 50 n	nm			VANE	1051		JMA	4C	SRO)		

4 Fred Thomas Drive Takapuna AUCKLAND 0622

E	K			Ph	n: 03.379.4402 www.rileychch.	F	h: 09.489.787; E: www.riley.co	2					- 11	AIN.	U A		JL	N L	UG		
Proje	ct No.	:	Pr	oject na	me:	·	-				Locat										
24006			Ru		ad, Silverda	ıle			-			& Uppe	r Orev	va Road	t		118454				
	Augei			Client:	. 1 4 4		Hole Location: Refer to Riley Dwg 240065								HA154						
	nd Le			Vineway	Co-ordin					Reason Terminated:					Sheet:		s:				
RL 60					E174717		50044.7		2.95 m			Refus					1 of		FIN		
Е.	(E	-B	70		Geolog	gical Des	cription		sture				Soil Shear			Scala		In	Situ	ıstall	
Elevation (m)	Depth (m)	Geological Unit	Legend	In a	ccordance with NZGS Guidelines (2 o "Geotechnical and Geological Info			2005)	Water / Moisture	San	nples		ngth (I	(blows				Te	esting	Depth (m) Backfill / Install	
ă	De	g			for explanation				Wate			△ Resid	lual ● 100 150		, 5	10	15	Data	/Results	Depth	
60.70	0.20	SOI L	<u>ౣ</u> ⊥2 [™] ホ	SILT; with non-plast	n some clay and ic; [TOPSOIL].	d rootlets; da	ark brown. Ver	y stiff; dry;												-	
60.5	-		× ×		Y; dark brown n um plasticity; [E															1	
1	- 0.5		×		rades to browni	ish orange a	and light brown	mottled				Δ	•						V=100 R=45	1.5	
	-		<u>×</u> <u>×</u>	prown; ni	gh plasticity.				D											1	
60.0	- - 1.0	z										A •							V=77 R=40	1.0.	
1	-	IATIO		1.00m: Be	ecomes stiff.														K=40	1	
59.60 59.5	1.30	EAST COAST BAYS FORMATION			AND; light grey			Loose to	+											1	
59.40	1.5	3AYS		∖	dense; moist; no ID; with some cl			nish				Δ	•						V=97 R=29	.5	
-	-	ASTE		orange. L	oose to mediun	n dense; mo	oist; non-plastic) .	М											1	
59.0	- 2.0	1 CO							\blacksquare										V=209 R=45	2.0_	
58.70	2.20	EAS																	K=45	_	
58.5	-		×	Silty fine	SAND; grey. De	ense; satura	ited; non-plasti	C.												_	
1	2 .5		×						s					•					∨ V=226+	!.5 <u> </u>	
1	-		×																	_	
58.00 58.0	2.90		×	SILT; gre	y. Hard; dry; no	n-plastic.			- 					-	ļ <u>.</u>			▼	✓ UTP	3.0.	
1	- -			END OF I	HOLE: 2.95m	(Refusal)			_									20		_	
57.5	-																			1	
1	3 .5																		3	1.5	
1	-																			_	
57.0	- - 4.0																		4	4.0	
1	-																			}	
56.5	-																			}	
1	4 .5																		4	4.5	
	-																			7	
56.0	- 50																			5.0_	
1	-																		•	7	
55.5	-																			7	
	- 5.5																			5.5.	
1	-																			1	
55.0	- - - 6.0																		4	3.0	
1	- 0.0																			-	
£4.5	-																			-	
54.5	6.5																		6	3.5.	
7	-																			7	
54.0	-																			-	
		Refer	r to "Geolo	ogical and Ge	otechnical Inform	ation" sheet	for further detail	s.			1	narks									
▼ Wat				trometer Te		Topsoil	Clay	E	Bentonite		2. Gro	nd auger oundwater	r encou	ntered at	approxi	mately					
Out-				arks state ot	honvice -	Peat	Silt		Grout/co	ncrete	bound	ala raw da cing.	ald IIOM	ı ∠.∌əmB	UL IS OU	SWOIG	101 101	ının and f	ecoraea		
Moistu M = mo	re:			r Strength (k R = Residual		Fill	Sand	<u>>></u>	Orill arisi	ngs											
W = we S = sat	t			ble To Pene		Core Loss	Gravel	F	ilter sar	ıd											
All di	mensi	ons i	n metr	es Con	tractor (if a	pplicable	e):	Instr	ument	Detai	ils:			Shear	Vane N	No.:	Logg	ed By:	Checke	d By:	
1	T TO	o sc	ALE	N/A				Hand	d Auge	er 50 r	nm	VANE111					DA	AVA	SRO)	

RDII FV

NOT TO SCALE

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

			Ph: 03.37 E: www.ri	9.4402 ileychch.co.nz		489.7872 v.riley.co.n	z					•				,			
Project No.:		•	t name:						-	Locati							N	lo.:	
240065			ll Road, Si	lverdale								r Ore	wa Roa	d			ЦΛ	155	
Date Augere			ent: eway Ltd					ı,		cation Rilev I		10065	-SK123				ПР	155	
Ground Lev				-ordinates	s:			Hole I					rminate			Shee	et:	Status	 6:
RL 42m			E17	747299.3,	N594996	3.8		2.95 n			Refus	sal				1 of '	1	FIN	ΑL
Elevation (m)	Geological Unit				IZGS Guide	elines (20 ical Infor	mation"	Water / Moisture	Sam	ples		oil She ength (kPa)	Pen	Scala etrome vs/50n		Τe	Situ esting /Results	Depth (m) Backfill / Install
	JSOIL TS.	ν [™] . SIL	T; with some	clay and root				D			50	100 15	0 200	5	10	15			- B
41.60 0.40	×	0.60	y CLAY; dark sticity; [EAST 0m: Grades to 0m: Grades to	COAST BAY o light grey m	S FORMATI	ÖN].		′ М			A	•						V=121 o	- 5— - - - - 0—
40.5 1.5	EAST COAST BAYS FORMATION	 						Y			Δ.							V=53 1 R=32 1	5
39.60 2.40	× × × × ×	slov ×_ Cla	yey fine SAN w dilatancy. yey SILT; bro eckles. Stiff; s	ownish orange	with light br	ownish gre		s			A							V=53 ² R=23	- - - .5
39.05 2.95	× ×																	√-UTP <u>-</u>	1
38.5 3.5 38.0 4.0 37.5 4.5 37.0 5.0 36.5 5.5 36.0 6.0			D OF HOLE:															5	5
Explanations: Standing Water Level Out-flow In-flow Moisture: M = moist W = wet S = saturated	▼ Scala F Raw da unless Vane S V = Pea	Penetrome ata in blows remarks st shear Strer ak, R = Re	eter Tests is per 50mm tate otherwise ngth (kPa)	Topso	pil	Clay Silt Sand Gravel		entonite Frout/cor rrill arisir	ncrete	2. Gro	nd auger undwate la raw d	er encou	Upper Or untered a n 2.95mB	t approx	imately				
All dimensio			Contracto N/A	or (if appli	cable):		1	iment Auge	Detail r 50 m				Shear	Vane	No.:		ed By:	Checked	_

22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

			Ph	n: 03.379.4402	Ph: 09.489.7872 E: www.riley.co.r							MIN!	U A		JL	N L	UG	
Project No.	:	Pr	oject nar	me:			Pr	oject	Locat	ion:						N	lo.:	
240065		Ru		ad, Silverdale						& Upper	Orew	a Road	t				450	
Date Auger			Client:	. 1 4 4				ole Lo			0065	21/400				HA	156	
Ground Le			Vineway	Co-ordinates:		Н		Depth		Dwg 240			d.		Shee	et:	Status	
RL 37.4m				E1747373.9, N59	949932.6		10 r	•	·-	Refusa					1 of		FINA	
ے آج	a			Geological De	escription	<u>'</u>	ture			So	il Shea	ar	,	Scala				tall
Elevation (m) Depth (m)	ogic	Legend		accordance with NZGS			Mois	 Sam	ples	1	ngth (k		Pene	etrome			Situ esting	(L)
Elev (Geological Unit	Lec		o "Geotechnical and of for explanation of lege			Water / Moisture			∆ Residu			`	/s/50n			/Results	Depth (m) Backfill / Install
37.25 - 0.15		TS W		n some clay and rootlets;			<u>≥</u> D			50 1	00 150	200	5 :	10	15		-	1 0
7.20		× × ×	plastic; [T	OPSOIL].	rown Stiff: moist:	modium	\vdash											-
37.0		× × ×		[EAST COAST BAYS FO		, medium											V=98 0,	.]
+ 0.5		× × × :	0.50m: Gr brown.	rades to brown mottled br	rownish orange a	nd dark											R=40 0.5	7
‡		×××		rades to light greyish brov	un mattlad brown	ich crongo												1
36.5	_	× × ×	0.00III. GI	ades to light greyish brow	wii mottled brown	iisii orange.				A •							V=81 R=39	
‡	COAST BAYS FORMATION	× × ×					М										11-00	1
36.0	JRM/	× × ×					"											1
1.5	YS F(× × ×	1.50m: Be	ecomes firm.			¥			▲							V=48 R=32	-
+	T BA	×××:																-
35.5 35.40 2.0	COAS	× × × ×															V=31	
+	EAST (× × ×		LT; with some sand; brown; moist; medium plasticity		tled light				▲							V=31 R=19 2.0	7
35.10 2.30	ш	×××		ith some clay; brownish o		ht grov	_											7
35.0 34.90 2.5			Loose to	medium dense; saturated	; non-plasticity.												2.5	_
34.70 2.70				D; brownish orange with l lense; saturated; dilatant.		. Loose to	s											1
34.55 2 .85		×× ×		D; with some clay; brown se to medium dense; satu		ed light	\perp											_
34.30 3.10		×××	\ <u> </u>	n some clay; grey. Hard; n		ncy.	М					•					∨ V=225+³.0	
1			END OF H	HOLE: 3.10m (Refusal)			1								20	20		1
34.0																	3.5	-
Ŧ																	0.0	7
33.5																		7
4.0																	4.0	_
‡																		1
33.0																		1
4.5																	4.5	
‡																		1
32.5																	5.0	_
<u> </u>																		1
32.0																		}
5.5																	5.5	_
Ŧ																		7
31.5																		<u>-</u>
± 6.0																	6.0	7
‡																		1
31.0																	6.5	<u>-</u>
‡																		1
30.5																		-
Evalencii -	<u> </u>							<u> </u>	Rem	arke	<u>: i</u>	:		:	: .			
Ctanding			gical and Geo trometer Tes	sts		00000000	4		1. Hai	nd auger a					16	CI#-	drillin ~	
Water Level Out-flow	Ra	w data in	blows per 5	50mm Topsoil	Clay		tonite			oundwater ala raw dat							uriiiifiy.	
In-flow Moisture:	•		Strength (k	D.) ESSE	Silt	× >		ncrete										
M = moist W = wet	V =	Peak, R	t = Residual	2000	Sand Gravel		arisir er san											
S = saturated	01	. Unal		CAL.	24.421	47.50												
All dimensi NOT T			es Con N/A	tractor (if applicable	le):	Instrun Hand A						Shear VANE	Vane I 111	No.:		ed By: VA	Checked SRO	-

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

N/A

NOT TO SCALE

4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 E: www.rilev.co.nz

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA157** Date Augered: Client: Hole Location: 18 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK122 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 32.8m 5.00 m FINAL E1747215.6, N5949655.4 Target Depth 1 of 1 **Geological Description** Backfill / Install Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT; with trace sand and rootlets; dark grey with dark brown streaks. Stiff; moist; high plasticity; [TOPSOIL]. Silty CLAY; with trace sand and rootlets; brownish orange with 32.5 dark grey streaks. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=81 R=36 R=32 31.5 CLAY; with some silt; brownish orange with light grey streaks. Stiff; moist; high plasticity. V=87 V=78 R=29 BAYS FORMATION V=71 Silty CLAY; light grey mottled brownish orange. Stiff; moist; R=29 COAST V=84 EAST V=61 R=32 29.00 Silty fine SAND; brownish orange mottled light greyish brown. V=49 Loose to medium dense; wet; non-plastic 4.0 R=36 SILT; with some clay; brownish orange mottled light greyish 28.5 brown. Firm; wet; low plasticity V=97 R=42 4.50m: Becomes stiff. ¥ V=223 R=68 2, 2, 2 2, 2, 1 2, 1, 2 END OF HOLE: 5.00m (Target Depth) 4, 3, 3 3, 2, 3 5, 3, 5 5, 4, 4 4, 4, 6 7, 6, 7 20 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 132 Upper Orewa Road. Standing Water Level Scala Penetrometer Tests Groundwater encountered at approximately 4.65mBGL after drilling.
 Scala raw data from 6.8mBGL is 26 blows for 50mm and bouncing Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Logged By: Checked By: Contractor (if applicable): Instrument Details: Shear Vane No.: All dimensions in metres

Hand Auger 50 mm

JOMU

SRO

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

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4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA158** Date Augered: Client: Hole Location: 17 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK122 Ground Level: Co-ordinates: Hole Depth: Reason Terminated: Sheet: Status: RL 31.9m E1747454.4, N5949614.9 5.00 m FINAL Refusal 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/0mm) Refer to "Geotechnical and Geological Information" Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT; with some clay and organics; dark brown. Very stiff; dry; non-plastic; [TOPSOIL]. V=113 R=65 Clayey SILT; brownish orange mottled light brown with limonite staining. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=126 R=66 V=126 R=56 V=97 R=48 1.20m: Becomes stiff. V=145 R=40 1.50m: Becomes very stiff. V=109 R=24 BAYS FORMATION V=52 R=32 2.10m: Relict limonite joint; stiff. V=193 R=32 2.40m: Becomes very stiff. V=61 COAST × R=29 2.70m: Becomes stiff. V=74 EAST R=29 V=64 R=29 V=193 3.60m: Relict limonite joint; very stiff. V=174 R=55 ✓ V=226+ 4.20m: Becomes hard 4.50m: Becomes very stiff. 4.80m: Becomes hard. END OF HOLE: 5.00m (Refusal) Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 132 Upper Orewa Road. Standing
Water Level Scala Penetrometer Tests Topsoil 2. No groundwater encountered at the time of drilling. Bentonite Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete - In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 50 mm

SRO

22 Moorhouse Avenue

4 Fred Thomas Drive

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Project No.	:		oject nar	ne:					- 1	•	ect Lo								N	o.:	
240065 Date Auger	od.	Ru	ssell Roa	ıd, Silver	dale				-		Ell Roa		Jpper	Orewa	a Road	d .	_		НΛ	159	
17 Dec 2024			Vineway	Ltd					- 1				g 24	0065-S	K121				11/	133	
Ground Lev RL 22.9m	/el:	•			dinates: 449.0, N5	949560).6		Hole 5.10		pth:			n Terr Depth		ed:		Shee 1 of 1		Status FINA	
ر ج	<u>a</u>			Geol	logical De	scripti	ion		9			Ť	So	il Shea	ır	Sc	ala			•	Itall
Elevation (m) Depth (m)	Geological Unit	Legend	Refer to	o "Geotecl	e with NZG hnical and ation of leg	Geologic	cal Inforr	mation'	Water / Moisture	Water / Mois	Sample	ΔI	Strei Residi	ngth (kli ual ● 00 150	Pa) Peak	Peneti (blows	rome s/0mr		Τe	Situ esting /Results	Depth (m) Backfill / Install
22.80 0.10	. ⊡ 0 (TS _{JV} V		some clay	and rootlets;	dark brow	vn. Very s	stiff; dry;		5											\pm
		×	Silty CLA	r; light brow	n mottled bro	own. Very	stiff; mois	st; high	-/											V=164 R=32	-
22.5		×	plasticity;	LEAST COA	AST BAYS FO	DRMATIO	N].													V=174 0.5	- i_
		×											^	1	•					V=174 R=61	_
22.0					wn mottled d	ark grey w	with browr	nish					A		•					V=177	1
1.0			orange sp	eckles.																* R=48 _{1.0}	_
		×											Δ		ė					V=201 R=89	_
21.5		×																		V=79 _{1,1}	
		× -^×	1.50m: Be	comes stiff.																* R=19 ***	-
 			1 80m: Be	comes very	/ stiff								<u>.</u>	•						V=126 R=48	7
21.0	z			-	ne gravel; me	edium; rou	unded; 10	mm.												2.0	_
	MATIC																				1
20.50 20.5 20.5	FOR	×	Silty CLA	/· with some	e gravel; dark	arev mot	ttled brow	nieh					A	•						V=126 R=45	1
20.20	3AYS	×	orange. V	ery stiff; mo	ist; high plas	ticity.	tiled brow	111011	N	и										V=116	-
+	EAST COAST BAYS FORMATION	××	Silty CLA	/; greyish b	rown. Very st	iff; moist;	high plas	ticity.					Δ.	•						R=65	1
20.0	ST CO												A	•						V=105 _{3.0}	
	EAS	× ×																		V=153	-
19.5 19.40 3.5. 3.50		×							Ι,				Δ.	•						R=61	-
3.5		× × × ×	Clayey SI plasticity.	_T; dark gre	eyish brown. '	Very stiff;	moist; me	edium	7	•			<u>.</u>							V=74 ^{3.5} R=45	-
		× × ×		comes stiff.	-															V=97	-
19.0		× × × :										^	٠ : ١	•						R=35	_
		× × ×	4 20m: Bo	comes dark	(grov								△ •							V=81 R=61	1
18.5 18.40 4.50		× × ×	4.20III. De	comes dan	vgrey.															V=68	1
4.5		× ×	Silty CLA	; grey. Stiff	f; moist; high	plasticity.						^	•							R=35 4.5	-
													•							V=52 R=27	1
18.0 		× ×																		V=45	<u>_</u>
+			END OF H	OLE: 5.10r	m (Target D	epth)						1					Ī			R=29	-
17.5																					.]
5.5																				5.3	7
																					1
17.0																				6.0	_
																					-
16.5																					.]
+ 6.5																				6.5	-
16.0																					7
16.0	-										71-		-	<u> </u>			<u>: </u>	:			1
Explanations Standing			gical and Geo trometer Tes		п						1.		uger a			ewa Road					
Water Level	Ra	w data in	blows per 5 blows per 5 brks state oth	0mm 🚉	Topsoil		Clay		Benton			Ground	iwater	encoun	tered at	approxim	ately 3	3.5mB	GL after	drilling.	
In-flow Moisture:	*		Strength (k	86 86 8 1 80 86	Peat	00000	Silt	/ A	Grout/c												
M = moist W = wet	V :	= Peak, R	= Residual ble To Penet	200	iiiiii ∏ Coro Lose	653563	Sand Gravel		Orill ari Filter sa	-											
S = saturated					Core Loss	2.00	oravel	41.44							01:		1 -			01.	
All dimensi			es Con N/A	ractor (i	f applicab	ie):					etails: 50 mm			1	Shear VANE	Vane No 111	p.: L		ed By: VA	Checked SRO	- 1

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402

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HAND AUGER LOG

EK	<u> </u>		Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.rileyco.nz					IANI	J AU	GEF	K LU	J
Project No.	:	Pr	oject name:		Pro	oject Locat	tion:				No.:	
240065		Ru	ssell Road, Silverdale		Ru	ssell Road	& Upper Orev	wa Road	l			
Date Auger			Client:			le Location					HA16	50
17 Dec 202			Vineway Ltd				Dwg 240065					
Ground Lev RL 42.4m	vei:		Co-ordinates: E1747399.3, N5949468.6		I e L 0 m	Depth:	Reason Te Target Dep		d:	Sheet 1 of 1	:: Si	atus: FINAL
1 42.4111				1 3.0	_	!	Target Dep	uı		1 01 1		
Elevation (m) Depth (m)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (200 Refer to "Geotechnical and Geological Inform sheet for explanation of legend and abbrevia	nation"	Water / Moisture	Samples	Soil She Strength (kPa) ● Peak	Scala Penetrom (blows/0r	nm)	In Situ Testing Data/Res	ງ ເ
42.30 0.10) D O (TS W.	SILT; with some sand; with minor rootlets; with trace c		<u>≯</u>		50 100 15	0 200	5 10	15		م م
+		××. × ×× ×	brown. Very stiff; dry; non-plastic; [TOPSOIL].	/								7
42.0		× × × × × × × × × × × × × × × × × × ×	SILT; with some clay; with trace sand and rootlets and dark brown with brownish orange streaks. Gravel, sub 15mm. Very stiff; moist; medium plasticity; [EAST CO/BAYS FORMATION].	angular,			Δ	•			V= V R=	179 _{0.5} 74
41.50 0.90		× × ×	0.30m: Grades to gravel absent.									1
41.50 0.90		× × × × × × × × ×	SILT; with some clay; with minor sand; light grey with l brownish orange streaks, Stiff to very stiff; moist; medi plasticity.	light lium			Δ •				V=	142 _ 68 _ -
41.0		*	1.50m: Becomes stiff.				Δ •				V= V= R=	89 - 37 -
40.50 1.90	RMATION	*	1.80m: Grades to light grey with dark brown streaks. SILT; with some clay; with minor sand; with trace grav grey and brownish orange with dark brown streaks. St low plasticity to medium plasticity; gravel; subangular l	tiff; moist;			A •				V= VR=	87 - 31 -
2.40	BAY	× × × × × × × × × × × × × × × ×	Clayey SILT; with minor sand; light grey with dark brov streaks. Stiff; moist; medium plasticity to high plasticity		М		Δ •				V= V R=	89 - 29 -
39.5 39.40 30.3.00	EAST COAST	× × × × × × × × × × × ×	Silty CLAY; with minor sand; light grey with dark brown streaks. Stiff; moist; high plasticity.	n			Δ •				V= VR=	79 - 29 -
39.0		× × × × ×	3.50m - 3.60m: Grades to trace gravel; subangular to subrounded; 5mm.				Δ •				V= V R=	95 3.5 36 -
38.5 38.35 4.0 4.05		× × ×	Silty SAND; brownish orange mottled black. Loose to dense; moist; non-plastic.	medium			Δ.				V= V R=	61 _{4.0} 32 –
38.0 4.5		× × ×	4.10m: Grades to silty clay; medium plasticity.		•		Δ. •				∨ V= ∀ R=	73 - 39 -
37.50 4.90 37.5 5.00		×.^×	SILT; with some clay and sand; light brownish grey. Vo	erv stiff:							V=	131_50
37.0			moist; medium plasticity. END OF HOLE: 5.00m(Target Depth)	/							R=	5.5
36.5 6.0												- 6.0 - -
36.0												6.5
35.5												-
						——————————————————————————————————————	<u> </u>	:		<u>: L</u>		1
Explanations Standing Water Level Out-flow In-flow Moisture: M = moist W = wet S = saturated	▼ Sca Ra vunl Va V =	ala Penei w data in ess rema ne Shear = Peak, R	gical and Geotechnical Information* sheet for further details. trometer Tests blows per 50mm rks state otherwise Peat Silt Strength (kPa) Residual Strength (kPa) Croe Loss Gravel	Bento Grou Drill a	/con	1. Ha 2. Gro	narks nd auger at 132 oundwater encou			y 4.35mB	GL after drilli	ng.
All dimensi	ons ir	n metro	S Contractor (if applicable):	Instrum	ent	Details:		Shear	Vane No.:	Logge	d By: Che	cked By:

Hand Auger 50 mm

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: Russell Road, Silverdale Russell Road & Upper Orewa Road 240065 **HA161** Date Augered: Client: Hole Location: 17 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK121 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 28.8m 5.00 m FINAL E1747369.6, N5949565.3 Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Samples Testing (blows/50mm) Refer to "Geotechnical and Geological Information" Water/ Data/Results △ Residual • Peak sheet for explanation of legend and abbreviations 50 100 150 200 10 SILT; with minor clay and sand and rootlets; dark brown. Very stiff; dry; low plasticity; [TOPSOIL]. D 28.50 28.40 Silty fine SAND; with trace rootlets; brownish orange. Medium dense; dry; non-plastic. V=204 R=68 Sandy SILT; with trace rootlets; light brownish grey mottled light grey. Very stiff; moist; non-plastic; [EAST COAST BAYS FORMATION]. 28.20 28.00 0.50m: Becomes hard. SILT; with some clay; with trace sand; light grey with brownish orange streaks. Hard; moist; low plasticity to medium plasticity. V=200 R=92 27.60 27.5 Clayey SILT; with trace sand; brownish orange with light grey streaks. Hard; moist; medium plasticity. SILT; with some clay; with trace sand and gravel; light grey with dark brownish orange streaks. Hard; moist; medium plasticity; gravel; subangular to subrounded; 5mm. V=226+1.5. 27.0 V=223 R=95 Clayey SILT; with trace sand; brownish orange with light grey ×× streaks. Very stiff; moist; medium plasticity. V=186 R=97 2.50m: Becomes very stiff. COASTE Silty CLAY; with trace sand; brownish orange with light grey 26.0 streaks. Very stiff; moist; high plasticity. EAST V=126 3.00m - 3.10m: Grades to light grey with brownish orange streaks V=113 _{3.} R=71 3.60m: Grades to minor fine to medium sand. V=97 R=57 4.00m: Grades to light grey, stiff. V=95 R=50 0, 1, 1 0, 1, 2 1, 2, 3 END OF HOLE: 5.00m (Target Depth) 23.5 5, 5, 3 5, 5, 6 6, 6, 5 6, 7, 7 23.0_ 8, 7, 9 6, 8, 7 8, 7, 9 9, 8, 9 22.0 Explanations: Refer to "Geological and Geotechnical Information" sheet for further details Standing Water Level 1. Hand auger at 132 Upper Orewa Road. Scala Penetrometer Tests 2. Groundwater encountered at approximately 4.9mBGL after drilling. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete > In-flow Moisture: Vane Shear Strength (kPa) Drill arisings M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

Hand Auger 50 mm

SRO

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HAND AUGER LOG

			Ph: 03.379.4402 E: www.rileychch.co.nz	Ph: 09.489.7872 E: www.riley.co.n	z					11/31		UUL	-1 \		
Project No.:		Pro	ject name:			Pro	oject l	Locati	on:				1	lo.:	
240065			ssell Road, Silverdale						- ' '	Orewa Ro	ad		ЦΛ	162	
Date Augere		- 1	Client: Vineway Ltd					cation Riley I		065-SK12	1		ПР	162	
Ground Lev			Co-ordinates:		Н		Depth	<u> </u>		n Termina		Sh	eet:	Status:	
RL 25.2m			E1747307.6, N	5949570.1	3.	.85 n	n		Refusa	I		1 c	f 1	FINA	.L
Elevation (m) Depth (m)	Geological Unit	Legend	Geological D In accordance with NZG Refer to "Geotechnical and sheet for explanation of leg	SS Guidelines (20 Geological Infor	mation"	Water / Moisture	Sam		Stren △ Residu	I Shear gth (kPa) al ● Peak	Pene	cala trometer s/50mm)	T-	n Situ esting @ I/Results	Backfill / Install
24.85.0 0.25	<u>₽</u> 0 ™	TS TS	SILT; with minor clay sand and ro moist; non-plastic to low plasticity	; [TOPSOIL].											
24.5	× × ×	× × × × × × × × × × × × × × × × × × ×	Clayey SILT; with trace sand and brownish orange with grey streak [EAST COAST BAYS FORMATIO 0.50m: Grades to brownish orang	s. Stiff; most; high p DN].	olasticity;				A	•				V=118 _{0.5} R=49	- - - - - - -
24.00 1.20	×	×	Silty CLAY; with trace sand; brow streaks. Stiff; moist; medium plas Silty CLAY; with some sand; with	ticity.		_			A •					R=29	
23.5 23.40 1.80	* X X	×	orange mixed light grey. Very stiff fine to medium; gravel; subangula 1.50m: Becomes very stiff.	f; moist; high plastic	ity; sand				Δ	•				V=104 R=24	- - - -
23.20 2.00	AST BAYS F	× × × × × × × × × × × × × × × × × × ×	Clayey SILT; with minor sand; lig Very stiff; moist; medium plasticit Clayey SILT; with trace sand; dar medium plasticity to high plasticit	y to high plasticity. k grey. Very stiff; m		M			Δ	•				V=144 R=18	- - -
2.5	_ ×	× × × × × × × × × × × × × × × × × × ×	2.50m: Grades to light grey; stiff.						Δ •					V=78 R=26	- - - -
3.0	× ×	× × × × × × × × × × × × × × × × × × ×	3.00m - 3.15m: Core loss, no reco	overy.					Δ	•				V=99 R=29	
3.5	× ×	× × ×	3.50m: Becomes hard.											✓ UTP 3.5.	- - - -
21.5 - 3.85		× × ×	3.60m: Grades to minor sand. END OF HOLE: 3.85m (Refusal))							•.2 •.4	- 0	2, 4, 9	4.0_	1
21.0												9.40	9, 10, 17 17, 20 17, 20		
4.5														4.5-	-
5.0														5.0-	
20.0															
19.5														5.5=	-
6.0														6.0_	
19.0															-
18.5														6.5_	-
ŦI														,	-
Explanations: Standing Water Level Out-flow In-flow Moisture: M = moist W = wet S = saturated	▼ Scala Raw vunles Vane V = F	a Penetro data in b s remark Shear S Peak, R	ometer Tests lows per 50mm ks state otherwise Etrength (kPa) Residual e To Penetrate Topsoil	Clay Silt Sand	Gro	ntonite out/cor I arisir er san	ncrete	2. Gro 3. Bou	d auger at undwater o ncing reco	t 132 Upper (encountered orded for scal a from 4.2mE	at approxir a measure	nately 2.3r ments fron			
All dimension			S Contractor (if applical	ble):	Instrum					1	r Vane N	-	ged By:	Checked SRO	-

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HAND AUGER LOG

E: www.rileychch.co.nz E: www.riley.co.nz Project No.: Project Location: No.: Project name: 240065 Russell Road, Silverdale Russell Road & Upper Orewa Road **HA163** Date Augered: Client: Hole Location: 17 Dec 2024 Vineway Ltd Refer to Riley Dwg 240065-SK121 Ground Level: Co-ordinates: Hole Depth: Sheet: Status: **Reason Terminated:** RL 31.1m E1747253.7, N5949547.3 5.00 m FINAL Target Depth 1 of 1 **Geological Description** Geological Unit Soil Shear Elevation (m) Scala Depth (m) Legend In Situ Strength (kPa) Penetrometer In accordance with NZGS Guidelines (2005) Testing Samples (blows/50mm) Refer to "Geotechnical and Geological Information" Data/Results Water/ △ Residual • Peak sheet for explanation of legend and abbreviations 100 150 200 50 10 SILT; with some clay; with trace sand and rootlets; dark brown. Very stiff; moist; low plasticity; [TOPSOIL]. TS Sitty CLAY; with trace sand; orange with grey streaks. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. V=107 R=23 30.5 R=37 V=116 R=38 V=83 R=37 2.00m: Becomes stiff. BAYS FORMATION V=115 R=26 2.50m: Becomes very stiff. COAST V=101 V=137 ¥ R=34 3.90m - 4.10m: Grades to orange; wet. √ V=214+4.0-27.00 Silty CLAY; dark grey. Hard; wet; high plasticity. W V=214+4 12, 14, 14 END OF HOLE: 5.00m (Target Depth) 20, 20, 20 Remarks Explanations: Refer to "Geological and Geotechnical Information" sheet for further details 1. Hand auger at 132 Upper Orewa Road. Standing Water Level Scala Penetrometer Tests 2. Groundwater encountered at approximately 3.6mBGL after drilling.
3. Scala raw data from 5.15mBGL is 24 and 23 blows per 50mm.
4. Scala raw data from 5.25mBGL is 20 blows for 30mm. Topsoil Raw data in blows per 50mm ← Out-flow unless remarks state otherwise Silt Grout/concrete ├─ In-flow Moisture: Vane Shear Strength (kPa) M = moist W = wet V = Peak, R = Residual UTP = Unable To Penetrate Core Loss Gravel S = saturated Contractor (if applicable): Instrument Details: Shear Vane No.: Logged By: Checked By: All dimensions in metres

NOT TO SCALE

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4 Fred Thomas Drive Takapuna AUCKLAND 0622

HAND AUGER LOG

C I			Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.r					"	AII						
Project No	·.:	Pr	oject name:			oject l							N	lo.:	
240065		Ru	ussell Road, Silverdale					& Upper Orev	va Road	t				404	
Date Auge 17 Dec 202			Client:			ole Loc			01/404				HA	164	
Ground Le			Vineway Ltd Co-ordinates:	H		Depth:		Dwg 240065- Reason Te		.d.		Shee	et:	Status:	
RL 41.7m			E1747173.9, N5949505.1		50 r	•	•	Refusal				1 of		FINAL	L
5 3	<u></u>		Geological Description		an			Soil She	or	Ι.,	Scala			•	国
Elevation (m) Depth (m)	Geological Unit	Legend	In accordance with NZGS Guidelines (2	(005)	Water / Moisture	Sam	nles	Strength (Pene	etrome			n Situ esting	Backfill / Install
Elev (r	Seol	Leg	Refer to "Geotechnical and Geological Info		ater /	Joann	pioo	∆ Residual ●	Peak	(blov	vs/50r	nm)		Results	ackfill
		TS _W W,	SILT; with trace clay and sand and rootlets; dark bro		Š			50 100 15 : : :	200	5 :	10	15		<u>0</u>	- B
41.50 0.20	<u>S</u> S –	**************************************	moist; low plasticity; [TOPSOIL].											-	1
41.20 0.51	0	× ×	Sandy SILT; brownish orange. Very stiff; moist; non- [EAST COAST BAYS FORMATION].	-plastic;										\/-127 -	1
0.5		× × ×	Silty CLAY; orange with grey streaks. Very stiff; mois	st; high	1			Δ •						V=127 _{0.5} R=44	1
41.0			plasticity.											-	
1.0		×												V=122 _{1.0}	
40.5														R=52	
Ŧ		×												-	-
1.5		<u>×</u> _×						Δ •						V=121 _{1.5}	1
40.0	l _	×			М									-	1
‡	NOIT	×	1 1 00 2 50 0 0 0 0 0 0 0 0 0-											\/-125	1
+ 2.0	JR MA	× ×	1.90m - 3.50m: Grades to trace sand.					A •						V=125 _{2.0} R=49	1
39.5	YSF	×												-	1
2.5	T BA	××						Δ .						V=79 R=29 ^{2.5}	
39.0	COAS	×	2.50m: Becomes stiff.											K=29 -	_
1	EAST COAST BAYS FORMATION	<u>×</u>												-	
3.0	"	× ×						Δ •						V=63 R=20 3.0_	-
38.5		×												-	-
38.20 3.5	0	××												V=136 _{3.5}	-
38.0		× × ×	Sandy SILT; orange. Very stiff; wet; non-plastic.			1		A						R=29 3.5_	-
37.90 3.8	0	× × ×	Clayey SILT; with trace sand; dark grey. Very stiff to	hard wet	$\frac{1}{2}$									-	1
4.0		× × ×	low plastticity.		w				•					√ V=214+4.0	1
37.5		× × ×												-	1
37.20	0	× × ×			¥									-	-
+ *.5			END OF HOLE: 4.50m (Refusal)									20	▼ ₂₀	- UTP4.5- -	Τ
37.0														-	-
5.0														5.0_	1
36.5														-	1
‡														-	1
5.5														5.5_	1
36.0														-	1
6.0														6.0_	1
35.5														-	
‡														-	
6.5														6.5_	
35.0														-	
+														-	1
	S: Refe	r to "Geolo	ogical and Geotechnical Information" sheet for further details.				Rem		Inna" O	owe D.	od				
Standing Water Leve	4		trometer Tests a blows per 50mm Topsoil Clay	Ben	tonite	e	2. Gro	nd auger at 132 oundwater encou	ntered at	approxi	imately				
Out-flow In-flow			arks state otherwise Peat Silt	Grou	ut/co	ncrete	record	ala raw data from ded.	4.3UMB(JL 15 3U	SWOIL	101 001	ııııı and l	ounding	
Moisture: M = moist			r Strength (kPa) Fill Sand	Drill	arisi	ngs									
W = wet S = saturated			ble To Penetrate Core Loss Gravel	Filte	r sar	nd									
All dimens	ions i	n metro	es Contractor (if applicable):	Instrum	nent	Detail	s:		Shear	Vane I	No.:	Logg	ed By:	Checked	By:
NOT T			N/A	Hand A	uge	er 50 m	nm		VANE	1051		JI/	1AC	SRO	

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HAND AUGER LOG

			Ph: 03.379.4402 Ph: 09.489.7872 E: www.rileychch.co.nz E: www.riley.co.nz								
Project No	.:		oject name:		-	Locati				No.:	_
240065		Ru	ssell Road, Silverdale				Upper Orewa Road	l	1	LIAACE	
Date Auge 17 Dec 202			Client: Vineway Ltd	- 1		cation:	: Dwg 240065-SK121			HA165	
Ground Le			Co-ordinates:		Depth		Reason Terminate	ed:	Shee	et: Status:	
RL 57.8m			E1747178.5, N5949409.5	4.80 ı	-	İ	Refusal		1 of	ŀ	_
Elevation (m)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information sheet for explanation of legend and abbreviations		Sam		Soil Shear Strength (kPa) A Residual • Peak 50 100 150 200	Scala Penetrom (blows/50	eter	In Situ Testing (a) Data/Results	Backfill / Install
57.60 0.20	POS J	TS W	SILT; with some clay; with trace sand and rootlets; dark brow Firm; moist; low plasticity; [TOPSOIL].	_						-	
57.5 0.5 57.0 56.70 1.10		× × × ×	Silty CLAY; brownish orange. Very stiff; moist; high plasticity [EAST COAST BAYS FORMATION].				A •			V=134 0.5— R=47	
56.5	BAYS FORMATION	× × × × × × × × × × × × × × × × × × ×	Clayey SILT; with trace sand; orange with grey streaks. Very stiff; moist; high plasticity. 1.50m: Becomes stiff.	M			A •			V=73 1.5_ R=18 1.5_ V=69 2.0_	
2.5	T BAY	× × × :					Δ •			V=67 R=27 -	1
55.10 2.70 55.00 2.80	COAST	×××× ××××	SILT; with trace sand; dark brown. Stiff; wet; low plasticity.		1					-	1
3.0	EAST	× × × × × × × × × × × × × × × × × × ×	Clayey SILT; with trace sand; grey with orange streaks. Stiff wet; low plasticity. 3.30m: Grades to dark grey.				Δ •			V=87 3.0— R=57 — - - - V=183 3.5— R=57 3.6—	
Ŧ		× × × ×	3.50m: Becomes very stiff.	▼			•			R=57	
54.0		* * * * * * * * * * * * * * * * * * *	3.80m: Grades to some sand. 4.50m: Becomes hard.	w			A		20 20 20	v20, 20, 20 V=188 4.0 − − − − − − − − − − − − − − − − − − −	-
53.0			END OF HOLE: 4.80m (Refusal)								
52.5 52.0 6.0 51.5 6.5 51.0 Explanation Standing Water Leve Out-flow In-flow Moisture: M = moist	l v Sc Ra un Va	ala Penet w data in less rema ne Shear	blows per 50mm urks state otherwise Peat Silt	Bentonite Grout/co Drill arisi	ncrete	2. Grou 3. Scal	d auger at 132 Upper Or indwater encountered at a raw data from 3.8mBG a raw data from 3.9m0m	approximately L is 21 and 26	blows	per 50mm.	
W = wet S = saturated	UT	P = Unab	ole To Penetrate Core Loss Gravel	Filter sar	nd						
All dimone			Contractor (if applicable): Inst	rument	t Detail	ls.	Shear	Vane No ·	Logg	ed By: Checked I	37.

Hand Auger 50 mm

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MACHINE HOLE LOG

	(П	Ш					03.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz	:		1417-4	0				•	
ı	-	t No.	:			ect N				ject Locati					l	No.:	
	0065 ent:				Rus	sell R	oad, S	Silverdale Start Date: 06 Dec 2024		sell Road 8 e Location		Orewa F	Road		N/I	H01	
l .		y Ltc	i					End Date: 00 Dec 2024		er to Riley [)65-SK	111		IVI	1101	
Co	-ord	linate	es:					Ground Level (m):		Depth (m):	Inclina		Azim	uth:	Sheet:	Status	:
	E '	1748	082.0), N 5	9496	23.0		33.4 m		12.00	-90)°		N/A	1 of 3	FINA	AL.
(E)	(n	-		TCR	Core	Unit	_	Geological Description	ring	Field	ű	cing	bolic		Description	In-Situ	_ E
Elevation (m)	Depth (m)	Method	Box	(SCR) RQD (%)	Loss (%)	gice	Legend	In accordance with NZGS Guidelines (200 refer to appended Information sheet and abbreviation explanation	Me Me	Strength Soil Rock	Samples	Defect Spacing (mm)	Defect Symbolic Log	Guidelines appende sheet and	nce with NZGS (2005); refer to d Information I abbreviation lanation	Testing Data / Results	Backfill / Installation
33.15	- 0.25		0.00				\otimes	Organic SILT, with some sand; brown mottled orange. Very stiff; moist. [FILL]	88 W H H W W W W W W W W W W W W W W W W	50 C 00 5 7 - 2 - 1							
33.0 <u>—</u> 32.90	0.50 -0.5			80 - -	20			SILT, with some clay, with minor gravel, with trace organics; brown and grey. Very stiff; moist; rootlets; [FILL].	, 							0.5	
32.80	0.60	cored					<u> </u>	Clayey SILT, with trace organics; grey. Stiff; moist; rootlets; [FILL].	_/								
32.5_	-	Rotary	0.75				C/L	CORE LOSS.									
-	_ 1.0	Ř		46			C/L									1.0 .	
32.25	1.15			-	54	1	×	Silty CLAY; light grey mottled orange and	-								
32.0_	-						×_	black. Stiff; moist; [HUKERENUI MUDSTONE].									
-	_ 1.5 _	Lc.	1.50				×									0, 0 / 0, 0 1, 1	1
-	-	situ SPT test			100)	×_									N=2	
31.45	- 1.95 - 2.0	<u>=</u>	1.95		.			CORE LOSS.	_							V 2.0.	
31.20	- 2.20		1.00				C/L	CORE LOSS.								2.0	
31.10	2.30	cored						CLAY, with some silt, with minor gravel; brownish grey. Stiff; saturated; gravel,									136
31.0_	_ 2.5	Rotary co		76 - -	24	1		Extremely weak mudstone, pervaisively sheared.	_							2.5	1318
-	-	Rot				NO.		Slightly weathered; light grey; MUDSTONE; extremely weak to very weak, pervasively sheared, polished									
30.5	-					CHTH		surfaces.									₩
-	- 3.0		3.00	-		HLAND ALLOCHTHON										4, 7 / 7, 10, 11, 12	₩
-	-	situ SPT test		66 - -	34											N=40	
30.0-	- 3.5	<u>=</u>	3.45			NORT		2.45 4.20 Esternalismanis								V 3.5.	
-	- 5.5		0.40					3.45m - 4.20m: Extremely weak.								3.3	
-	-	red															
29.5_	- - 4.0	tary cor		100												4.0 .	***
29.20	4.20	Rota															
29.10	4.30						×	Extremely weak sheared zone, Silty CLA' light grey. Firm; saturated.	_/								₩
-	4 .5	<u> </u>	4.50					Slightly weathered; light grey streaked red MUDSTONE; extremely weak to very weak, pervasively sheared, clay shales.	d;							4, 6 / 6, 6	<u> </u>
-	-	situ SPT test		100	1			, ,								8, 9 N=29	300
28.5	-	s L	105													V	1000 2000
-	- 5.0	cored	4.95	100												5.0 .	
-	-	Rotary c		-	10												100
28.0_	-	S.											John				\$. \$.
								cal Information" sheet for further details.	Backfill:	11	narks: 3 Russell Ro	oad.					
▼	initial Level Out flo	Water	И	(SPT)		cone (C		Topsoil Clay	Bentonite		e was drille		core ba	rrel.			
<u> </u>	In flow	/	٧	No Fill	= Split	spoon	(S)		Grout/cond								
M =	sture mois wet			V = Pea UTP =	ak, R = Unable	Residu to pen	al etrate	DOMESTIC STATE OF THE PARTY OF	Drill arising Filter sand	IS							
	satur					Penetro		on and							r.	1	
LΔII	dim	onei	one	in ma	atrae	∣ Dri	IIina C	Contractor:	ı Drillin	g Rig ID:		l Dri	ller:		Logged By	ı: Checked	ı Bv:

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	-	t No.	:			•	t Na				ject Locati					I	No.:	
	0065 ent :				Rus	ssel	II Ko	ad, S	Silverdale Start Date: 06 Dec 2024		sell Road 8 e Location)rewa l	Road		М	H01	
		y Ltc	d						End Date:		er to Riley [65-SK	111				
Со		inate			0.40			7	Ground Level (m):		Depth (m):	Inclinat		Azimı		Sheet:	Status	
	E 1	1748	082.0), N 5	949	$\overline{}$			33.4 m	<u> </u>	12.00	-90		_	N/A	2 of 3	FINA	AL.
(E)	<u>س</u>	р	ر	TCR	Cor	e	Geological Unit	рı	Geological Description	Weathering	Field	es	Defect Spacing (mm)	Defect Symbolic Log		Description nce with NZGS	In-Situ	_ io
Elevation (m)	Depth (m)	Method	Run	(SCR) RQD	Los (%)	s	logica	Legend	In accordance with NZGS Guidelines (200 refer to appended Information sheet and	5); eath	Strength	Samples	(mm)	ct Syr Log	Guidelines appende	(2005); refer to d Information	Testing Data /	Backfill / Installation
Ele	Ŏ	~	Box No.	(%)	(70)		Geo	_	abbreviation explanation	89 # W W W	Soil Rock	S	Defe	Defe		l abbreviation lanation	Results	=
_	-	cored		400					5.45m: Sheared zone: clay infil 1 - 2mm thick, polished surface 20°.					-	5.45m - CZ Smooth, Cla	: 20°, Planar, ay Infill, 1-2mm		o
27.60	5.80	ary cc		100		0												10,5
27.5_		Rotary							Slightly weathered; light grey streaked black and red; MUDSTONE; extremely									
-	- 6.0	占	6.00	100					weak to very weak, pervasively sheared.								6, 7 / 9, 12, 17, 12	
-	-	situ SPT test		-		0											for 35mm N=50+	
27.0_	-	<u>=</u>					z		6.40m - 7.20m: Extremely weak.								V	0.5
-	- 6.5		6.45				4 H		Strom Tizonii Zixionioly Ilounii								6.5	
-	-	_					FOCI											₩
26.5_	-	cored		100			NORTHLAND ALLOCHTHON											***
-	7.0	Rotary		-		10	THLA										7.0	₩
-	-	ŭ					NOR											
26.0	-																	1
-	- 7.5	ite	7.50	100													2, 16 / 50	-
25.75	7.65	In situ SPT test	7.71	-		0			Slightly weathered; dark grey;								for 55mm N=50+	
25.5_	-								SANDSTONE; very weak, well cemented fine to medium sand. Interbedded with, Slightly weathered SILTSTONE, dark gre							10°, Planar,		1
-	8.0								very weak. [EAST COAST BAYS FORMATION]	y,				/		60°, Planar,	8.0	
-	-	p _e				L									Rough, No I 8.07m - JT: Smooth, No	15°, Planar,		
25.0_	-	y cored		100 - 53		0								<u> </u>	8.20m - BP: 8.30m - BP:			
-	8.5	Rotary															8.5]
-	-													, ,	8.58m - BP:			
24.5_	-													//_	Smooth, Cla	10°, Planar, ay 45°, Planar,		-
24.5-	- 9.0	s S ⊢	9.00		10	10									Smooth, No		17, 33 foi]
-	-	<u> </u>	9.12	-	::"		NO O										40mm Nc=50+	1
-	-						FORMATION							~~~	9.25m - CZ	:50mm		-
24.0 _ 23.90	9.50 9.5						'S FO							//_	Smooth, No		9.5	1
-	-						T BAYS		Unweathered; dark grey; SANDSTONE; weak, well cemented, fine to medium sand.						9.50m - JT: Smooth, No	50°, Planar, Infill		
-	-	_		100 - 90		0	COAST											- 13
23.5_	_10.0	cored					EAST										10.0	1
-	-	Rotary					ш											
-	-	Ä													10. 20m - JT Undulating,	: 70° - 90°, Smooth, No Infill]
23.0_	_10.5		10.50														10.5	
-	-		10.50	100														-
-	-			- 60		0								//_		Smooth, No Infill		1
22.5_	-														10.80m - JT Smooth, No	: 70°, Planar, Infill		
				er to "G	eologi	ical a	nd Ged	otechni	ical Information" sheet for further details.	Backfill:	11	narks: B Russell Ro	ad					
▼ 1	evel	Water	14	Standa (SPT)				Test	Ts a Topsoil	Bentonite		e was drilled) core bai	rrel.			
	Out flo n flow			Filled = No Fill				S)	Peat Silt	Grout/conc	rete							
	sture moist		,	Vane S V = Pea	ak, R	= Re	esidua	I	Fill Sand	Drill arising	s							
W =	wet satura			UTP = PP = P					CAL Core Loss Gravel	Filter sand								
AII	مد:لم	onoi		!		_	Drill	ina C	Contractor:	Drilling	Ria ID:		Dr	iller:		Logged By	r Checker	d By:



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			XII.					03.379.4402 ww.rileychc		: 09.489.7872 www.riley.co.nz								_		
	-	t No.	:		_	ect Na					1 -	ject Loca						l	No.:	
	0065 ient:				Russ	sell Ro	oad, s	Silverdale St		06 Dec 2024		e Location		Upper Ore	ewa	Road		М	H01	
		y Ltd	i						nd Date:		1			wg 24006	5-SK	111				
Co		linate) N =	0406	22.0	'	Ground	Level (m): 33.4 m			Depth (m 12.00):	Inclination -90°	n:	Azimı		Sheet:	Status	
		17480	J82.C), N 3	9496	1	ᆜ	1 -			_	12.00	+				N/A	3 of 3	FINA	\ <u></u>
Elevation (m)	(m)	po	ш	TCR (SCR)	Core		pu	Ge	eological Des	scription	Weathering	Field Strengtl	h	les	Defect Spacing (mm)	Defect Symbolic Log	In accorda	Description nce with NZGS	In-Situ Testing	ill /
evatio	Depth (Method	Run	RQD (%)	Loss (%)	ologic	Legend	refer to	ance with NZGS appended Inform	nation sheet and	Neat	Soil Roc		Samples	fect S (mn	ect S	appende	(2005); refer to d Information d abbreviation	Data / Results	Backfill / Installation
ă			Box No.				ļ		abbreviation exp		89448	1874 1870 1870 1880 1880 1880 1880 1880		•,	<u> </u>	Def	ехр	lanation	results	
	- 1					FORMATION		SANDST	Unweathered; da ΓΟΝΕ; weak, well								10. 86m - BI			
	Ι.	D.				ORMA		to mediu	ım sand.								Smooth, No	: 5°, Planar, o Infill		1
22.0-	_ 11.5	/ core		100	10	BAYS F		:											11.5	
	-	Rotary cored		60		ST B/														-
		_				COAST]
21.5 <u>-</u> 21.40	12.00					EAST										//_	11. 92m - JT	: 60°, Planar,	12.0	
	-	SP T	12.00		100			END OF	HOLE: 12.00m (Target Depth)							····Smooth; No	o intill	8, 42 for 65mm	7
																			Nc=50+	1
21.0_	40.5																		12.5	1
	- 12.3																		12.5]
																				1
20.5-	-																			-
	—13.0 —																		13.0	1
	t l																			}
20.0]
	13.5																		13.5	1
																				-
19.5]
	14.0																		14.0	1
																				-
19.0-																				1
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	-																			-
18.5_																				1
	15.0																		15.0	┨
]
18.0																				1
	15.5																		15.5	┨
	Γ Ι]
17.5																				1
	_16.0																		16.0	-
																				1
17.0_																				1
	<u> </u>				L	<u> </u>	<u> </u>					 	 om	arks:	<u> </u>					
		ations Water				al and Ge etration		# # #	ion" sheet for furthe	P	Backfill:	1. 9	53B	Russell Road was drilled w) core has	rrel			
▼	Level Out flo	ow	0	(SPT) Filled =	= Solid	cone (C))	₩ ₩ ₩ ₩ 12		8888	Bentonite		· iole	, was unlieu W	ימו וחל	, core nai	101.			
	In flow isture		~ '	Vane S	hear S	spoon (trength (kPa)	Pea	1.20.20 500000	~	Grout/conci Orill arising:									
M = moist V = Peak, R = Residual W = wet UTP = Unable to penetrat							al trate	CO.	[300:02 [307:00]	N. C	ilter sand	-								
S = saturated PP = Pocket Penetromete								CR.		63.44										
ΑI	dim	ensi	ons	in me	etres	Drill	ling (Contracto	or:		Drilling	Rig ID:			Dr	iller:		Logged By	Checked	d By:



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	-	t No.	:		•	ect Na				ject Locati					1	No.:	
	0065 ent:				Russ	ell Ro	oad, S	Silverdale Start Date: 10 Dec 2024		sell Road 8 Location		rewa F	Road		М	H02	
		y Ltc	d					End Date:	- 1	er to Riley [65-SK	111			1102	
Со		inate					(Ground Level (m):		Depth (m):	Inclinat		Azimı		Sheet:	Status	
	E.	1/4/	958.0), N 5	94968		ᆜ	43.5 m		2.00	-90		_	N/A	1 of 3	FINA	L
(E)	Œ	þ	ر	TCR	Core	Geological Unit	þ	Geological Description	Weathering	Field	es	Defect Spacing (mm)	Defect Symbolic Log		Description nce with NZGS	In-Situ	_ ioi
Elevation (m)	Depth (Method	Run	(SCR) RQD	Loss (%)	logica	Legend	In accordance with NZGS Guidelines (2005 refer to appended Information sheet and	eath (e	Strength .	Samples	ct Sp (mm)	ct Syr Log	Guidelines appende	(2005); refer to d Information	Testing Data /	Backfill /
Ele	ŏ	~	Box No.	(%)	(70)	Geo		abbreviation explanation	80 HW W W W	Soil Rock	S	Defe	Defe		d abbreviation lanation	Results	ء "ا
43.30	0.20		0.00			TOPSOIL	TS TS	SILT, with some sand; brown. Firm; moist low plasticity; trace rootlets. [TOPSOIL].									
43.30	- 0.20					한	×××	*	-1								
43.00 43.0	0.50 -0.5 -						× × ×	Firm; moist; medium plasticity; [EAST								0.5 -	
- 43.0-	-0.5	cored					××, × ×	SILT, with some clay and sand; brownish orange. Firm; moist; low plasticity.	-1							0.5 -	
-	-	ry co		100	:0		× × ×	×									
-	-	Rotary					×x×]									░
42.5_	- 1.0						× × ×	; ,								1.0 -	
-	-						(××	×									3.5
-	-						^× × ×										0
42.0_	1.5	<u>_</u>	1.50				× × ×	* *								1, 1 / 1, 1, 1, 1, 1, 2	100
-	-	n situ SP ⁻ test		66	34		×××									N=5	
-	-	ln si					× × ;									\bigvee	300
41.5_	- 2.0		1.95				* × ×	× 2.00m: With minor gravel; gravel, fine to								2.0 -	
-	-						××	coarse, completely weathered, reddish brown sandstone.									
-	-	cored		100			× ×	A A									
41.0_	2.5	Rotary o		-	10	NOIT	×××									2.5 -	
-	-	Rot				RMA	× × ×	}									Ho
40.70	2.80					COAST BAYS FORMATION	× × ×	Clayey SILT, with minor sand; light	::::::								
40.50 - 40.5	3.00 _3.0		3.00			STBA	× ×	brownish orange; high plasticity. CORE LOSS.								0, 1 / 1, 1,	
-	-	situ SPT test		0		COAS	C/l									1, 1 N=4	
-	-	In situ S test		-	100	EAST	C/L	L								()	138
40.05	3.45 3.5	_	3.45				C/L × × >	Clayey SILT, with minor sand; brownish	-							3.5	
39.85	3.65						× ×	×									168
-	-	pe.					×	Sandy SILT, with minor clay; pinkish red. Firm; moist; low plasticity.									
39.5	4.0	y cored		100	;0		××									4.0 -	l j
39.40 39.30	4.10	Rotary					×	CLAY, with some silt; pinkish grey. Soft;	-								
_	-						××, ××	moist; high plasticity. SILT, with some clay, with minor sand;	_								H,
39.00 39.00	4.50 4.5						× ×,	pinkish grey. Soft; moist; low plasticity.								4.5	
-	-	SPT	4.50	0			C/L C/l	CORE LOSS.								0, 0 / 0, 0	.
-	-	In situ SP test		-	100		:/L [/l									N=1	
38.55	4.95 5.0	드	4.95				c/I	OUT with a second or with a six a second	_							V	
-	-	ored	4.55	100			××× ××	SILT, with some clay, with minor sand; orange and pink. Soft; moist; low plasticity	.							5.0	
38.30	5.20	ary cor		-	0		× ^ .>	Sandy SILT, with some clay, with trace									
-	-	Rotary					×	gravel; brownish orange mottled pink. Firm; moist; low plasticity; gravel, fine to									
Ex	olana	itions	: Ref	er to "G	eologica	l and Ge	otechni	ical Information" sheet for further details.	Backfill:	11	narks:	1	<u> </u>	ı			101155
		Water	п		ard Pene			##I	Bentonite		Russell Ro e was drilled		core bar	rel.			
4	Out flo n flow		<i>(</i>)	Filled =	= Solid o				Grout/conc	rete							
Moi	sture	:	~ '	Vane S	hear St	rength ((kPa)	Fill Sand	Orill arising	s							
W =	moist wet satura			UTP =	ak, R = l Unable ocket P	to pene	trate	Core Loss Gravel F	ilter sand								
								Contractor:	Drilling	Rig ID:		De:	ller:		Logged By	Chacker	P
ΛII	dim	one:	one i	ın ma	atroc	ווזטיי	mu C	JUNIAGIUI.		i KIU IU:		ı Dr	ner:		. Louden BV	- checked	י עם י



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4 Fred Thomas Drive Takapuna AUCKLAND 0622

MACHINE HOLE LOG

								3.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz	:								
	-	t No.	:		•	ect N		,		ject Locati					ı	No.:	\neg
	0065 ent :				Rus	sell Ro	oad, S	ilverdale Start Date: 10 Dec 2024	_	ssell Road &	& Upper Ore	ewa R	load		M	H02	
		ay Lto	b					End Date:			 Dwg 24006:	5-SK1	11		1411	1102	
Со		linate					0	Fround Level (m):	l .	Depth (m):	Inclination	n:	Azimu		Sheet:	Status:	\Box
_	E	1/4/	958.0 I	J, N 5	59496 T	1	\perp	43.5 m		12.00	-90°			N/A	2 of 3	FINAL	늭
Elevation (m)	Depth (m)	Method	Box No.	TCR (SCR) RQD (%)	Core Loss (%)		Legend	Geological Description In accordance with NZGS Guidelines (200 refer to appended Information sheet and abbreviation explanation		Field Strength Soil Rock	Samples	Defect Spacing (mm)	Defect Symbolic Log	In accordar Guidelines appended sheet and	Description nce with NZGS (2005); refer to d Information l abbreviation lanation	In-Situ Testing Data / Results	Backfill / Installation
-	-	Rotary cored		100	,c		× × × × × × × ×	coarse, angular, siltstone.								-°	O.00 % O.0
37.50 37.5 - - 37.05	6.00	In situ SPT test	6.00	0 -	100	,	C/L C/L C/L	CORE LOSS.								0, 0 / 0, 0, 0, 0, 1 N=1	00,00,000
37.0		cored	6.45	100			× × × × × × × × × × × × × × × × × × ×	Sandy SILT, with some clay, with trace gravel; brownish orange mottled pink. Firm; moist; low plasticity; gravel, fine to coarse, angular, siltstone. SILT, with some clay, with minor sand;								6.5 -	10000000000000000000000000000000000000
36.5_	- 7.0 - - - -	Rotary co			10)	× × × × × × × × × × × × × × × × × × ×	light brownish orange. Firm; moist; low plasticity.								7.0	
35.60	7.90	In situ SPT test	7.50	100 - -	Ç		× × × × × × × × × × × × × × × × × × ×	Silty fine to coarse SAND, with minor cla	c							1, 0 / 1, 1, 1, 2, 2 2, 2 N=6	* 0.00 ov 0.0
35.5	= 8.0 - - - = 8.5	Rotary cored	7.95	100	.00	EAST COAST BAYS FORMATION	× × × × × × × × × ×	grey; dilatant. Interbedded with, Laminated CLAY, typically 5cm thick layers; grey. Stiff; moist; high plasticity.	,							8.0	
34.5-	9.0 - 9.35 - 9.5	In situ SPT test	9.00	66	34		××××	Slightly weathered; grey; SILTSTONE; extremely weak to very weak. Interbedde	d							2, 4 / 7, - 5 10, 11, 22 N=50	3. 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0
33.70	9.80	Rotary cored		100 - 76	C)	**************************************	with, Slightly weathered; grey; SANDSTONE; extremely weak; well cemented. Unweathered; grey; SILTSTONE; weak. Interbedded with, Unweathered; grey; SANDSTONE; weak well cemented.						Planar, Smo	- BP: x 9, 5°, ooth	10.0	30.00.00.00.00.00.00.00.00.00.00.00.00.0
33.0_	- - -10.5	S d	10.50	0	100		×							Smooth, no	į	13, 37 for 5	10000 1000 11000 1000
- - -	-	Rotary cored	10.63	109 - 94	-9		×							Rough, no ir 10. 75m - BF Rough, no ir	P: 5°, Undulating,	Nc=50+ _	0.00000
Moi Moi W = S =	nitial Level Dut flow n flow sture mois wet satur	Water bw v i: it ated	ions	Standa (SPT) Filled = No Fill Vane S V = Pe UTP = PP = P	= Solid = Split Shear S ak, R = Unable locket F	cone (C spoon (trength Residua to pene Penetron	Test S) (kPa) al etrate neter	Peat Silt Silt Sand Sand	Backfill: Bentonite Grout/cond Drill arising Filter sand Drillin	1. 53 2. Ho crete	narks: B Russell Road le was drilled w	vith HQ	core bar	rel.	Logged By	Checked I	By:
	N	от то	o sc	ALE		Dril	lforce					Tha	arindu		ccus	SRO	İ



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Drillforce

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	<u></u>		Ш					03.379.4402 ww.rileychch.co.nz	Ph: 09.489 E: www.rile					•					
	-	t No.	:			-	lame:					ect Locati					ı	No.:	
	0065 ient:				Rus	ssell F	Road,	Silverdale Start Dat	e: 10 Dec	2024		sell Road 8 Location		Orewa I	Road		М	H02	
		ay Lto	t					End Date		2021	1	er to Riley I		065-SK	111			1102	
Co		linate			0.40			Ground Level (•			epth (m):	Inclina		Azim		Sheet:	Status	
	E '	1/4/	958.0), N 5	949	682.0	\perp		.5 m		_	2.00	-90	- '		N/A	3 of 3	FINA	AL.
Œ	(m)	þ	_	TCR	Cor	Geological Unit	Þ	Geologic	al Descripti	ion	Weathering	Field	es	Defect Spacing (mm)	Defect Symbolic Log		Description nce with NZGS	In-Situ	_ io
Elevation (m)	Depth (m)	Method	Run	(SCR) RQD (%)	Los (%)	s S	Legend	In accordance with refer to appende	NZGS Guidelin d Information sh	es (2005) neet and	/eath	Strength .	Samples	(mm)	ct Syr Log	Guidelines appende	(2005); refer to d Information	Testing Data /	Backfill / Installation
Ele	ă	_	Box No.	(%)	(70)	' ee	-	abbrevia	tion explanation	1	**************************************	Soil Rock	S	Defe	Defe		l abbreviation lanation	Results	<u>ء</u> س
	-					. NOI	×	[CONT] Unweathe weak. Interbedde	d with,							Rough, no ii	nfill, tight.		- ° ° °
		-				™¢BAYS FORMATION	×	Unweathered; gre well cemented.	y; SANDSTONE	E; weak;									0,5
	- 	cored		109		''''''	×												
32.0-	_11.5 _	Rotary		94		T BAY									<u> </u>	44 04 85	P: 5°, Undulating,	11.5	
	t l	ď				COAST	×	-								Rough, no ii			100
31,50	12.00					EAST													8,5
31.5	12.0	ഗ മ						END OF HOLE: 12	2.00m (Target D	Depth)								20, 30 for 22mm	-
	+																	Nc=50+	1
	F]
31.0-	_12.5																	12.5	1
	+																		-
	Ι Ι]
30.5-	_13.0																	13.0	1
	-																		-
																			1
30.0	13.5																	13.5	1
	-																		-
	‡																		1
29.5-	14.0																	14.0	1
	Ι Ι]
																			1
29.0-	14.5																	14.5	+
	Ī]
																			1
28.5	_15.0																	15.0	-
	‡																		1
	l l																		}
28.0-	15.5																	15.5	-
																			1
	+																		1
27.5	_16.0																	16.0]
																			1
	+																		-
	-																		1
	1262 - 1.3					ical and enetration		ical Information" sheet	for further details.	. B	ackfill:	1. 53	narks: B Russell Ro						
•	Initial Level Out flo		1	(SPT)		enetration d cone (Topsoil	Clay	××××	entonite		le was drille	a with HC	core ba	rrel.			
\triangleright	In flow	v	٧	No Fill	= Spl	it spoor Strengt	(S)	Peat	Silt		out/conci								
M:	isture mois wet		. ,	V = Pea UTP = I	ak, R Unabl	= Resid	ual netrate	Fill Core Loss	Sand	V.(ill arising:	s							
	satur	ated				Penetr		Core Loss	Gravel	e e	ter sand								
ΛI	مد:ام	!		in ma	4	Dr	illina (Contractor:			Drilling	Ria ID:		Dr	iller:		Logged By	Checker	l Rv



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	-	No.	:		•	ect N						ect Locati		> F	3			No.:	
	0065 ent:				Russ	sell R	oad, s	Silverdale Start D)ate: 28 No	v 2024		sell Road 8 Location		Jrewa F	koad		М	H03	
		y Ltd	ł					End Da			1	er to Riley [065-SK	114				
Со		inate		. N. T	0404	00.0		Ground Leve	l (m): 27.8 m			epth (m): 5.00	ŀ		Azimu		Sheet:	Status	
		748	101.0), N 5	9494	1		1			_	5.00	-90			N/A	1 of 3	FINA	I I
Elevation (m)	Depth (m)	Method	Box No.	TCR (SCR) RQD (%)	Core Loss (%)		Legend	In accordance w	vith NZGS Guideli ded Information s viation explanatio	nes (2005) heet and	Weathering	Field Strength Soil Rock Soil Rock Wallstrian	Samples	Defect Spacing (mm)	Defect Symbolic Log	In accordar Guidelines appende sheet and	Description nce with NZGS (2005); refer to d Information d abbreviation lanation	In-Situ Testing Data / Results	Backfill / Installation
27.75	0.05		0.00			TOPSOIL	TS ×××	Topsoil.	e fine sand and mi	inor clay:	1								
27.45							××× ×××	light grey mottl	ed orange. Very s		/								
27.40	- 0.5					COLLUVIUM	~~	SILT with some	clay and minor fi grey. Very stiff, d									V=156	
-				54		COLLI			ticity. [EAST COA									[∨] R=78 ^{0.5}	
27.0				-	46	,	<u> </u>	SILT with some	e clay and fine sar ery stiff, moist, low	nd; grey plasticity.	1								
1	- 1.0							CLAY with som	ne silt; orange mot	ttled light								V=139 _{1.0} . R=89	
+									st, high plasticity.									R=89	
26.5								_											400
	- 1.5							_										V=89	<u> </u>
-	1.50 80 20 20 20 20 20 20 20 20 20 20 20 20 20							-										R=44 1.5.	
26.0	- <u> 20</u>							-										0,1/0,1	
																		1, 1 Nc=3 _{2.0}	
-		80 2.5 Q 0						_											
25.5_		80 : 2.5 Q : 20						:											
	2.5	80 2.5 o						2.40m: Minor fi	ne to medium sar	nd.								V=58 × R=23	
-	-	Aotary open hole				z	<u> </u>	-										K=23	
25.0		у оре				MATIC]											
	3.0	Rotar	0.00			BAYS FORMATION												V=50 3.0	
-	-		3.00	88		BAY8		-										R=24 5.00	
24.5	3.40			-	12	l ĕ		-										0,0/0,0	
24.40	3.5		3.45		I ;;;.	EASTCC	××× ××		e clay and fine to r		-							1, 1 Nc=2 _{3.5}	Ţ
24.15	3.65					"	××	low plasticity.			_								
24.0_							× ×		T; light grey mottl vet, non-plastic.	eu									
1	4.0			100 - -	.0		×××	[4.0 .	
	.						× ×												
23.50 23.5	4.30						×	Silty fine SAND); light grey mottle	d orange.	-								
	4.5		4.50					Loose, wet, no 4.50m: Fine to	n-plastic.	-								V=23 R=3]
23.10	4.70			100							_								
23.0	.			-			××	orange mottled	e clay and trace fir light grey. Firm, r									0,0/0,0	
20.75	5.0 4.95						× ×	plasticity.										1, 1 Nc=2 _{5.0}]
22.70	5.0 5.10 75 5.25 25						××		range. Firm, mois	t, medium	-];;;
22.5	- 5.25 75 - 75						× ×	Silty fine SANE); brown. Loose, n	noist, non-	1								
	planations: Refer to "Geological an						××	plastic.			J			<u> </u>					100
						al and Ge etration		₩ #1	===		Backfill:	1. 534	narks: A Russell Ro		aan - c				
▼ ι	.evel Out flo	w	0	(SPT) Filled =	Solid o	cone (C)	Topsoil	Clay	****	entonite	3. Fro	m 0.0m to 7 m 7.5m to 1				e barrel.		
	n flow sture:					spoon (trength		Peat	Silt Sand		rout/concr rill arisings								
Moisture: Vane Shear Strength M = moist V = Peak, R = Resid W = wet UTP = Unable to per S = saturated PP = Pocket Penetro							al etrate	Core Loss	1000000 F 1 7 **		ili arising: Iter sand								
S =	satura	ated	-	-r = P	оскет Р			in.	* * * *	e, e, e, e,									
All	dim	ensi	ons i	in me	etres	Dril	ling (Contractor:			Drilling	Rig ID:		Dri	ller:		Logged By	Checked	i By:

FRASTE SLG



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ı	-	t No.	:			ject N				-	ect Locati					ı	No.:	
	0065 ent :				Rus	sell R	oad, S	Silverdale Start Date: 28 Nov 2			sell Road 8 Location		ewa F	Road		М	H03	
		y Ltc	b					End Date:			r to Riley [5-SK	114			1100	
Co		linate						Ground Level (m):	Н		epth (m):	Inclination	- 1	Azimu		Sheet:	Status	
	E	1748	181.0), N 5	1	1	ᆜ	27.8 m			5.00	-90°		_	N/A	2 of 3	FINA	AL.
(m)	<u>س</u>	р	_	TCR	Core	Geological Unit	þ	Geological Description	n	Weathering	Field	es	Defect Spacing (mm)	Defect Symbolic Log		Description nce with NZGS	In-Situ	/ noi:
Elevation (m)	əpth	/letho	Rui	(SCR) RQD (%)	Loss (%)	logica	Legend	In accordance with NZGS Guidelines (refer to appended Information sheet	(2005); t and	/eath	Strength	Samples	ct Sp (mm)	ct Syr Log	Guidelines appende	(2005); refer to d Information	Testing Data /	Backfill / Installation
Ele	Ŏ	~	Box No.	(70)	(/0)	Geo		abbreviation explanation		>	Soil Rock	S	Defe	Defe		abbreviation anation	Results	<u>"</u> ⊆
-	-			75			× × ×	medium plasticity.	oist,									
22.0_	-			-	2	5	× × ×	×										1
-	-						× × :	<u></u>									V=67	
-	- 0.0		6.00	100			× × ×	×									R=18 °	
21.5_	-	ole		-		0	× × :										1	
21.40	6.40	nec	6.45				×××	SILT with some clay; dark grey. Very	stiff,								0, 0 / 1, 1 1, 1 Nc=4 _{6.5.}	
	- 6.5	ary op	0.43				××	Fine SAND; dark grey. Medium dense	n, e, :								140-4 6.5	
21.0_	-	Rota					××	moist. Bedding, very thin to moderate thin.	ely									
-	- 7.0 Variation of the state of			100			××											-
	6.0 6.00 6.00 6.00 6.45 6.45 6.45 6.45 6.45 6.45 6.45 6.45			-		0	××	·									7.0	
20.5-	8.0 6.45 - 7.0 - 8.0 7.95 - 8.0 7.50 7.50 - 10.5 7.50 7.50 - 1						×××	×										-
20.30	- 7.50						× × ×											
20.30	-7.5°		7.50	400			×	Fine SAND with some silt; dark grey. Medium dense, moist, low plasticity.									7.5	1
20.0_	-			100		0		Bedding, thin to moderately thin.									1	-
-	-					ATIO	Ŷ.	×									6, 6 / 8, 10, 10, 11	1
-	8.0		7.95			FORMATION	×	4 \$									Nc=39 _{8.0}	1
	-					BAYS F	×	×										-
19.5_	-			90		4ST	×											1
	8.5			-	1	T CO	×										8.5	
-	-					EAST												-
19.0-	-							S 3										1
-	9.0	Ď	9.00		J		<u> </u>	9.00m: Becomes moderately thinly be									2, 3 / 3, 5 6, 6	1
-	-	y core		100		0	×	fine sand with silt and clay lamination	ns.								Nc=20	4(50)
18.5_	-	Rotar					×	×									1	
-	9.5	_	9.45				×										9.5	
-	-						×].::
18.0_	-			100				1										
-	_10.0			-		0											10.0	
]	-						<u>.</u>	X X										
17.5-	-						×	4 3										
-	_10.5		10.50				×	×									4,4/9,	_
]	-			100		0	×										12, 14, 15 for 50mm Nc=50+	1
17.0_	-						×										7	
	ale:	4! -					[55]6		!		Rom	narks:	<u>:::::</u>	<u> </u>			,	
🕌 i	nitial '		ы	Standa		cal and G netration		nical Information" sheet for further details.	Bacl		1. 534	A Russell Road m 0.0m to 7.5		drilled or	en barrel.			
4	Out flo		()			cone (C		TS-# Topsoil Clay	Bento Grout	onite t/concr	3. Fro	m 7.5m to 15.				barrel.		
			~ '	Vane S	hear S	t spoon Strength	(kPa)	Fill Sand	\triangle	arisings	ll l							
W =	wet			UTP =	Unable	Residu to pene Penetror	etrate	CM Core Loss Gravel	Filter									
	satura							un ion					1-			[]	101 :	
All				in me			l ling C Dill Li	Contractor: _td			Rig ID: E SLG		Dri	ller:		Logged By RS	: Checked SRC	



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4 Fred Thomas Drive Takapuna AUCKLAND 0622

MACHINE HOLE LOG

'(_)3.379 ww.rile	.4402 eychch.co.nz	Ph: 09.489.7872 E: www.riley.co.nz									
Projec		.:			ject			\			1 -	ect Locati					1	lo.:	
240069 Client:				Rus	ssell	Roa	ad, S	Silver	Start Date:	28 Nov 2024	_	sell Road 8 Location		rewa I	Road		М	H03	
Vinewa	ay Lto								End Date:			er to Riley D		65-SK	114				
Co-ord			2 N.E	.040	400	^	9	Grou	ind Level (m) 27.8 r			Depth (m): 5.00	Inclinat -90		Azimı	uth: N/A	Sheet:	Status FINA	
	1740	101.0	0, N 5	1949				_				3.00	-90		_		3 of 3	FINA	T
(E) (E)	po	_	TCR	Cor	e =	Geological Unit	pu		Geological I	Description	Weathering	Field	<u>e</u> s	Defect Spacing (mm)	Defect Symbolic Log	In accorda	Description nce with NZGS	In-Situ Testing	tion
Elevation (m) Depth (m)	deth	Ru	(SCR) RQD (%)	Los (%	ss :	odica	Legend		fer to appended In	GS Guidelines (2009) formation sheet and	(eat	Strength	Samples	ect Sp (mm	ct Sy Log	appende	(2005); refer to Information	Data /	Backfill /
Ele		Box No.			´ ċ	Se Se	_		abbreviation	explanation	28448	Soil Rock	o)	Defe	Defe		abbreviation anation	Results	<u>ء</u> س
+		10.93					×	bed	lded fine sand with	nes moderately thin	у								
16.5							×	lami	inations.										1
16.30 11.50			89				×											11.5	
Ŧ			0		"		×	SIL	htly weathered, da TSTONE; weak. Ir	terbedded with,								11.5•]
16.0							×	SAN		Bedding, laminated									
+							×	extr	hinly bedded. High remely closely to v horizontal defects	ery closely spaced,								40.0	
+12.0				:10	oo		ж	Jub	monzontal delection									10, 40 for 45mm	1
15.5		12.12				2	×											Nc=50+	
+																			-
+12.5	Rotary cored					NO.	×											12.5.	1
15.0	-13.0 Sold 13.50 13.59 14.0					ZMA.	×												1.
15.5	11.50 12.00 12.12 12.00 12.12 12.5 Page 13.50 13.50 13.59 14.5				40 6	BAYS FORMATION	×												7
13.0	(E) the population of the popu					l BAY	×											13.0-	1
+	S.					EAST COAST	ж												-
14.5						ASL	×												1
14.30 13.50				: :10	•	"	*	Slig	htly weathered, da	ark grey,								33, 17 for 15mm	
+		13.59	1					Slig	TSTONE; weak. Ir htly weathered, da NDSTONE: weak		,							Nc=50+	-
14.0								wide	ely spaced laminates	tions. Very closely to									1/2
14.0																		14.0	
Ŧ			87]
13.5			39		13														1
14.5																		14.5	
Ţ]
13.0																			<u> </u>
12.80 15.00		15.00	:	<u> </u>	-	-	33333	FNF	O OF HOLE: 15.00	m (Target Depth)								17, 33 for	1700
Ţ										(9)								15mm Nc=50+]
12.5																			1
15.5																		15.5.	+
Ţ]
12.0																			1
16.0																		16.0.	-
1																			1
11.5	- 16.0 - 1.0																		_
I													201/20						
11671			fer to "G Standa					cal Info	ormation" sheet for fo	. 1	Backfill:	1. 53A	narks: A Russell Roams to 7		deill- 1	on hamal			
Level		0	(SPT) Filled =	= Solid	d cone	e (C)		. TS	Topsoil]	Bentonite	3. Fro	m 0.0m to 7. m 7.5m to 15				barrel.		
In flow	v	٧	No Fill Vane S	= Spl	lit spoo	on (S		***	Peat	1 🔼	Grout/conci								
M = mois W = wet		,	V = Pea UTP =	ak, R Unabl	= Res le to p	idual enetr	ate	CHL	Fill Core Loss	1 5	Orill arising: Filter sand								
S = satur	ated	l	PP = P	ocket	Pene	trome	eter	CHL	3010 2038	, Clavel	saliu								
					-		_		actor:			Rig ID:		Dr	iller:		Logged By	ł	
14.0	limensions in met NOT TO SCALE				·IOD	ill Lt	.u			LKA2	ΓE SLG		- 1			RS	SRO	,	

RILEY CONSULTANTS LTD, REPORT: RILEY MH-R (rock) - generated with CORE-GS by Geroc

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22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

MACHINE HOLE LOG

	\subseteq		Ш					03.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz				• • • • •					
	-	t No.	:		-	ect N				ject Locati					1	No.:	
	0065 ent:				Russ	sell Ro	oad, S	Silverdale Start Date: 12 Dec 2024		sell Road 8 e Location	- ' '	Orewa F	Road		М	H04	
		y Ltc	ł					End Date:	- 1	er to Riley [)65-SK	114		141	1104	
Co	-ord	inate	es:					Ground Level (m):	Hole [Depth (m):	Inclina	tion:	Azimı	ıth:	Sheet:	Status	
	E 1	1748	202.0), N 5	9493	94.0		30.4 m		15.00	-90)°		V/A	1 of 3	FINA	L
(m)	(m)	-		TCR	0	Unit	_	Geological Description	ring	Field	ű	cing	polic		Description	In-Situ	_ <u> </u>
tion	oth (r	Method	Run	(SCR) RQD	Core Loss	gical	Legend	In accordance with NZGS Guidelines (2005)		Strength	Samples	t Spa mm)	Sym	Guidelines	nce with NZGS (2005); refer to	Testing Data /	Backfill / Installation
Elevation (m)	Depth (ž	Вох	(%)	(%)	Geological Unit	Le	refer to appended Information sheet and abbreviation explanation		Soil Rock	Sa	Defect Spacing (mm)	Defect Symbolic Log	sheet and	d Information I abbreviation lanation	Results	Ba
			No.		1 : :		XX	Organic SILT, with some sand and	888 # W 88	18.00 18.00		 		САР	ianation	-	
30.25	0.15					F	\times	rootlets; brown. Firm; moist; low plasticity. [FILL]	A								
30.0	-							SILT, with minor clay and sand; light brown. Soft; moist; medium plasticity; trac	e								
-	_ 0.5							rootlets. [FILL].	<u> </u>							0.5 =	
-	-	cored		66				CLAY, with some silt; light brownish orange. Firm; moist; high plasticity; [EAST COAST BAYS FORMATION].	-								
_	-	Rotary o		-	: 3:4			COAST BATS FORWATIONS.									
29.5 _ 29.40	- 100	Rot														V=45 10 -	
-	_						C/L C/l	CORE LOSS								× R=19	
-	-						:/L										
29.0 _ 28.90	- 1.50						C/L										
20.90	1.50 1.5	<u></u>	1.50			•		CLAY, with some silt; light brownish							ľ	0, 1 / 0, 1, 2, 2	
-	-	In situ SP ⁻ test		100	:0			orange. Firm; moist; high plasticity.								N=5	
28.45	- - 1.95	is t														/	
-	_ 2.0		1.95			1	C/L	CORE LOSS.								2.0 -	
28.20	2.20						[/l										
-	-	cored		70				CLAY, with some silt; light brownish orange. Firm; moist; high plasticity.									
28.95 -	2.45	∑ 20		76 - -	24	NO NO	× ×	Sandy SILT, with minor clay; brown	-							2.5 -	
-	-	Rotary				BAYS FORMATION	×	streaked grey. Firm; moist; dilatant.								-	
-						S FOF	××	0.00									
27.5_	- 30					ВАУ	××	2.80m - 2.90m: CLAY, with some silt; brown. Stiff; moist; high plasticity.									
_	-	PT	3.00	100		COAST	×									0, 1 / 2, 1, 3, 2	
27.10	3.30	situ SPT test		-	.0	STC	×××									N=8 .	
27.0_	- [<u>=</u>				Ē	× ×	Silty CLAY; grey. Firm; moist; high plasticity.								√ .	
-	- 3.5		3.45				×									3.5 -	
-	-						×										
26.55	3.85	cored		100			×	Sandy SILT, with trace clay; brown	-								
26.30	_ 4.0 4.10	Rotary		-	: :0	1	×	streaked dark orange. Hard; moist; limonite staining along relic joint.								4.0 -	
-	-	R					××	Sandy SILT, with some clay; grey. Hard; moist; low plasticity.									
26.0_	-						×	,									
-	_ 4.5		4.50				××									1, 2 / 13,	
-	- 475	In situ SPT test		100	10		× ×									21, 16 for 45mm	
25.65	4.75	드						Slightly weathered; grey; SILTSTONE;								√ N=50+ .	
25.5_	_ 5.0	red	4.85				::::::::::::::::::::::::::::::::::::::	very weak. Interbedded with, Slightly weathered; grey; SANDSTONE; very weak, well cemented; sand, fine.								5.0 -	
-	-	8		100			141414	very weak, well cernemed, sand, line.								-	
-	-	Rotary		88									7				
25.0_	-	œ											/	5.35m - JT: Smooth, Lir	70°, Undulating, nonite stained		
Ex	olana	tions	: Ref	er to "G	eologica	al and G	eotechni	cal Information" sheet for further details.	Backfill:	11	narks:		•				1XX
		Water	п			etration			Bentonite		Russell Roa e was drilled		core bar	rel.			
4	Out flo		<i>(</i>)	Filled =		cone (C spoon (Grout/conc	rete							
Moi	sture	:	, \	√ane S	hear S	trength	(kPa)		Orill arising								
W =	moist wet			JTP =	Unable	Residu to pene enetror	etrate		ilter sand								
	satura														I	Ta:	_
A 11	مد: لم	:		:		1 Dril	iina C	contractor:	Drilling	a Ria ID:		I Dr	iller:		Logged By	1 Checked	Rv.



22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

MACHINE HOLE LOG

	<u>'</u> (C		Ш						3.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz									
	-	t No.	:				ct Na				ject Loca		_				No.:	
	006: ent:				Ru	ISS	ell Ro	ad, S	ilverdale Start Date: 12 Dec 2024	_	sell Road		Orewa	Road		М	H04	
		ay Lto	i						End Date:		er to Rile		0065-SI	< 114		141	1104	
Сс		dinate							Ground Level (m):		Depth (m	'	ation:	Azim		Sheet:	Status	- 1
	E	1748:	202.0), N 5	949	939			30.4 m		15.00		90°		N/A	2 of 3	FINA	\L_
Elevation (m)	Depth (m)	Method	Box No.	TCR (SCR) RQD (%)	Co Lo: (%	ss	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (200: refer to appended Information sheet and abbreviation explanation		Field Strengtl	Sam	Defect Spacing (mm)	Defect Symbolic Log	In accorda Guidelines appende sheet and	Description nce with NZGS (2005); refer to d Information d abbreviation lanation	In-Situ Testing Data / Results	Backfill / Installation
24.5	- - - - - - -	Rotary cored		100 - 88		:0			[CONT] Slightly weathered; grey; SILTSTONE; very weak. Interbedded with Slightly weathered; grey; SANDSTONE; very weak, well cemented; sand, fine.	5							6.0.	
-	-	യ പ	6.00			100											18, 32 Nc=50+	
24.0— ———————————————————————————————————	To a series of the series of t														6.43m - BP Smooth, lin	nonite stained	7.0	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
-	- 7.5	itu	7.50	0 -		100											12, 17 / 32, 18 for	Ħ.g
22.5_	-	s ul SPT	7.76	-		100	IATION		7.81m: Grades to unweathered SANDSTONE; sand, medium to coarse.						7.81m - BP Smooth, no		30mm Nc=50+	00 % Cv 0
- - 22.0- - - - - - 21.46- - -	7.50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														8.37m - BP Smooth, no 8.59m - BP Smooth, no	infill : 0° , Planar,	8.5 . 9.0 .	
21.0_	- 99554 - 9.88 - 10.0			100		0			Unweathered, dark grey; SILTSTONE; weak. Interbedded with, Unweathered, dark grey; SANDSTONE; weak, sand, fine to coarse. Unweathered, dark grey; medium to coarse SANDSTONE; very weak to weak								9.5 .	
-	_10.5 _10.61 	Rotary S cored P	10.50 10.61	100 - 97		100 O			Unweathered, dark grey; coarse SANDSTONE; very weak; siltstone clasts up to 10mm diameter.								21, 29 for 30mm Nc=50+	- - - -
Mo Mo M = W = S =	Initial Level Out flo In flov sture mois wet wet satur	Water ow w e: st rated	ons	Standa (SPT) Filled: No Fill Vane S V = Pe UTP = PP = P	ard P = Sol = Sp Shear ak, R Unablocke	ene	tration one (C) poon (Sength (Residua o pene netrom	Test) S) kPa) al trate neter	Peat Silt Silt Sand Sand	Backfill: Bentonite Grout/cond Drill arising Filter sand	1. 3 2. I	emarks: 55 Russell R Hole was dril	led with H	riller:		Logged By	l l	- 1
	N	от т	U SC	ALE			Drill	force					T	harindu		CCUS	SRO	,



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MACHINE HOLE LOG

								3.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz			1417-7	O 111		1101		•	
	-	t No.	:		_	ect Na				ject Locati						No.:	
	0065 ent:				Russ	sell Ro	ad, S	Stort Poto: 13 Dog 2024		sell Road 8	- ' '	Orewa F	Road		R/I	H04	
		y Lto	d					Start Date: 12 Dec 2024 End Date:		e Location er to Riley [)65-SK	114		IVI	П04	
		linat					7	Ground Level (m):		Depth (m):	Inclina		Azim	uth:	Sheet:	Status	:
	E ′	1748	202.0), N 5	94939	94.0		30.4 m	1	15.00	-90)°		N/A	3 of 3	FINA	AL
Ê	_					Juit		Geological Description	ing	Field		ing	olic	Defect D	escription	In-Situ	
on	Depth (m)	Method	Run	TCR (SCR)	Core Loss	ical L	Legend	In accordance with NZGS Guidelines (2005)	Weathering	Strength	Samples	Spac im)	Symb	In accordar Guidelines	nce with NZGS (2005); refer to	Testing	kfill /
Elevation (m)	Dept	Me	Box	RQD (%)	(%)	Geological Unit	Lec	refer to appended Information sheet and abbreviation explanation	Me.	Soil Rock	San	Defect Spacing (mm)	Defect Symbolic Log	sheet and	l Information abbreviation	Data / Results	Backfill / Installation
ш			No.			Ō	101010101	[CONT] Unweathered, dark grey; coarse	SWW H OVE	SAND SAND SAND WANN WWW WWW WWW WWW WWW WWW WWW WWW WW		_ <u> </u>	l a	expl	anation		27831 18
-	-							SANDSTONE; very weak; siltstone clasts up to 10mm diameter.					Ì	11. 14-11.49	m - JT: 80°,		-:
-	-							up to formit diameter.					\	Undulating, infill	Rough, Tight, no]]]]
19.0	- -11.5			100	0									11.33m - BF Rough	2: 5°, Undulating,	11.5	
18.82	11.58			97				Unweathered, grey; SILTSTONE; very	-				-	11. 58m - BF			- 111
								weak. Interbedded with, Unweathered, grey; SANDSTONE; very						Smooth, Tig	ht		
18.5_	-						20000	weak, sand, fine to medium. 11.92m - 12.18m: Limonite stained bands.									
-	_12.0	þ	12.00					11.92m - 12.16m: Limonile stained bands.								12.0	▓
-	-	/ cored												12. 10-12.24 Undulating,	m - JT: 90°, closed		
18.0_	-	Rotary					144444 2000										
-	_12.5	Ľ				z								12.40m - BF Smooth, lim	2: 10°, Undulating, onite stained	12.5	-81
1	-			100		IATIO											
-	-			73	: :0	FORM											₩
17.5-	- -13.0					EAST COAST BAYS FORMATION										13.0	
+	-					AST B											
1	-					/00_											
17.0 _ 16.90	- 13.50					EAS										13.5	
_	-	SP T	13.50		100		×	Unweathered, grey; SILTSTONE; weak. Interbedded with,					2 . 2			13, 37 for 50mm	
-	-		13.63				×	Unweathered, grey; SANDSTONE; weak, sand, fine to medium, well cemented.						13. 64m - DE	l: Drill damage	Nc=50+	
16.5_	-						×										
-	_14.0						м							14. 04m - BF	t: 0°, Planar,	14.0	1:11
-	-	cored		109			×						~~~~	Smooth, no 14. 13m - DE	infill I: Drill damage		
16.0_		ary		80	9		×										朓
-	_ 14.5	Rot					×							Smooth, no		14.5	-64
1	-						×							14. 55m - JT: Smooth, no	: 10°, Planar, infill		
-	-						м										
15.5 15.40	15.00 15.00	(0.0					×									7 21 10 for	<u>тен</u>
+	-	<u>ω</u> <u>Γ</u>	1					END OF HOLE: 15.00m (Target Depth)								31, 19 for 5mm Nc=50+	+
Į	-]
15.0_	- -15.5															15.5	1
-	-																-
1	-																1
14.5_	-																+
1	_16.0 _															16.0	1
-	-																+
14.0_	-																1
_	<u></u>		<u> </u>		<u> </u>		<u> </u>		1::::::	Rem	narks:	<u> </u>					<u></u>
₩ İ	nitial	ations Water			ieologica ard Pene			## F	Backfill:	1. 55	riarks: Russell Roa le was drille		core ho	rrel			
	_evel Out flo	ow	Ø	(SPT) Filled :	= Solid c	cone (C)		entonite		.∪ was u⊞e	u willi ∏Q	JOIE DA	101.			
Ò	n flow sture	/	٧,		= Split s hear St				rout/conc								
M =	mois wet			V = Pe	ak, R = I Unable	Residua	al	Total State	rill arising	s							
	satur	ated			ocket Pe			Gravel Fi	lter sand								
ΔII	dim	onei	one	in me	etres	Drill	ina C	ontractor:	Drilling	g Rig ID:		Dr	iller:		Logged By	Checked	d Bv:

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22 Moorhouse Avenue Addington CHRISTCHURCH 8011

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MACHINE HOLE LOG

<u>'</u> (_						03.379.4402 Ph: 09.489.7872 www.rileychch.co.nz E: www.riley.co.nz					_					
Project 240065		:		-	ect Na		: Silverdale		ject Locati sell Road 8		wa P	oad		1	lo.:	
Client:				rtuse	ocii i k	Jau, C	Start Date: 28 Nov 2024		e Location		wart	oau		M	H05	
Vinewa Co-ord	•					- 1.	End Date:		er to Riley [13 Azim ı	ıth.	Chasti	Ctatus	
), N 5	9494	38.0	'	Ground Level (m): 29.3 m		Depth (m): 9.10	Inclinatio -90°)II. <i>1</i>		V/A	Sheet: 1 of 2	Status FINA	
Elevation (m) Depth (m)	Method	Box No	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (2000 refer to appended Information sheet and abbreviation explanation		Field Strength Soil Rock	Samples	Defect Spacing (mm)	Defect Symbolic Log	In accordar Guidelines appender sheet and	Description nce with NZGS (2005); refer to d Information l abbreviation anation	In-Situ Testing Data / Results	Backfill / Installation
29.25 0.05	1.50			JO.	TS ·	Topsoil; [TOPSOIL].	#6±%65	\$ " E " 9 # 1 . T . T . T								
29.10 0.20					TOPSOIL	××^	plasticity. Some rootlets [COLLUVIUM]	/								1
29.0—						× × × ×	SILT with trace clay; light brown mottled light grey. Firm, dry, low plasticity.									
28.70 0.60				20	COLLUVIUM	× × ×	MUDSTONE]								0.5 •	
28.0						× × × × × × × × × × × × × × × × × × ×	×								1.0.	- - - - - - - - -
27.5— 27.40 1.90	77					× × × × × × × × × × × × × × × × × × ×	SILT with some clay and trace fine sand;								V=52 R=17 1.5.	
27.0	1.90 -2.0 1.95 1.95 1.95 100 -2.5 oo 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					× × × × × × × × × × × × × × × × × × ×	light brown and orange. Stiff, moist, low plasticity. Lenses of dark orange oxidation	1.							Nc=5 _{2.0} .	- - - - - - - - - -
26.60 2.70 26.5 26.30 3.00	1.90 2.0 1.95 1.95 1.00 2.5 epoly 100 2.70 2.70 2.70 2.70 2.70 2.70 2.70 2.					× × × × × × × × × × × × × × × × × × ×	low plasticity.								V=116 _{3.0}	
26.0— 25.90 3.40	1.95 100 100 100 100 100 100 100 100 100 10					× × × × × × × × × × × × × × × × × × ×	plasticity.								R=34 1, 1, 1, 1, 1, 1, 1, 3	
25.5	2.5 o o o o o o o o o o o o o o o o o o o				NORTHLAND	× × × × × × × × × × × × × × × × × × ×	dry to moist, low plasticity. Some fine gravel sized clasts.								Nc=6 _{3.5} .	
25.0	•	4.00	94 -	.6		× × × × × × × × × × × × × × × × × × ×	4.10m: Becomes green and grey.								4.0. UTP 4.5.	
24.5						× × × × × × × × × × × × × × × × × × ×	4.90m: Becomes light greenish grey.								1, 3 / 2, 4 5, 9 Nc=20 _{5.0} .	
	ations: Refer to "Geologica Water Standard Pene					××										1
Explana Initial V Level Out flo In flow Moisture M = moist W = wet S = satura	Water ow	×;	Standa (SPT) Filled = No Fill Vane S V = Pea UTP =	ard Pend Solid of Split Shear Stak, R = Unable	etration cone (C spoon (rength Residuato to pene	Test) S) (kPa) al etrate	Peat Silt Silt Fill Sand 2 I	Backfill: Bentonite Grout/cond Drill arising	1. 53E 2. Fro 3. Fro	narks: 3 Russell Road m 0.0m to 7.0n m 7.0m to 9.1n	nBGL, d			parrel.		
				etres		ling C	Contractor: .td		g Rig ID: TE SLG		Dril	ler:		Logged By RS	Checked SRO	-



NOT TO SCALE

ProDill Ltd

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872 F: www riley co nz

MACHINE HOLE LOG

(Ш					03.379 /ww.rile	.4402 ychch.co.nz	Ph: 09.48 E: www.r		:								
-		No.	:				lame:						ject Loca			- I			No.:	
2400 Clie		1			Rus	sell K	oad,	Silver	Start D	ate: 28 No	ov 2024		sell Road Locatio		r Orewa	Road		⊢ м	H05	
Vine		y Ltd	ı						End Da		J. 202		er to Riley		0065-S	K113				
		inate						Grou	nd Level				epth (m)		nation:	Azim		Sheet:	Status	
	E 1	7480	023.0), N 5	9494	138.0	\perp			9.3 m		 	9.10		.90°		N/A	2 of 2	FINA	\L
Œ 1	E)	p	_	TCR	Core	Geological Unit	g		Geologi	ical Descrip	tion	Weathering	Field	S	Defect Spacing (mm)	Defect Symbolic Log		Description ince with NZGS	In-Situ	_ 5
Elevation (m)	nebin (Method	Run	(SCR) RQD	Loss (%)	ogica	Legend			th NZGS Guidel		5); eath	Strength	ᇤ	ct Sp	st Syr Log	Guidelines appende	(2005); refer to ed Information	Testing Data /	Backfill / Installation
Ele C	ב ב	2	Box No.	(%)	(70)	Geol	-			riation explanation		× × × × × × × × × × × × × × × × × × ×	Soil Rock		Defe	Defe		d abbreviation planation	Results	≝ ۳
7							×××													
23.5				100		0	××̂	×												1
-							××××													
†	3.0	hole	6.00				××												UTP 6.0	
+		open hole		71	2	9	×	×											4	
23.0		Rotary o					×××												2,4/3,5 5,6]
+	3.5	Ro	6.45				×××	<u> </u>											Nc=19 _{6.5}	
1							×××													
22.5							× ×	,												
Į.	.0			100			××	×											7.0	1.
İ	- - -					S S S S S S S S S S S S S S S S S S S	* × × × ×			inclined relic joir	nt, narrow									
22.0	- - -					OCH	× × ×	1	rture, undula 0m - 7.25m:	ating rough. Dark brownish g	ırev clave	v];;;
1	- - -7.5					D ALI	××.	SIL	T lense. Soft	t, wet, moderate	plasticity								7.5	
+	7.65					LAN III	××	,											-	-
21.5	7.65					JORT	×	×												1
+	7.65 100 E						×××												2,4/4,6	-
†	8.0 7.05 100						×××	<u> </u>											2,4/4,6 6,8 8.0 Nc=24	
+							×.,×	1												
21.0	8.50 8.5						××	,												
20.80	9.50 100						^ ×	Slig	htly weather	ed, dark grey, fi	ne to								8.5	
1				50		0				STONE. Very we										1
20.5								8.80	Om: Gentle ir	nclined joint, nar	row									
	0.0								rture, steepe										9.0	1
20.20	9.10		9.10	66			10000	END	OF HOLE:	9.10m (Target I	Depth)			<u>:</u>					11, 21 /	1
20.0				-	3	4					' /								24, 26 for 45mm Nc=50+]
<u> </u>	15																		9.5	1
Ŧ																				-
19.5																				1
+																				-
† 1	0.0																		10.0	1
+																				-
19.0																				1
+1	10.5																		10.5	+
1																				1
18.5																				+
<u>t</u>														!						1
· .	xplanations: Refer to *Geological and Geological Water Talandard Penetration T								ermation" shee	et for further detai	ls.	Backfill:	1. 5	marks: 3B Russell						
▼ Le	▼ Initial Water Level Standard Penetration Te								Topsoil	Clay		Bentonite	2. F	rom 0.0m t	o 7.0mBG		pen barrel. /ith HQ core	barrel.		
	Out flow Filled = Solid cone (C) No Fill = Split spoon (S)							20 20 20 20 20 20 20 20 20 1 20 20 2	Peat	Silt	\geq	Grout/conc	rete							
Moisture: Vane Shear Strength (kPa) V = Peak, R = Residual							ual		Fill	Sand	<u>></u>	Drill arising	s							
M = moist V = Peak, R = Residual W = wet UTP = Unable to penetrate S = saturated PP = Pocket Penetrometer								CIL	Core Loss	Gravel		Filter sand								
All d	lime	ensi	ons	in me	etres	Dri	Iling	Contr	actor:			Drilling	Rig ID:		0	riller:		Logged By	Checked	l By:

FRASTE SLG



22 Moorhouse Avenue Addington CHRISTCHURCH 8011

4 Fred Thomas Drive Takapuna AUCKLAND 0622

MACHINE HOLE LOG

				Н					03.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz	:		111,7 10	••••					
	-	t No.	:			•		ame:	,		ject Locat					l	No.:	
	0065 ent:				R	uss	ell Ro	oad, S	Silverdale Start Date: 16 Dec 2024		ssell Road e Location	& Upper Or	ewa F	Road		М	H06	
		ay Lto	d						End Date: 17 Dec 2024			Dwg 24006	5-SK	112		141	1100	
Со		linat							Ground Level (m):	l .	Depth (m):		on:	Azimı		Sheet:	Status	- 1
_	E	1748	347.0	0, N 5	594	956	57.0	ᆂ	55.2 m		19.50	-90°		_	N/A	1 of 4	FINA	\L
Elevation (m)	Depth (m)	Method	Box No.	TCR (SCR) RQD (%)	L	ore oss %)	Geological Unit	Legend	Geological Description In accordance with NZGS Guidelines (200 refer to appended Information sheet and abbreviation explanation		Field Strength	Samples	Defect Spacing (mm)	Defect Symbolic Log	In accordar Guidelines appende sheet and	Description nce with NZGS (2005); refer to d Information d abbreviation lanation	In-Situ Testing Data / Results	Backfill / Installation
55.10	0.10		0.00				SOIL	TS TS	SILT, with some rootlets and sand; dark brown. Firm; moist; non-plastic; Silt, organic. [TOPSOIL].	_								
54.85	0.35 - - 0.5	75					TOPSOIL	× × × × × × × × × × × × × × × × × × ×	Silty CLAY, with some rootlets; light brown mottled dark brown. Stiff; moist; high plasticity; Clay, organic. [TOPSOIL]. Clayey SILT, with trace sand; light brown	_/							0.5 -	
54.5	0.90	Rotary cored		66		34		×××	Stiff, moist; medium plasticity; [EAST COAST BAYS FORMATION].									
54.20	11,00 -	Υ.						C/L C/L	Clayey SILT, with minor sand and gravel; light brown. Stiff; moist; medium plasticity Gravel, extremely weak siltstone.	r;							1.0 -	
53.70	1.50		1.50					C/L	CORE LOSS.	_							ا ا م م یا ^{1.5} -	N KXXI
53.5		situ SPT test	1.50	100		. 0		××× ××× ×××	SILT, with some clay, with minor sand; light brown and grey. Stiff; moist; low plasticity.								0, 0 / 1, 1, 1, 1 N=4	
53.25	1.95	니	1.95		ļ.	<u>.</u>		×××.	CORE LOSS.								20.	▋▓
53,99	2.20							[/L	OONE LOGO.									∄
53.0	2.5	ary cored		76 - -		24		× × ×	Clayey SILT, with trace gravel; brown and grey. Stiff; moist; high plasticity; gravel, extremely weak siltstone.	i							2.5 -	
52.5	2.90	Rotary					BAYS FORMATION	× × ×									0, 1 / 2, 2, 2, 2 N=8	
52.0	3.0	situ SPT test	3.00	100			ST BAYS F	× ×	Silty CLAY; light grey. Stiff; moist; high plasticity.								V=58 R=23	00 oc
51.75	3.45	In situ S test	3.45	-		 I	EAST COAST	X X	CORE LOSS.								3.5 -	
51.5		p						C/L C/L	GOVE EGGG.									00 aci
51.30	3.90 - 4.0 - 4.10	Rotary cored		57 - -		43		E/L × ×	Silty CLAY; light grey. Stiff; moist; high plasticity.								4.0 -	100 OO
51.0		Œ							CLAY, with some silt; light brownish grey. Very stiff; moist; high plasticity. 4.35m: Grades to grey, stiff.								0, 2 / 1, 2 3, 2 N=8	100 oo
50.5	4.5	situ SPT test	4.50	100		l:: 											V=95 R=37	100 oo'
50.10	- - - 5.0 5.10	드	4.95														5.0	
50.10	5.10	Rotary cored		100		10		×	Silty CLAY; grey. Very stiff to hard; moist high plasticity.	;								
		<u> </u>			Li			×										
▼ [nitial evel Out flow n flow sture mois wet	Water ow v :: :t	V	Standa (SPT) Filled No Fill Vane S V = Pe UTP =	ard = So = S Shea ak, Una	Pene olid o Split s ar Str R = I able	and Genetration cone (Cospoon	Test (S) (KPa) al etrate	Peat Silt Silt Sand Sand	Backfill: Bentonite Grout/cond Drill arising	1. 55 2. Ho	marks: 5 Russell Road. ole was drilled w		core bar	rel.			
	satur									D.::	m Dia ID:		F -	lla		Lacrade	Charles	1 D:
All				in mo		es		lling C Iforce	ontractor:	Urillin	g Rig ID:		Dri Le	ller: on		Logged By CCUS	: Checked SRO	- 1



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Drillforce

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MACHINE HOLE LOG

			VII.						03.379.4402 Ph: 09.489.7872 ww.rileychch.co.nz E: www.riley.co.nz										
	-	t No.	:			-		ame:	Nil		ject Loca		0)l		I	No.:	
	0065 ent :				Rus	SSE	ell Ro	aa, S	Silverdale Start Date: 16 Dec 2024	_	ssell Road le Locatio		er Orev	va r	koad		М	H06	
		y Ltd							End Date: 17 Dec 2024	Re	fer to Riley	Dwg 2	40065-	SK	112				
Co		linate), N 5	:040	E6.	7.0	(Ground Level (m): 55.2 m	Hole	Depth (m) 19.50	: Incl	i natio n -90°	ı:	Azimu	uth: N/A	Sheet: 2 of 4	Status FIN/	
	_	1740	347.0), IN 3	1949	1			1		19.50	+			_		1	FIIVA	<u> </u>
Elevation (m)	(m)	po	u	TCR	Cor	·е	Geological Unit	pu	Geological Description	Weathering	Field Strength	es	acino	(mm)	Defect Symbolic Log	In accorda	Description nce with NZGS	In-Situ Testing	tion
vation	Depth (m)	Method	Run	(SCR) RQD (%)	Los (%		ologica	Legend	In accordance with NZGS Guidelines (2009) refer to appended Information sheet and	Veath	Soil Rock	a	St	E (E)	ct Sy Log	appende	(2005); refer to d Information	Data /	Backfill / Installation
E	۵		Box No.	(,0)	`		Gec		abbreviation explanation	8.04.88	J 0.83		Def		Defe		l abbreviation lanation	Results	_ =
-	-	cored		100				<u>×</u> ×	[CONT] Silty CLAY; grey. Very stiff to hard moist; high plasticity.	1;									₩
49.5_	-	Rotary o		-		0		×										1, 2 / 4, 5 5, 7	
-	- 60	Rot						×										N=21 V=201 ₆₀	▓
-	-	SPT	6.00	100					- -									R=42 ^{8.0}	₩
49.0_	-	situ SPT test		-		0			·									3, 6 / 8, 11, 13, 18	
-	-	l	6.45					×	-									N=50	
-	- 0.5		0.43					×										0.5	P
48.5_	-	р						×											
48.20	- _7.00	cored		100		10		×											RH
_	7.0 _	Rotary		-		Ĩ		×	SILT, with some clay and sand; grey. Hard; moist; low plasticity.	7								7.0	
48.00 48.0	7.20	ш							CLAY, with some silt; grey. Hard; moist;	-									
-	-								high plasticity.										
-	- 7.5	PT	7.50	100		**			-									₩ UTP 7.5	
47,50	7.70	n situ SPT test				0	-		Highly weathered; grey; SILTSTONE;	-									
-	-	s ul					ATION	- 10	extremely weak to very weak.									V	
47.15	- 8.95 -		7.95				FORMATION	×	Slightly weathered; grey; fine to coarse;	-								8.0	
47.0_	-						BAYS	:::::::	SANDSTONE; very weak, well cemented. Interbedded with,										
-	-	cored		100			AST B		Slightly weathered; grey; SILTSTONE; very weak.							8.31m - BP Smooth	:30°, Planar,		
-	8.5	Rotary		95		:0	EAST COAST								~~~~	8.55m - DB	: Drilling Break	8.5	11
46.5	-	Ä					EAS										: 10°, Planar,		-
-	-								8.75m: Carbonaceous band 5mm thick, 10°.							Rough, no i			▓
46.20	9.00	itu test	9.00					:::::: C/L	CORE LOSS.	-								8, 26 / 50 Nc=50+	₩
46697-	9.23	In situ SPT test						[/l		_								110-30+	
-	-								Slightly weathered; grey; fine to coarse; SANDSTONE; very weak, well cemented. 200 to 500mm thick beds. Interbedded										1
-	9.5								with, Slightly weathered; grey; SILTSTONE;							9.49m - BP Rough, no i		9.5	-
45.5	-	cored		121		21			very weak. 50mm to 200mm thick beds.							9.70m - BP];;;
-	-	гу со		80												Rough, no i	nfill		
-	_10.0	Rotary							-							9.98m - BP Rough, no i		10.0	-
45.0_	-								10.14m: Carbonaceous bands, 10mm							10. 03m - BF Smooth, no	P: 15°, Planar, infill.		
-	-							20000	thick, 5°. 10.22m: Carbonaceous bands, 10mm							10. 15m - BF Rough, no i	P: 10°, Planar, nfill		
-	_10.5	situ T test	10.50						thick, 10°.									2, 14 / 50	
44.5_	-	n G		100														for 45mm Nc=50+	
-	-	Rotary cored		60											Ž	10.75m - BF Smooth, no	P: 0°, Planar, infill.		
											D ₀	marka	<u> </u>	<u>: : :</u>	_	10. 92m - JT	: 40°, Planar,		999
		ations Water		e <i>r to "G</i> Standa					ical Information" sheet for further details.	Backfill:	1. 5	marks : 5 Russell ole was d	Road.	, H0	coro bo	rel			
≠	niliai Level Out flo	ow	0	(SPT) Filled =	= Solid	d cc	one (C))		Bentonite		OIC WAS (eu Will		ooie ngi	101.			
•	n flow sture			No Fill √ane S				,		Grout/con									
M = W =	mois wet	t	` \ (/ = Pea JTP =	ak, R Unab	= R le to	desidua o pene	al trate		ilter sand	·								
S =	satur	ated		PP = P	ocket	Pei	netron	ieter	<u> </u>										
A 11						_ T	Drill	ina C	Contractor:	Drillin	a Ria ID:			Dri	ller:		Logged By	Chackar	I RV

RILEY CONSULTANTS LTD, REPORT: RILEY MH-R (rock) - generated with CORE-GS by Geroc

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MACHINE HOLE LOG

Project Location Project Loc				XII.					03.379 www.rile	9.4402 eychch.co.nz	Ph: 09.489 E: www.rile											
Find Common Co		-		:			•											Daad			No.:	
Vancount Vancount						Rus	seii r	toau,	Silver		16 Dec	2024			_		ewa	Road		M	H06	
E 1748947 0, N S949567 0 S. 2 m			-							End Date:	17 Dec	2024	Refe	er to Rile	y D	wg 24006	5-Sk	(112				
Companies Comp	Co) N 5	0406			Grou):		on:	Azim		1	1	
12 10 10 10 10 10 10 10		_	1740	347.0), IN 3	19490	1	ᆛ	T					9.50	+	-90	_	Ιο		<u> </u>	FINA	<u> </u>
12 10 10 10 10 10 10 10	(m)	(m)	ро	_			al Uni	pu		Geological	Descripti	ion	Jerin	1	h	ses	oacing	ilodm'	In accorda	nce with NZGS		#ii /
12 10 10 10 10 10 10 10	vatio	epth	Meth	J.S.	RQD		Slogic	Lege	In ac	fer to appended Ir	nformation sh	eet and); 			Samp	ect Sp (mr	oct Sy Log	Guidelines	d Information	Data /	Backf
11. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated samulated to very lim. 12. Zim. Includes samulated to very lim. 12. Zim. Includes samulated samulated to very lim. 13. Zim. Includes samulated samulated to very lim. 14. Zim. Includes samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated samulated sa	ĕ			Box No.	,		Ğ			abbreviatior	n explanation		1		- 1	0)	Def	Defe		lanation	Results	
10	-	-						1111			bonaceous ba	ands,						`	Rough, no	infill		-
Unweightened grey: St. TSTONE: way State St. St. St. St. St. St. St. St. St. St.	44.0_	-	ъ							20m: Indudes Ism	inated to ver	a thin						~	11. 25m - J	Γ: 35°, Planar,		1
10 10 10 10 10 10 10 10	-	- 11.5	core		100			3000	‡ 5m	m to 10mm thick,	gently incline	ed, 5°,							11.41m - B	P: 5°, Planar,	44.5	
10 10 10 10 10 10 10 10	-	-11.5	otary		60		١	1000	<u> </u>										11.46m - B	P: 10°, Planar,	11.5]
100 100	43.5_	-	œ					12111														1
100 100	-							14141	21 21													
Universified gray SLTSTONE very was to wask. 200mm to 400mm frox obst. Instruction to 400mm from frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm frox obst. Instruction to 400mm from from from from from from	-	_12.0 _	ωL	12.00					<u> </u>												27, 23 foi 25mm	
Semantic properties of the pro	43.0_	-							<u> </u>												Nc=50+	
1.5	-	-						1000	<u></u>									/]
Unweathered grey, SiL1STONE; very week to week. Sometime 640mm bids. 12 20m. BP OF Please. Service restl. 13 20m. BP OF Please. Service restl. 14 20m. BP OF Please. Service restl. 15 20m. BP OF Please. Service restl. 16 20mm beds. 17 20mm beds. 18 20mm beds. 18 20mm beds. 18 20mm beds. 19 20mm beds. 19 20mm beds. 19 20mm beds. 10 20mm beds. 10 20mm beds. 11 20mm BP OF Please. Service restl. 14 20mm BP OF Please. Service restl. 15 20mm BP OF Please. Service restl. 16 20mm BP OF Please. Service restl. 18 20mm BP OF Please. Service restl. 18 20mm BP OF Please. Service restl. 19 20mm beds. 19 20mm beds. 10 20mm beds. 10 20mm beds. 10 20mm beds. 10 20mm beds. 10 20mm beds. 11 20mm BP OF Please. Service restl. 12 20mm BP OF Please. Service restl. 13 20mm BP OF Please. Service restl. 14 20mm BP OF Please. Service restl. 15 20mm BP OF Please. Service restl. 16 20mm BP OF Please. Service restl. 17 20mm BP OF Please. Service restl. 18 20mm BP OF Please. Service restl. 19 20mm BP OF Please. Service restl. 10 20mm beds. 10 20mm beds. 10 20mm beds. 11 20mm BP OF Please. Service restl. 12 20mm BP OF Please. Service restl. 13 20mm BP OF Please. Service restl. 14 20mm BP OF Please. Service restl. 15 20mm BP OF Please. Service restl. 16 20mm BP OF Please. Service restl. 16 20mm BP OF Please. Service restl. 17 20mm BP OF Please. Service restl. 18 20mm BP OF Please. Service restl. 19 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 20mm BP OF Please. Service restl. 10 2	-	_12.5 _						0.000	<u> </u>												12.5	
Unweathered, gray, SILTSTONE; very beds, lines bedsed with lines bedsed with, lines bedse	42.5	-			- 1		0	11111										<u></u>	12 74m B	P: 10° Planar		
week to week, 200mm to 400mm thick beds with Linewasthered, grey, fill if SOAM 500mm to 300mm to 400mm	42.25	T 12.95						141414	<u> </u>										Smooth, no	o infill.		1
Unweathered; grey, Silt TSTONE; seriory, Telescope and Geological	-	_13.0						::::::													13.0	1
200mm bods. 13.50	42.0_	-						3333	Unv	weathered; grey; \$	SILTSTONE;	grey;										-
Semonth, no infill Seminary Semonth, no infill Semonth, no infil	-	-	pe.				NOIL	3333			OSTONE; 50r	mm to										1
Semonth, no infill Seminary Semonth, no infill Semonth, no infil	-	_13.5	y cor	13.50			- DRMA	141414													13.5	-
Semonth, no infill Seminary Semonth, no infill Semonth, no infil	41.5_	-	Rotar				YS FC	141414	<u></u>													-
### At 10 - 10 100 1	-	-					ST BA	3333	<u></u>									<u> </u>	13.65m - B Smooth, no	P: 0°, Planar, o infill.		
## 15 mm bp / p / p / p / p / p / p / p / p / p	-	_14.0					COA		<u> </u>										Smooth, no	infill.	14.0	-
Smooth, no infill. 14.3 m. BP: 7. Planar, Smooth, no infill. 14.5 m. BP: 7. Planar, Smooth, no infill. 14.5 m. BP: 7. Planar, Smooth, no infill. 15.5	41.0_	-			100		EAST	:::::	<u>:</u> ::									<u> </u>	Smooth, no	infill.		1
Unweathered: grey; fine to coarse SANDSTONE; very weak to weak, moderately to well comented, 100mm to 200mm thick beds. Interheded with, Unweathered: grey; SLTSTONE; weak, 50mm to 150mm thick beds. Unweathered: grey; SLTSTONE; weak, 50mm to 150mm thick beds. Unweathered: grey; SLTSTONE; weak, 50mm to 150mm thick beds. Explanations: Refer to "Geological and Geotschrical Information" sheet for further details. It is no PP. 0, Planar, Smooth, no infill. It is no PP. 0, Planar, Smooth, no infill. It is 30 is 30 is 55 m. 8P; x 10 at 0'. Flanar, Rough, no infill. It is 30 is 55 m. 8P; 0, Planar, Rough, no infill. It is 20 in Spirit planar, Rough, no infil	-	-			94		0	3333	<u> </u>										Smooth, no	infill.		1387
Semodth, no infill. Semodth, no infill.	-	 14.5						:::::										<u></u>	Smooth, no	infill.	14.5	1
14.70m - BP- 07. Planar, Smooth, no fill. 14.94m - BP- 07. Planar, Smooth, no fill. 14.94m - BP- 07. Planar, Smooth, no fill. 14.94m - BP- 07. Planar, Smooth, no fill. 14.94m - BP- 07. Planar, Smooth, no fill. 14.94m - BP- 07. Planar, Smooth, no fill. 15.12m - BP- 07. Planar, Rough, no infill. 15.12m - BP- 07. Planar, Rough, no infill. 15.24m - BP- 07. Planar, Rough, no infill. 15.30m - BP- 07. Planar,	40.5-	-						:::::	<u>∴</u>										Smooth, no 14. 52m - B	infill. P: 0°, Planar,		1
Unweathered; grey; fine to coarse SANDSTONE; very weak to weak, moderately to well cemented, 100mm to 200mm thick beds. Interfeded with, Unweathered; grey; Sil.TSTONE; weak, Somm to 150mm thick beds. 15.30-15.35m-BP·7; Planar, Rough, no infill. 15.25m-BP·7; Planar, Rough, no i	-	-						10000	<u>::</u> :::										14. 70m - B	P: 0°, Planar,		-
SANDSTONE; very weak to weak moderately to well cemented, 100mm to 200mm thick beds. Interbedded with, Unweathered; grey. SILTSTONE; weak, 50mm to 150mm thick beds. 100	40.20	- 15.80		15.00				(1)(1)	<u> </u>		5		_								7 16 34 for	1
200mm thick beds. Interbedded with, Unweithered; grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered; grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered; grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered; grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedded with, Unweithered grey; SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedged with, Unserver, SLITSTONE; weak, 50mm to 150mm thick beds. 200mm thick beds. Interbedge with 150mm thick be	40.0_	-	2 W. P	10.00				933	SA	NDSTONE; very v	veak to weak	ζ,						-	15. 12m - B	P: 0°, Planar,	✓ 45mm	
Topsoil Standard Penetration Test Level Standard Penetration Test Level Standard Penetration Test Level Standard Penetration Test Level Standard Penetration Test Level Standard Penetration Test Level Standard Penetration Test Level Peat Standard Penetration Test Stand	-	-							200)mm thick beds. Ir	nterbedded w	ith,						<u> </u>	15. 30-15.3	5m - BP: x 10 at 0°,		-415
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. ✓ Initial Water Level ✓ Out flow In flow Moisture: ✓ Standard Penetration ✓ Vane Shear Strength (Pa) ✓ Peak, R = Residual W = wet S = saturated ✓ Peak Residual UTP = Unable to penetrate S = saturated ✓ Core Loss ✓ Gravel ✓ Filter sand ✓ Gravel ✓ Filter sand ✓ Filter sand	-	- -15.5							50r	nm to 150mm thic	k beds.								Planar, Ro	ugh, no infill.	15.5]
S T6 D	20 F	-	pe.		100			3333	<u></u>													
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. Initial Water Level	39.5-	-	8		- 76		0	3000	<u> </u>													1
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. Initial Water Level	-	_ _16.0	Rotai					1000													16.0	
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. Initial Water Level Out flow In flow Moisture: M = moist W = wet S = saturated N = Pocket Penetrometer I 6. 23m - BP: 5', Planar, Smooth, no infill. Backfill: Backfill: I 55 Russell Road. 2. Hole was drilled with HQ core barrel. Remarks: 1. 55 Russell Road. 2. Hole was drilled with HQ core barrel.	-	_						3333 3333	<u>1</u> 1													
Explanations: Refer to "Geological and Geotechnical Information" sheet for further details. In thitial Water Level Out flow In flow Moisture: W = moist W = wet S = saturated Core Loss Gravel Filter sand Core Loss Gravel Filter sand Core Loss	39.0_								<u> </u>													1
Initial Water Level Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S) Moisture: Y = Peak, R = Residual W = wet S = saturated Y = Pocket Penetrometer Y = Pocket Penetrometer Very Explanation State of Induse Section Indus	_	-		L					Ĭ										16. 28m - B	P: 5°, Undulating,		1
Moisture: W = wet S = saturated V = Peak, R = Residual VP = Pocket Penetration V = Peak Residual VP = Pocket Penetration Topsoil Clay Bentonite Moisture: S = saturated V ane Shear Strength (kPa) V = Peak, R = Residual VP = Pocket Penetrate PP = Pocket Penetrate Fill Sand Drill arisings Filter sand Million Water S Oracle Value Shear Strength (kPa) V = Peak, R = Residual VP = Pocket Penetrate PP = Pocket Penetrate Fill Sand Drill arisings Filter sand	Ex	plana	tions	: Ref	er to "G	eologic	al and	Geotechi	nical Info	ormation" sheet for	further details.		Backfill:	11								
Out flow Filled = Solid cone (C) No Fill = Split spoon (S)	•	Level		И	(SPT)				. * 2T ; 2T *.	Topsoil	Clay	₩ в	entonite				vith H	Q core ba	arrel.			
Moisture: Vane Shear Strength (kPa) M = moist V = Peak, R = Residual W = wet UTP = Unable to penetrate PP = Pocket Penetrometer Or Core Loss Gravel Fill Sand Originarisings Fill Sand	\triangleleft	Out flo		()	Filled =				20 20 20 20 20 20 20 20 20	Peat	Silt	<u> </u>	rout/concr	rete								
W = wet UTP = Unable to penetrate S = saturated PP = Pocket Penetrometer Core Loss Gravel Filter sand Filter sand	Moisture: Vane Shear Strength (kPa M = moist V = Peak, R = Residual									Fill	Sand	<u> </u>	rill arisings	s								
	W = wet UTP = Unable to penetrate							netrate		Core Loss	Gravel	F	ilter sand									
	All	dim	ensi	ons i	in me	etres	Dr	illing	Contr	actor:		T	Drilling	Rig ID:			D	riller:		Logged By	Checked	d By:



NOT TO SCALE

Drillforce

22 Moorhouse Avenue Addington CHRISTCHURCH 8011 Ph: 03.379.4402 4 Fred Thomas Drive Takapuna AUCKLAND 0622 Ph: 09.489.7872

MACHINE HOLE LOG

Ph: 03.379.4402 Ph: 09.489.7872 Ph: www.rileychch.co.nz Ph: 09.489.7872 Ph: 09																			
	-	No.	:			-	ct Na			1 -	Project Location:						No.:		
	0065 ent:				Rus	sse	ell Ro	ad, S	I, Silverdale Start Date: 16 Dec 2024			Russell Road & Upper Orewa Hole Location:				MH06			
Vineway Ltd Start Date: 16 Dec 2024 Find Date: 17 Dec 2024											Refer to Riley Dwg 240065-SK112					141	1100		
Co-ordinates :									Ground Level (m):			epth (m):			Azimuth:		Sheet:	Status:	
E 1748347.0, N 5949567.0						567	7.0		55.2 m			19.50		-90°		N/A	4 of 4	FINAL	
Œ	(m)	p	_	TCR	Cor	·e	Geological Unit	p	Geological Des	scription	Weathering	Field	es	Defect Spacing (mm)	Defect Symbolic Log		Description nce with NZGS	In-Situ	_ io
Elevation (m)	Depth (m)	Method	Run	(SCR) RQD	Los (%	ss	ogica	Legend	In accordance with NZGS refer to appended Inform		eath (Strength	Samples	ct Sp (mm)	t Syr Log	Guidelines appende	(2005); refer to d Information	Testing Data /	Backfill /
Ele	Ď	2	Box No.	(%)	(/ 0		Geo		abbreviation exp	lanation	× × × × × × × × × × × × × × × × × × ×	Soil Rock	Ø	Defe	Defe		l abbreviation lanation	Results	ءَ "
-	_		16.50					(1000)	[CONT] Unweathered; gre SANDSTONE; very weak								P: 5°, Planar,		
38.5	-								moderately to well cemen 200mm thick beds. Interb	ted, 100mm to edded with,						Smooth, no]
-	-								Unweathered; grey; SILT 50mm to 150mm thick be	STONE; weak, ds.					- Fr	Smooth, no	: 5°, Stepped, infill. : 10°, Planar,		
-	_17.0 _	þ													7	Rough, cart 17.00m - JT	onaceous. : 70°, Undulating,	17.0	
38.0_	-	y cored		100 - 87		0			-							Smooth, no 17. 18m - Bi Smooth, no	P: 5°, Planar,		
-	-	Rotary															P: 5°, Planar,]
-	_ 17.5						NO									17. 52m - BF Smooth, no	P: 5°, Undulating,	17.5.	
37.5_	-						MATI									17. 55m - BF Smooth, no	P: 5°, Planar,		-
-	-						BAYS FORMATION									Smooth, no	P: 0°, Planar, infill P: 0°, Planar,		1
-	_18.0	S ⊢	18.00												^~~~	Smooth, no		23, 27 for 45mm	
37.0-	-						OASI	:::::::	-						~_~_			Nc=50+	
-	-						EAST COAST									18. 25-18.29 Breaks	m - DB: x 10 Drill		1
-	_18.5						ш		7						-	18. 52m - BF	P: 0°, Planar,	18.5	
36.5_	-	cored		100		0										Smooth, no]
-	-	Rotary c		90												18. 73m - Bi Rough, no i	P: 0°, Planar, nfill.		1
-	_19.0	8 B							·									19.0.	
36.0_	-															19. 05m - BF Smooth, no	P: 0°, Planar, infill.		1
-	-														~~~~		m - DB: x 20 Drill		
35.70	19.50 19.5	oп				-			-ND 05 1101 5 40 50 4	5						Breaks		25, 25 for	
35.5	-								END OF HOLE: 19.50m (rarget Deptn)								15mm Nc=50+	1
-	-																		1
-	- 20.0																	20.0]
35.0-	-																		1
-	-																		-
-	_20.5																	20.5	1
34.5-	_																		1
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34.0-	-																		1
-	-]
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-	-																		1
33.5_	-]
-	-																		1
				Refer to "Geological and Geo					chnical Information" sheet for further details.		Backfill:	11	narks: Russell Roa	d					
▼ Initial Water Level		(SPT)			d Penetration Test			Ts Topsoil Clay		entonite		e was drilled		core ba	rrel.				
	Out flo		٧	No Fill	= Solid cone (C) = Split spoon (S)			S)	Peat *** S	silt 💹 G	rout/conci	rete							
Moisture: M = moist			Vane Shear Streng V = Peak, R = Res				esidua	d		and D	rill arising:	s							
	wet satura	ated			Unable to penetrate ocket Penetrometer						ilter sand								
٨١١	dim	onei	one in metree Drilling						Contractor:			Drillina Ria ID:			iller:	Logged By	Checked	l Bv:	

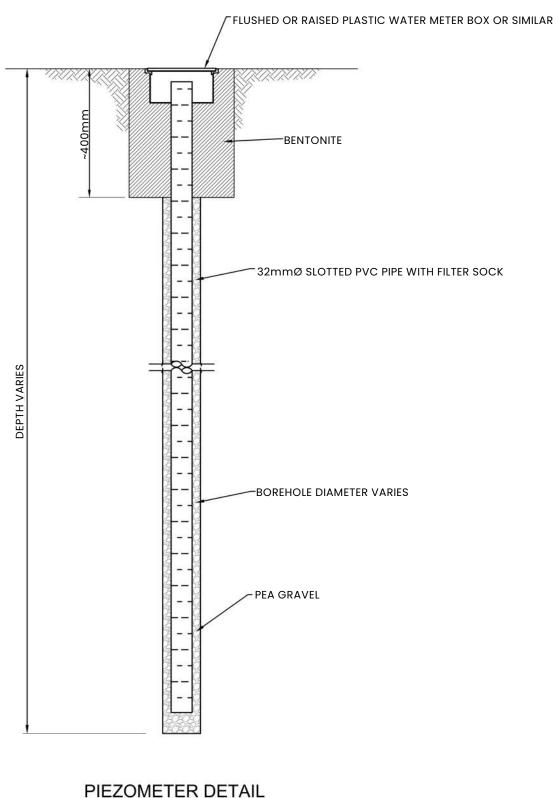
Appendix B

Typical Details - Piezometer Installation and Drainage







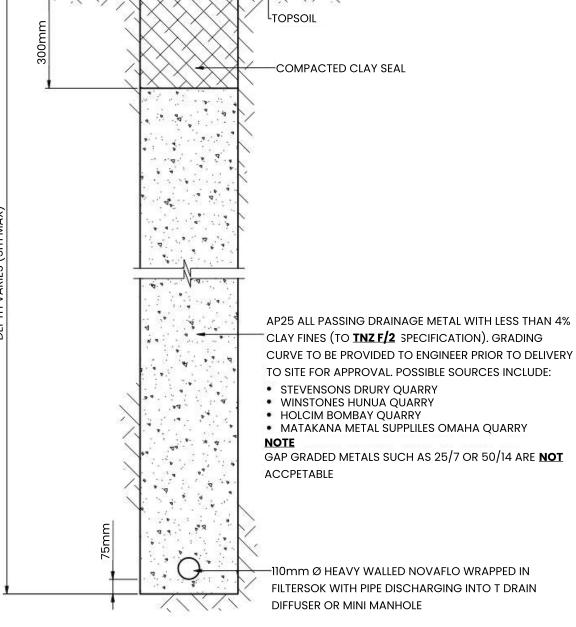


PIEZOMETER DETAIL

SCALE : N.T.S.

Note:

1. Do not scale from drawing 2. Refer to borehole logs in Riley report ref. 240065-F Appendix A for piezometer construction at specific locations



THUMES VALVE BOX HEAVY DUTY (W300xL335xH140) OR APPROVED EQUIVALENT. SURFACE BOX CAST INTO CONCRETE SURROUND (TYP. 100mm GAP ALL AROUND CAP) uPVC SCREWCAP 100 TOPSOIL GROUND LEVEL 400x400x100 CONCRETE SURROUND 300 CLAY SEAL COUNTERFORT DRAIN 110Ø HEAVY WALL PERFORATED DRAIN COIL PIPE **EXTENDS TO GROUND LEVEL**

TYPICAL MAINTENANCE CONNECTION DETAIL SCALE 1:20

1. Do not scale from drawing

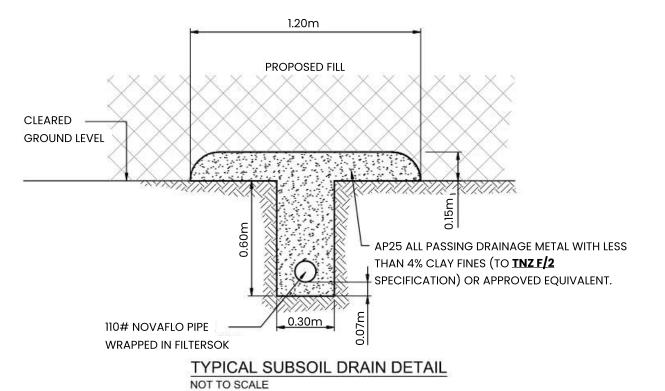
NOTES:

- 1. TRENCHES TO BE CONSTRUCTED IN LOCATIONS TO BE CONFIRMED. TYPICALLY 10-15m SPACING.
- 2. TRENCH DEPTH TO BE EXCAVATED TO DEPTHS SHOWN ON CROSS SECTION & PLAN.
- 3. TRENCH TO BE GRADED TO OUTLET SO NO PONDING CAN OCCUR. MIN. GRADIENT = 1:60

TYPICAL COUNTERFORT DRAIN DETAIL







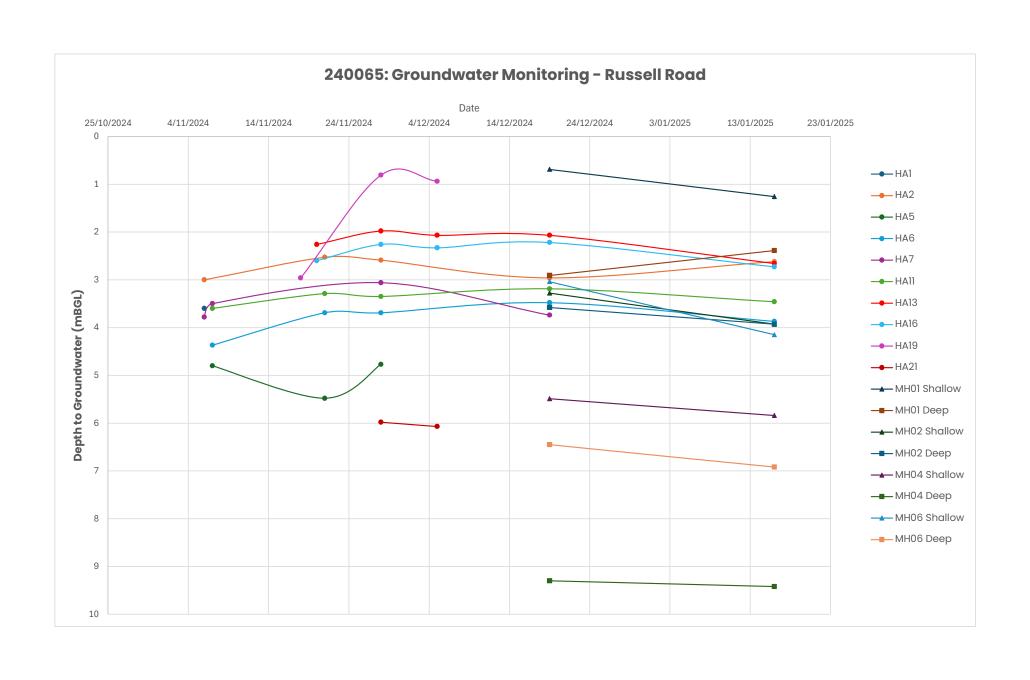
Note:

1. Do not scale from drawing





Appendix C Groundwater **Monitoring Results**



Appendix D

Laboratory Test Results





Auckland 1010 New Zealand Telephone 64-9-367 4954 E-mail wec@babbage.co.nz

Babbage Geotechnical Laboratory

Level 4

68 Beach Road

P O Box 2027

Job Number: 63743#L **BGL Registration Number: 2848**

Page 1 of 3

Checked by: WEC

28th November 2024

Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622 Auckland

Attention:

ATTERBERG LIMITS TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065

Report Number: 63743#L/AL Russell Road

The following report presents the results of Atterberg Limits testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with page 3 showing where the samples plot on the Unified Soil Classification System (Casagrande) Chart.

Test standards used were:

Water Content: NZS4402: 1986: Test 2.1 **Liquid Limit:** NZS4402: 1986: Test 2.2 **Plastic Limit:** NZS4402: 1986: Test 2.3 NZS4402: 1986: Test 2.4 Plasticity Index:

Borehole Number	Sample Number	Depth (m)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
TP3	BULK	4.00 – 5.00	43.2	46	26	20
TP7	BULK	0.60 - 0.80	49.6	86	33	53
TP10	В	3.60 – 3.80	24.0	52 ♦	18 ♦	34 ♦
TP16	BULK	1.00 – 1.20	50.5	109	34	75

 ⁼ The soil fraction passing a 425μm sieve was used for the liquid limit and plastic limit tests.



Job Number: 63743#L 28th November 2024 Page 2 of 3

The whole soils were used for the water content tests (the soils were in an unknown state), and for the liquid limit and plastic limit tests without a diamond beside them. The soil fractions passing a 0.425mm sieve were used for the liquid limit and plastic limit tests with a diamond (♠) beside them. The soils were wet up and dried where required for the liquid limit and plastic limit tests.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.2: liquid limit and test 2.3: plastic limit are reported to the nearest whole number.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.



Babbage Geotechnical Laboratory

Job Number:	63743#L	Sheet 1 of 1	Page 3 of 3
Registration Number:	2848	Sileet I of I	Page 3 01 3
Report Number:	637/13#1 /AI	Russell Road	4

Project:

RUSSELL ROAD, UPPER OREWA

Tested By:

Compiled By:

Checked By:

WEC / SG

JF

JF

November 2024

28/11/2024

28/11/2024

DETERMINATION OF THE LIQUID LIMIT, PLASTIC LIMIT & THE PLASTICITY INDEX

Test Methods: NZS4402: 1986: Test 2.2, Test 2.3 and Test 2.4

		-,		Chiconou By.	٥.	
Version Number:	7	Version Date:	July 2022	Authori	sed By:	Wayne Campton

SUMMARY OF TESTING							
Borehole Number	Sample Number	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Soil Classification Based on USCS Chart Below	
TP3	BULK	4.00 - 5.00	46	26	20	CL	
TP7	BULK	0.60 - 0.80	86	33	53	CH	
TP10	В	3.60 - 3.80	52	18	34	CH	
TP16	BULK	1.00 - 1.20	109	34	75	СН	

The chart below & soil classification terminology is taken from ASTM D2487-17^{e1} "Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)", April 2020, & is based on the classification scheme developed by A. Casagrande in the 1940's (Casagrande, A., 1948: Classification and identification of soil. Transactions of the American Society of Civil Engineers, v. 113, p. 901-930). The chart below & the soil classification given in the table above are included for your information only, and are not included in the IANZ endorsement for this report.

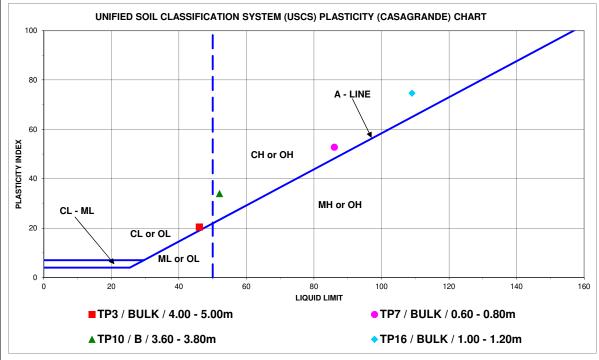


CHART LEGEND

CL = CLAY, low plasticity ('lean' clay)

 $\label{eq:old_obj} \mbox{OL} = \mbox{ORGANIC CLAY or ORGANIC SILT, low liquid limit}$

ML = SILT, low liquid limit

CL - ML = SILTY CLAY

CH = CLAY, high plasticity ('fat' clay)

OH = ORGANIC CLAY or ORGANIC SILT, high liquid limit

MH = SILT, high liquid limit ('elastic silt')



Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622

Auckland

Attention:

Babbage Geotechnical Laboratory

Level 4

68 Beach Road P O Box 2027 Auckland 1010 New Zealand Telephone 64-9-367 4954 E-mail wec@babbage.co.nz

Page 1 of 3

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

18th December 2024

ATTERBERG LIMITS TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 - Stage 2

Report Number: 63743#L/AL2 Russell Road

The following report presents the results of Atterberg Limits testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with page 3 showing where the samples plot on the Unified Soil Classification System (Casagrande) Chart.

Test standards used were:

Water Content: NZS4402: 1986: Test 2.1 **Liquid Limit:** NZS4402: 1986: Test 2.2 **Plastic Limit:** NZS4402: 1986: Test 2.3 NZS4402: 1986: Test 2.4 Plasticity Index:

Borehole Number	Sample Number	Depth (m)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
TP41	BULK	3.20 – 4.60	47.5	55	23	32
TP47	BULK	1.00 – 2.00	37.4	76	25	51

The whole soils were used for the water content tests (the soils were in an unknown state), and for the liquid limit and plastic limit tests. The soils were wet up and dried where required for the liquid limit and plastic limit tests.



Job Number: 63743#L 18th December 2024 Page 2 of 3

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.2: liquid limit and test 2.3: plastic limit are reported to the nearest whole number.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin Key Technical Person Assistant Laboratory Manager Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.



 Job Number:
 63743#L
 Sheet 1 of 1
 Page 3 of 3

 Registration Number:
 2848
 Page 3 of 3

 Report Number:
 63743#L/AL2 Russell Road

Babbage Geotechnical Laboratory

Project:

RUSSELL ROAD, UPPER OREWA

Tested By:

Compiled By:

Checked By:

JL / SG

JF

JF

December 2024

18/12/2024

18/12/2024

DETERMINATION OF THE LIQUID LIMIT, PLASTIC LIMIT & THE PLASTICITY INDEX

Test Methods: NZS4402: 1986: Test 2.2, Test 2.3 and Test 2.4

		.,		Chiconoa By.	٥.	
Version Number:	7	Version Date:	July 2022	Authori	sed By:	Wayne Campton

	SUMMARY OF TESTING								
Borehole Number	Sample Number	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Soil Classification Based on USCS Chart Below			
TP41	BULK	3.20 - 4.60	55	23	32	CH			
TP47	BULK	1.00 - 2.00	76	25	51	СН			

The chart below & soil classification terminology is taken from ASTM D2487-17^{e1} "Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)", April 2020, & is based on the classification scheme developed by A. Casagrande in the 1940's (Casagrande, A., 1948: Classification and identification of soil. Transactions of the American Society of Civil Engineers, v. 113, p. 901-930). The chart below & the soil classification given in the table above are included for your information only, and are not included in the IANZ endorsement for this report.

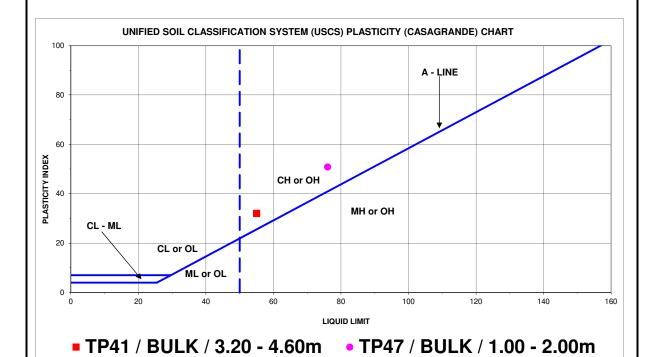


CHART LEGEND

CL = CLAY, low plasticity ('lean' clay)

 $\label{eq:old_obj} \mbox{OL} = \mbox{ORGANIC CLAY or ORGANIC SILT, low liquid limit}$

ML = SILT, low liquid limit

CL - ML = SILTY CLAY

CH = CLAY, high plasticity ('fat' clay)

OH = ORGANIC CLAY or ORGANIC SILT, high liquid limit

MH = SILT, high liquid limit ('elastic silt')



Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622 Auckland

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Page 1 of 4

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

27th November 2024

HYDROMETER PARTICLE-SIZE DISTRIBUTION TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065

Report Number: 63743#L/HYD Russell Road

The following report presents the results of hydrometer particle-size distribution testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

 Water Content:
 NZS4402: 1986: Test 2.1

 Wet Sieve Test:
 NZS4402: 1986: Test 2.8.1

 Hydrometer Test:
 NZS4402: 1986: Test 2.8.4

			Hydrometer Grading (% of Dry Mass)				
Borehole Number	Sample Number	Depth (m)	GRAVEL (2 – <9.50mm)	SAND (0.06 – 2mm)	SILT FRACTION (0.002 – 0.06mm)	CLAY FRACTION (< 0.002mm)	
TP10	Α	2.40 – 2.70	1	58	23	18	
TP10	В	3.60 – 3.80	0	13	63	24	

The whole soils were used for these hydrometer tests. NZS4402:1986:Test 2.8.4 uses a 2.00mm sieve as the separation point for obtaining the hydrometer sample, therefore the use of the whole soils represents a departure from the test standard.



Job Number: 63743#L 27th November 2024 Page 2 of 4

As the organic content of the soils tested was very low, peroxide pretreatment was not carried out. A solid density of 2.65t/m³ was assumed for these hydrometer tests, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.8.1: wet sieve & Test 2.8.4: hydrometer, the 'percentages passing' and 'percentages finer than' are reported to nearest 1%.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.



Version Number:

Job Number:	63743#L	Shoot 1 of 1	Page 3 of 4	
Registration Number:	2848	Sileet 1 01 1	Page 3 01 4	
Report Number:	63743#L/HYD Russell Road			

Project:

Version Date:

RUSSELL ROAD, UPPER OREWA

Tested By:

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

7

 Compiled By:
 WEC
 27-Nov-24

 Checked By:
 JF
 27-Nov-24

Authorised By: W. Campton

%

%

WEC

26-Nov-24

Borehole No: TP10	Sample No: 🛕	Depth: 2 40 - 2 70m

Water Content (%): 35.7

July 2022

Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.0

Particle-size (mm)	% Finer Than
4.75	100
2.00	99
0.600	85
0.300	72
0.212	65
0.150	58
0.063	42
0.047	40
0.034	38
0.024	34
0.017	32
0.013	29
0.0093	27
0.0066	25
0.0047	23
0.0034	21
0.0024	20
0.0014	14

HYDROMETER ANALYSIS (% of dry mass) TOTAL

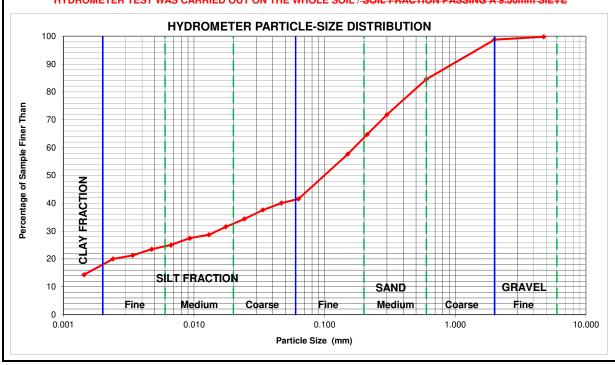
GRAVEL	Medium	< 9.5 - 6mm	0	
GHAVEE	Fine	6 - 2mm	1	1

(Coarse	2.0 - 0.6mm	14	
SAND	1edium	0.6 - 0.2mm	21	58
	Fine	0.2 - 0.06mm	23	

OU T	Coarse	0.06 - 0.02mm	8	
SILT	Medium	0.02 - 0.006mm	9	23
PHACTION	Fine	0.006 - 0.002mm	6	

		_	
CLAY FRACTION	< 0.002mm	18	%
		100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / SOIL FRACTION PASSING A 9.50mm SIEVE





Version Number:

Job Number:	63743#L	Sheet 1 of 1	Page 4 of 4
Registration Number:	2848	Sileet 1 01 1	Page 4 01 4
Report Number:	63743#L/HYD Russell Road		Road

Project:

Version Date:

RUSSELL ROAD, UPPER OREWA

Tested By:

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

 Compiled By:
 WEC
 27-Nov-24

 Checked By:
 JF
 27-Nov-24

Authorised By: W. Campton

WEC

26-Nov-24

Borehole No: TP10 Sample No: B Depth: 3.60 - 3.80m

Water Content (%): 24.1

July 2022

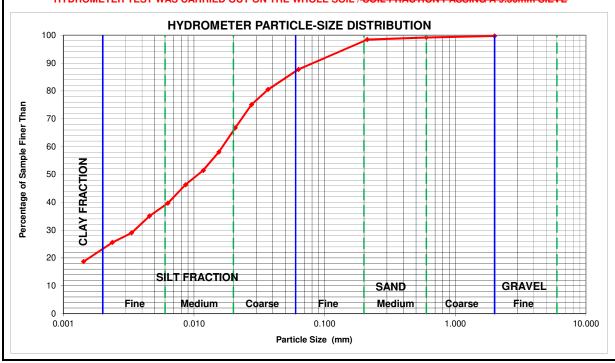
Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.5

Particle-size (mm)	% Finer Than
2.00	100
0.600	99
0.212	98
0.063	88
0.037	81
0.028	75
0.021	67
0.016	58
0.012	51
0.0086	46
0.0063	40
0.0046	35
0.0033	29
0.0024	26
0.0014	19

HYDROMET	TOTAL					
GRAVEL	Medium	< 9.5 - 6mm	0			
GRAVEL	Fine	6 - 2mm	0	0	%	
	Coarse	2.0 - 0.6mm	1			
SAND	Medium	0.6 - 0.2mm	1	13	%	
	Fine	0.2 - 0.06mm	11			
SILT	Coarse	0.06 - 0.02mm	21			
FRACTION	Medium	0.02 - 0.006mm	27	63	%	
THATTON	Fine	0.006 - 0.002mm	15			
CLAY FRACTION < 0.002mm				24	%	
		· ——-		100%		

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / SOIL FRACTION PASSING A 9.50mm SIEVE





Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622 Auckland

Attention:

Babbage Geotechnical Laboratory

Level 4

68 Beach Road P O Box 2027
Auckland 1010 New Zealand
Telephone 64-9-367 4954
E-mail wec@babbage.co.nz

Page 1 of 5

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

18th December 2024

HYDROMETER PARTICLE-SIZE DISTRIBUTION TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 - Stage 2

Report Number: 63743#L/HYD2 Russell Road

The following report presents the results of hydrometer particle-size distribution testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

 Water Content:
 NZS4402: 1986: Test 2.1

 Wet Sieve Test:
 NZS4402: 1986: Test 2.8.1

 Hydrometer Test:
 NZS4402: 1986: Test 2.8.4

			Нус	drometer Gradi	ng (% of Dry Ma	ass)
Borehole Number	Sample Number	Depth (m)	GRAVEL (2 – <9.50mm)	SAND (0.06 – 2mm)	SILT FRACTION (0.002 – 0.06mm)	CLAY FRACTION (< 0.002mm)
TP30	BULK	3.45 – 4.10	0	10	64	26
TP36	BULK	3.80 – 4.60	0	63	25	12
TP41	BULK	3.20 – 4.60	0	36	44	20



Job Number: 63743#L 18th December 2024 Page 2 of 5

The whole soils were used for these hydrometer tests. As the organic content of the soils tested was very low, peroxide pretreatment was not carried out. A solid density of 2.65t/m³ was assumed for these hydrometer tests, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.8.1: wet sieve & Test 2.8.4: hydrometer, the 'percentages passing' and 'percentages finer than' are reported to nearest 1%.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory



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Particle-size (mm)

0.212 0.063

0.044

0.032

0.023

0.017

0.013

0.0092

0.0066

0.0048

0.0034

0.0024

0.0014

Job Number:	63743#L	Sheet 1 of 1	Page 3 of 5	
Registration Number:	2848	Sileet 1 01 1	Page 3 01 5	
Report Number:	63743#L/HYD2 Russell Road			

Project:

RUSSELL ROAD, UPPER OREWA

JL

JL

26

100%

17-Dec-24

18-Dec-24

Tested By:

Compiled By:

PARTICLE-SIZE DISTRIBUTION BY **HYDROMETER**

% Finer Than 100

91

88

81

72

64

59

51

44

39

35

29

21

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4 Checked By: JF 18-Dec-24 Version Number: Version Date: July 2022 Authorised By: W. Campton

Borehole No: TP30 Sample No: **BULK** Depth: 3.45 - 4.10m

> Water Content (%): 50.8

Sample History: Natural / Air Dried / Oven Dried / Unknown

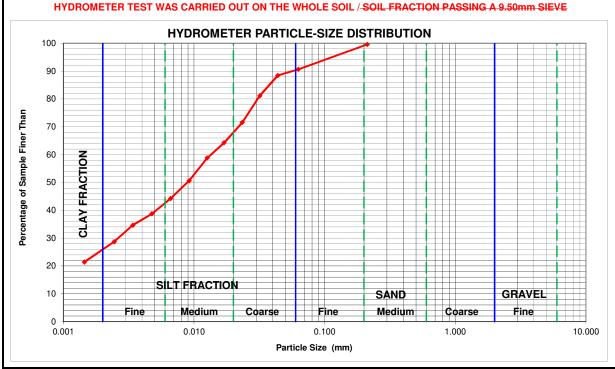
pH of sedimentation suspension: 8.5

HYDROMETER ANALYSIS (% of dry mass) TOTAL

GRAVEL	Medium	< 9.5 - 6mm	0		
GRAVEL	Fine	6 - 2mm	0	0	%
SAND	Coarse	2.0 - 0.6mm	0		
	Medium	0.6 - 0.2mm	1	10	%
	Fine	0.2 - 0.06mm	9		
•		•	•		
CILT	Coarse	0.06 - 0.02mm	22		
SILT FRACTION	Medium	0.02 - 0.006mm	25	64	%
	Fine	0.006 - 0.002mm	17		

< 0.002mm

CLAY FRACTION





Version Number:

Job Number:	63743#L	Shoot 1 of 1	Page 4 of 5
Registration Number:	2848	Sileet 1 01 1	Page 4 01 5
Report Number:	63743#L/HYD2 Russell Road		Road

Laboratory

Project:

Version Date:

RUSSELL ROAD, UPPER OREWA

Tested By:

PARTICLE-SIZE DISTRIBUTION BY **HYDROMETER**

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Compiled By: JL 18-Dec-24 Checked By: JF 18-Dec-24

Authorised By: W. Campton

JL

17-Dec-24

Sample No: **BULK** Borehole No: TP36 Depth: 3.80 - 4.60m

> Water Content (%): 39.0

July 2022

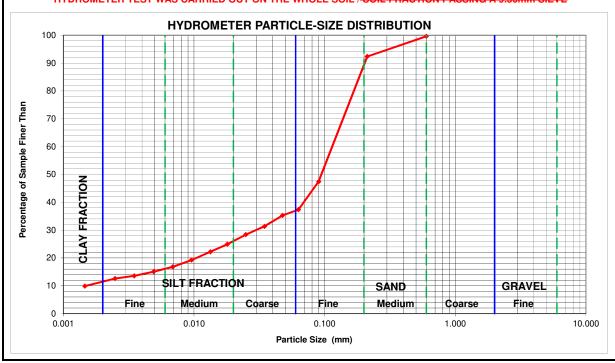
Sample History: Natural / Air Dried / Oven Dried / Unknown

8.0 pH of sedimentation suspension:

Particle-size (mm)	% Finer Than
0.600	100
0.212	92
0.090	47
0.063	37
0.048	35
0.035	31
0.025	28
0.018	25
0.013	22
0.0096	19
0.0069	17
0.0049	15
0.0035	14
0.0025	13
0.0015	10

HYDROMETER ANALYSIS (% of dry mass)				TOTAL	
GRAVEL	Medium	< 9.5 - 6mm	0		
GRAVEL	Fine	6 - 2mm	0	0	%
	Coarse	2.0 - 0.6mm	0		
SAND	Medium	0.6 - 0.2mm	11	63	%
	Fine	0.2 - 0.06mm	52		
SILT	Coarse	0.06 - 0.02mm	11		
FRACTION	Medium	0.02 - 0.006mm	10	25	%
THACTION	Fine	0.006 - 0.002mm	4		
CLAY FR	ACTION	< 0.002mm		12	%
			-	100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL /SOIL FRACTION PASSING A 9.50mm SIEVE





Job Number:	63743#L	Sheet 1 of 1	Page 5 of 5		
Registration Number:	2848	Sileet 1 01 1	rage 5 01 5		
Report Number:	63743#L/HYD2 Russell Road				

Project:

RUSSELL ROAD, UPPER OREWA

JL

JL

17-Dec-24

18-Dec-24

Tested By:

Compiled By:

PARTICLE-SIZE DISTRIBUTION BY **HYDROMETER**

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Checked By: JF 18-Dec-24 Version Number: Version Date: July 2022 Authorised By: W. Campton

Sample No: **BULK** Depth: 3.20 - 4.60m Borehole No: TP41

> Water Content (%): 47.5

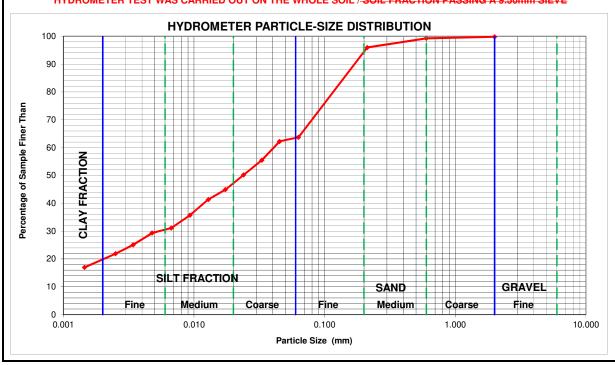
Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.0

Particle-size (mm)	% Finer Than
2.00	100
0.600	99
0.212	96
0.063	64
0.045	62
0.033	55
0.024	50
0.017	45
0.013	41
0.0093	36
0.0067	31
0.0048	29
0.0034	25
0.0025	22
0.0014	17

HYDROMET	nass)	TOTAL				
GRAVEL	Medium	< 9.5 - 6mm	0			
GRAVEL	Fine	6 - 2mm	0	0	%	
	Coarse	2.0 - 0.6mm	1			
SAND	Medium	0.6 - 0.2mm	5	36	%	
	Fine	0.2 - 0.06mm	30			
	•	•	·			
SILT	Coarse	0.06 - 0.02mm	17			
FRACTION	Medium	0.02 - 0.006mm	16	44	%	
THACTION	Fine	0.006 - 0.002mm	11			
CLAY FRA	ACTION	< 0.002mm	_	20	%	
		,	-	100%		

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL /SOIL FRACTION PASSING A 9.50mm SIEVE





Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622

Attention:

Auckland

Babbage Geotechnical Laboratory

Level 4

68 Beach Road P O Box 2027 Auckland 1010 New Zealand Telephone 64-9-367 4954 E-mail wec@babbage.co.nz

Page 1 of 4

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

18th December 2024

SOAKED CALIFORNIA BEARING RATIO (CBR) TESTING

Dear Sir.

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 - Stage 2

Report Number: 63743#L/CBR Russell Road

The following report presents the results of soaked California Bearing Ratio testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

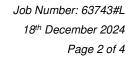
Water Content: NZS4402: 1986: Test 2.1 **NZ Standard Compaction:** NZS4402: 1986: Test 4.1.1

California Bearing Ratio (CBR) – Remoulded: NZS4402: 1986: Test 6.1.1 (soaked)

The bulk samples were sieved through a 19.0mm sieve to remove any oversized material if present, and then through a 9.5mm aperture sieve to break up the soil (which is a departure from the NZS4402 Standard which requires a 4.75mm sieve to be used). Sample TP36 was too wet to be compacted at the as-received water content, so it was dried-back from 40.5% to 31.3% water content. The sieved bulk samples were then compacted into CBR moulds using the NZ Standard Compaction method. The compacted samples were then soaked for four days. The CBR values were then measured using a plunger penetration rate of 1mm per minute.

	Water Content (%)		Day Dayaitu	ODD	0	
Sample Details	Initial (trimmings)	After Testing (under plunger)	Dry Density (t/m³)	CBR (soaked)	Swell (%)	
TP30 / BULK /	50.9	50.5	1.10	1	0.4	
3.45 – 4.10m	SILT, clayey, minor fine sand, moderately plastic, light brown, very moist.					

Note that sample descriptions are not part of BGL IANZ Accreditation.





	W	ater Content (9	Dest			
Sample Details	As-received	Adjusted (before Compaction)	After Testing (under plunger)	Dry Density (t/m³)	CBR (soaked)	Swell (%)
TP36 /	40.5	31.3	31.5	1.40	2	0.0
BULK / 3.80 – 4.60m		ght grey, from sily broken up				

Note that sample descriptions are not part of BGL IANZ Accreditation.

Note that a solid density value of 2.65t/m³ was used in the calculation of the air voids for these compacted samples. This value is assumed, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 6.1.1, dry density is reported to the nearest $0.02t/m^3$, swell to the nearest 0.2%, CBR's > 20 to the nearest 5, CBR's between 5 and 20 to the nearest 1, and for CBR's < 5 to the nearest 0.5. As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin Key Technical Person Assistant Laboratory Manager Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.



Version Number:

Sample History:

Compaction Used:

Job Number: Registration Number:

63743#L 2848

Version Date:

Report Number: 63743#L/CBR Russell Road

Page 3 of 4

Wayne Campton

Force

(kN)

0.00

0.03

0.05

0.07

0.09

0.11

0.13

0.15

PROJECT:

RUSSELL ROAD, UPPER OREWA

September 2022

Plunger

Penetration (mm)

0.0 0.5

1.0

1.5

2.0

2.5

3.0

3.5

CALIFORNIA BEARING RATIO TEST: REMOULDED	
SAMPLE, SOAKED	

Test Methods: NZS4402: 1986: Test 6.1.1 - California Bearing Ratio / NZS4402: 1986: Test 2.1 - Water Content

Tested By:	WEC / SG / JL	17/12/2024
Compiled By:	SG	18/12/2024
Checked By:	JF	18/12/2024

Authorised By:

DETERMINATION OF BEARING VALUE

Proving Ring Dial

(divisions)

0.0

47.0

77.0

100.0

129.0

157.0

188.0

218.0

TP30 / BULK Sample Identification: 3.45 - 4.10m Sample Depth (m):

dried / wetted / lime added / cement added / unknown / natural

1155-3-1320 Proving Ring Number Ring Calibration Factor 1452.10 (dial divisions / kN: from calibration worksheet)

NZ Standard Compaction / NZ Heavy Compaction

SOAKED CBR

O O 7 11		_
Soil Sieved Through:	19.0 & 9.5	mm sieves
Surcharge Used:	4.00	kg
Mould Number:	B11	

BULK DENSITY

Bulk Density	1.67	(t/m ³)
Volume Mould (from calibration)	2,306.00	(ml)
Mass Mould + Base	6,761.30	(g)
Mass Mould + Base + Soil	10,611.00	(g)

					4.0	247.0	0.17
					4.5	275.0	0.19
WA	TER CONTENT		Before (trimmings)	After (under plunger)	5.0	290.0	0.20
ı	Mass Wet Soil + T	Γin (g)	459.298	343.097	5.5	300.0	0.21
- 1	Mass Dry Soil + T	in (g)	340.515	255.403	6.0	307.0	0.21
	Mass Tin	(g)	106.992	81.877	6.5	312.0	0.21
1	Nater Content	(%)	50.9	50.5	7.0	322.0	0.22
	Dry Density	(t/m ³)	1.1	10	7.5	333.0	0.23

DETERMINATION OF SWELL

Swell (%)	0.4
Initial Height (mm)	127.14
Change in Height (mm)	0.53
Final Reading (mm)	14.84
Initial Reading (mm)	14.31

Air Voids:	2.0	%
Time of Soaking:	4	days
Plunger Penetration Rate:	1.0	mm / minut

2.5mm PENETRATION BEARING VALUE

uncorrected
with curve shape correction (if needed)
5.0mm PENETRATION BEARING VALUE
uncorrected
with curve shape correction (if needed)

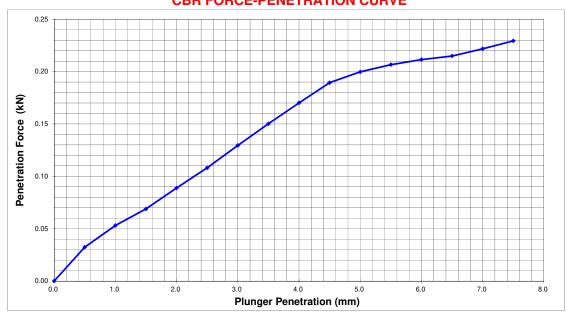
0.8
0.8
1.0
1.0

1

FINAL CBR VALUE:

Lime Added:	0.0	%
Cement Added:	0.0	%

CBR FORCE-PENETRATION CURVE





Job Number: Registration Number:

63743#L 2848

Report Number: 63743#L/CBR Russell Road

Page 4 of 4

2

PROJECT:

RUSSELL ROAD, UPPER OREWA

CALIFORNIA BEARING I	Initials	Date			
SAMPLE, SOAKED	WEC / SG / JL	17/12/2024			
Test Methods: NZS4402: 1986: Te	Compiled By:	WEC	18/12/2024		
1986: Test 2.1 - Water Content			Checked By:	JF	18/12/2024
Varaian Number	1	Version Date:	Sontombor 2022	Authoricad Du	Wayna Campton

1986: Test 2.1 - Water Content			Checked By:	JF	18/12/2024
Version Number:	4	Version Date:	September 2022	Authorised By:	Wayne Campton
Sample Identification:	TP36 / BULK			Proving Ring Number:	1155-3-1320
Sample Depth (m):	3.80 - 4.60m			Ring Calibration Factor:	1452.10

Sample History: dried / wetted / lime added / cement added / unknown / natural

Proving Ring Number:	1155-3-1320
Ring Calibration Factor:	1452.10
(dial divisions / kN: from	n calibration worksheet)
<u> </u>	

Compaction Used:	NZ Standard Compaction	on / NZ Heavy Compacti	on		
90/	KED CB	DETERMINATION OF BEARING VALUE			
SUF	AVED CD	n	Plunger	Proving Ring Dial	Force
Soil Sieved Throu	jh: 19.0 & 9.5	mm sieves	Penetration (mm)	(divisions)	(kN)
Surcharge Us	ed: 4.00	kg	0.0	0.0	0.00
Mould Numb	er: B8		0.5	34.0	0.02
		_	1.0	76.0	0.05
BULK DEN	ISITY		1.5	118.0	0.08
Mass Mould + Base + S	oil 10,443.20	(g)	2.0	160.0	0.11
Mass Mould + Ba	se 6,188.10	(g)	2.5	203.0	0.14
Volume Mould (from calibration	on) 2,310.00	(ml)	3.0	252.0	0.17
Bulk Dens	ity 1.84	(t/m ³)	3.5	303.0	0.21
		_	4.0	355.0	0.24
			4.5	410.0	0.28
WATER CONTENT	Before (trimmings)	After (under plunger)	5.0	454.0	0.31
Mass Wet Soil + Tin	(g) 480.675	514.368	5.5	483.0	0.33
Mass Dry Soil + Tin	(g) 390.160	410.492	6.0	504.0	0.35
Mass Tin	(g) 101.282	80.260	6.5	529.0	0.36
Water Content (%) 31.3	31.5	7.0	561.0	0.39
Dry Density (t/r	n ³)	.40	7.5	597.0	0.41
2.5mm PENETRATION BEARING VALUE					
DETERMINATION	OF SWELL		uncorrected		1.1
Initial Reading (m	m) 12.32		with curve shape correc	tion (if needed)	1.1
Final Reading (m	m) 12.23		5.0mm PENETRATION	BEARING VALUE	
Change in Height (m	m) -0.09	1	uncorrected		1.6

DETERMINATION OF SWELL			
Initial Reading (mm)	12.32		
Final Reading (mm)	12.23		
Change in Height (mm)	-0.09		
Initial Height (mm)	127.36		
Swell (%)	0.0		

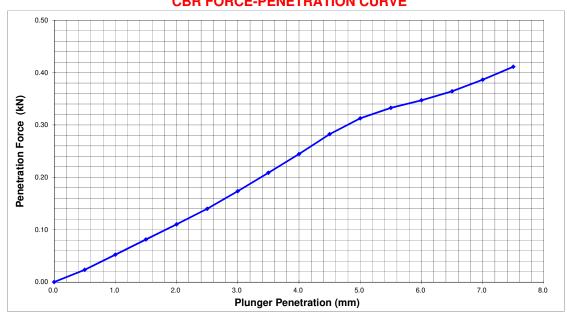
Air Voids:	3.1	%
Time of Soaking:	4	days
Plunger Penetration Rate:	1.0	mm / minute

2.5mm PENETRATION BEARING VALUE	
uncorrected	1.1
with curve shape correction (if needed)	1.1
5.0mm PENETRATION BEARING VALUE	
uncorrected	1.6
with curve shape correction (if needed)	1.6

FINAL CBR VALUE:

Lime Added:	0.0	%
Cement Added:	0.0	%

CBR FORCE-PENETRATION CURVE





Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622 Auckland

Attention:

Babbage Geotechnical Laboratory

Level 4

68 Beach Road P O Box 2027 Auckland 1010 New Zealand Telephone 64-9-367 4954 E-mail wec@babbage.co.nz

Page 1 of 6

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

2nd December 2024

DRY DENSITY / WATER CONTENT RELATIONSHIP (COMPACTION CURVE) TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065

Report Number: 63743#L/CC Russell Road

The following report presents the results of compaction curve testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

A single shear vane test was carried out on each compacted sample while it was still in the proctor mould, and these results are included on the results tables and water content / density graphs. The shear vane results are included for your information only, and are not included in the IANZ endorsement for this report.

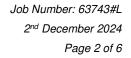
Test standards used were:

Water Content: NZS4402: 1986: Test 2.1 **NZ Standard Compaction:** NZS4402: 1986: Test 4.1.1

Vane Shear Strength: NZ Geotechnical Society Guideline 2001

Sample Identification	Maximum Dry Density (t/m³)	Optimum Water Content (%)	Natural Water Content (%)		
TP3 / BULK /	1.54	20	42.4		
4.00 – 5.00m	SILT, fine sandy, slightly to moderately plastic, pink with orange & light grey mottles, wet.				
TP7 / BULK /	1.25	36	49.4		
0.60 – 0.80m	CLAY, silty, minor fine sa mottles, very moist.	nd, moderately plastic, ora	nge with light grey		

Note that sample descriptions are not part of BGL IANZ Accreditation.





Sample Identification	Maximum Dry Density (t/m³)	Optimum Water Content (%)	Natural Water Content (%)		
TP10 / A / 2.40 –	1.53	21	36.1		
2.70m	CLAY, silty, some fine to coarse sand, moderately plastic, white & orar moist.				
TP10 / B / 3.60 –	1.60	20	23.4		
3.80m SILT, fine sandy, non-plastic, grey, slightly moist, [WEATHERED SILTSTONE & SANDSTONE].					

Note that sample descriptions are not part of BGL IANZ Accreditation.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. As per the reporting requirements of NZS4402: 1986: Test 4.1.1: New Zealand Standard Compaction Test, maximum dry density is reported to the nearest 0.01t/m³, optimum water content is reported to the nearest 0.2% for values below 5%, to the nearest 0.5% for values from 5 to 10%, and to the nearest whole number for values greater than 10%.

For calculating the air voids percentages a solid density of 2.65t/m³ was assumed for sample TP3, a solid density of 2.64t/m³ was assumed for sample TP7, a solid density of 2.65t/m³ was assumed for sample TP10 / A, and a solid density of 2.64t/m³ was assumed for sample TP10 / B. Note that these assumed values are not part of the IANZ endorsement for this report.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.



Job Number:	63743#L
Registration Number:	2848

PROJECT:

Version Date:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Version Number:

 Tested By:
 JL
 November 2024

 Compiled By:
 JL
 29/11/2024

 Checked By:
 JF
 2/12/2024

 February 2023
 Authorised By:
 W. Campton

Page 3 of 6

Sample ID: TP3 / BULK

Sample Depth: 4.00 - 5.00m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.65 t/m³ (measured / assumed)

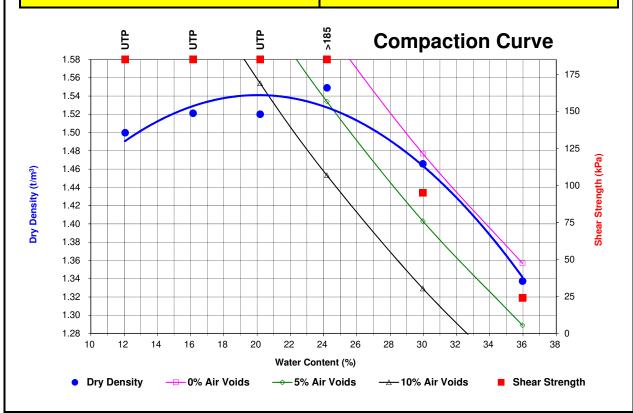
Natural Water Content (%): 42.4

TEST RESULTS

Water Content (%)	12.1	16.1	20.2	24.2	30.0	36.0
Bulk Density (t/m³)	1.68	1.77	1.83	1.92	1.91	1.82
Dry Density (t/m³)	1.50	1.52	1.52	1.55	1.47	1.34
Air Voids (%)	25.3	18.0	12.0	4.1	0.8	1.4
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	95	24

*UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.54 t/m³ Optimum Water Content: 20 %





Job Number:	63743#L
Registration Number:	2848

PROJECT:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

 Tested By:
 JL
 November 2024

 Compiled By:
 JL
 29/11/2024

 Checked By:
 JF
 2/12/2024

 ary 2023
 Authorised By:
 W. Campton

Page 4 of 6

 Version Number:
 5
 Version Date:
 February 2023
 Authorised By:
 W

Sample ID: TP7 / BULK

Sample Depth: **0.60 - 0.80m**

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.64 t/m³ (measured / assumed)

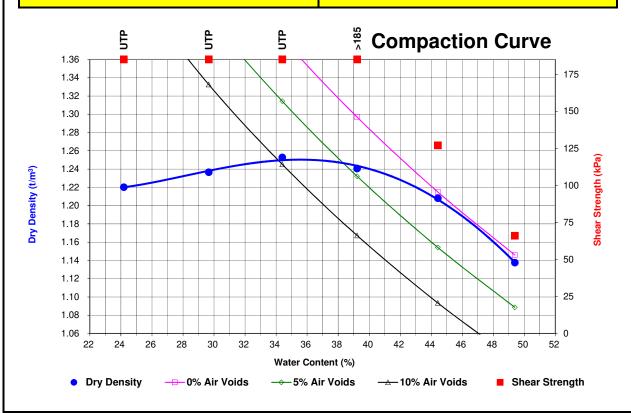
Natural Water Content (%): 49.4

TEST RESULTS

Water Content (%)	24.2	29.7	34.4	39.2	44.4	49.4
Bulk Density (t/m³)	1.52	1.60	1.68	1.73	1.74	1.70
Dry Density (t/m³)	1.22	1.24	1.25	1.24	1.21	1.14
Air Voids (%)	24.3	16.5	9.4	4.3	0.6	0.7
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	127	66

^{*}UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.25 t/m³ Optimum Water Content: 36 %





Job Number:	63743#L
Registration Number:	2848

PROJECT:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	SG	November 2024
Compiled By:	SG	29/11/2024
Checked By:	JF	2/12/2024

Page 5 of 6

 Version Number:
 5
 Version Date:
 February 2023
 Authorised By:
 W. Campton

Sample ID: TP10 / A

Sample Depth: 2.40 - 2.70m

Sample History: Air-dried and wetted from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.65 t/m³ (measured / assumed)

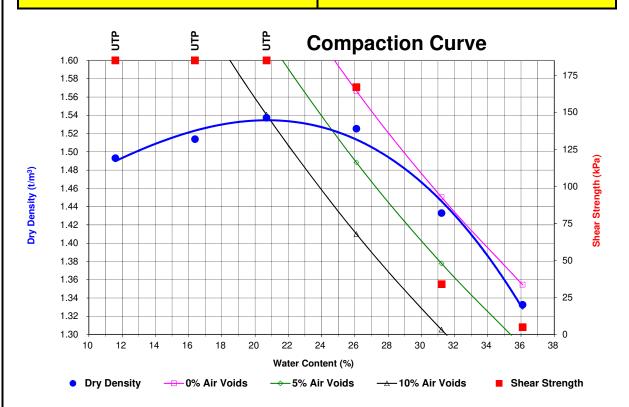
Natural Water Content (%): 36.1

TEST RESULTS

Water Content (%)	11.6	16.4	20.7	26.1	31.2	36.1
Bulk Density (t/m³)	1.67	1.76	1.86	1.92	1.88	1.81
Dry Density (t/m³)	1.49	1.51	1.54	1.53	1.43	1.33
Air Voids (%)	26.4	18.1	10.2	2.6	1.2	1.6
Shear Strength (kPa)	UTP*	UTP*	UTP*	167	34	5

^{*}UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.53 t/m³ Optimum Water Content: 21 %





Job Number:	63743#L	
Registration Number:	2848	

PROJECT:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

 Tested By:
 JL
 November 2024

 Compiled By:
 JL
 29/11/2024

 Checked By:
 JF
 2/12/2024

Page 6 of 6

 Version Number:
 5
 Version Date:
 February 2023
 Authorised By:
 W. Campton

Sample ID: TP10 / B

Sample Depth: 3.60 - 3.80m

Sample History: Air-dried and wetted from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.64 t/m³ (measured / assumed)

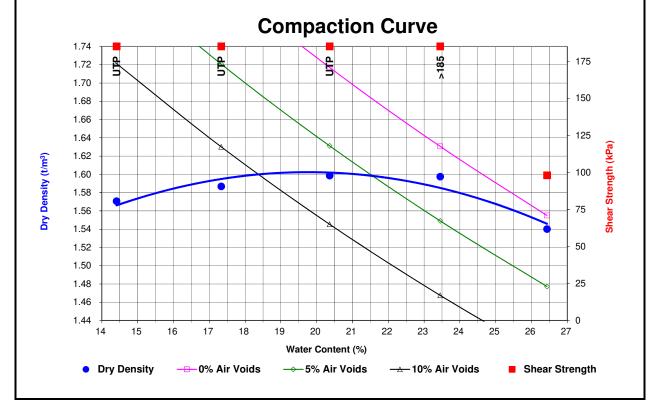
Natural Water Content (%): 23.4

TEST RESULTS

Water Content (%)	14.4	17.3	20.4	23.4	26.4
Bulk Density (t/m³)	1.80	1.86	1.92	1.97	1.95
Dry Density (t/m³)	1.57	1.59	1.60	1.60	1.54
Air Voids (%)	17.9	12.4	6.9	2.0	0.9
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	98

^{*}UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.60 t/m³ Optimum Water Content: 20 %





Riley Consultants Ltd. 4 Fred Thomas Drive Takapuna 0622 Auckland

Attention:

Babbage Geotechnical Laboratory

Level 4

68 Beach Road P O Box 2027 Auckland 1010 New Zealand Telephone 64-9-367 4954 E-mail wec@babbage.co.nz

Page 1 of 6

Job Number: 63743#L

BGL Registration Number: 2848

Checked by: WEC

20th December 2024

DRY DENSITY / WATER CONTENT RELATIONSHIP (COMPACTION CURVE) TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 - Stage 2

Report Number: 63743#L/CC2 Russell Road

The following report presents the results of compaction curve testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

A single shear vane test was carried out on each compacted sample while it was still in the proctor mould, and these results are included on the results tables and water content / density graphs. The shear vane results are included for your information only, and are not included in the IANZ endorsement for this report.

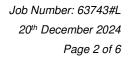
Test standards used were:

Water Content: NZS4402: 1986: Test 2.1 **NZ Standard Compaction:** NZS4402: 1986: Test 4.1.1

Vane Shear Strength: NZ Geotechnical Society Guideline 2001

Sample Identification	Maximum Dry Density (t/m³)	Optimum Water Content (%)	Natural Water Content (%)		
TP25 / BULK /	1.52	21	33.5		
4.00 – 5.50m	SILT, fine sandy, moderately plastic, grey, moist (completely weathered siltstone & sandstone crushed under finger pressure).				
TP27 / BULK / 1.33		31	52.3		
4.60 – 5.20m	SILTSTONE, grey, saturated.				

Note that sample descriptions are not part of BGL IANZ Accreditation.





Sample Identification	Maximum Dry Density (t/m³)	Optimum Water Content (%)	Natural Water Content (%)	
TP41 / BULK /	1.43	25	48.1	
3.20 – 4.60m	SILT, clayey, fine sandy, slightly plastic, light grey & brown, very moist.			
TP47 / BULK /	1.42	29	37.2	
1.00 – 2.00m	CLAY, highly plastic, brownish orange with light grey mottles, moist.			

Note that sample descriptions are not part of BGL IANZ Accreditation.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. As per the reporting requirements of NZS4402: 1986: Test 4.1.1: New Zealand Standard Compaction Test, maximum dry density is reported to the nearest 0.01t/m³, optimum water content is reported to the nearest 0.2% for values below 5%, to the nearest 0.5% for values from 5 to 10%, and to the nearest whole number for values greater than 10%.

For calculating the air voids percentages a solid density of 2.63t/m³ was assumed for sample TP25, a solid density of 2.68t/m³ was assumed for sample TP27, a solid density of 2.60t/m³ was assumed for sample TP41, and a solid density of 2.64t/m³ was assumed for sample TP47. Note that these assumed values are not part of the IANZ endorsement for this report.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin Key Technical Person Assistant Laboratory Manager Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGI



Registration Number: 2848	ט וכ
Job Number: 63743#L Page 3	of 6

PROJECT:

Version Date:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Version Number:

 Tested By:
 JL
 Dec 2024

 Compiled By:
 JL
 18-Dec-24

 Checked By:
 WEC
 18-Dec-24

 February 2023
 Authorised By:
 W. Campton

Sample ID: TP25 / BULK

Sample Depth: 4.00 - 5.50m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.63 t/m³ (measured / assumed)

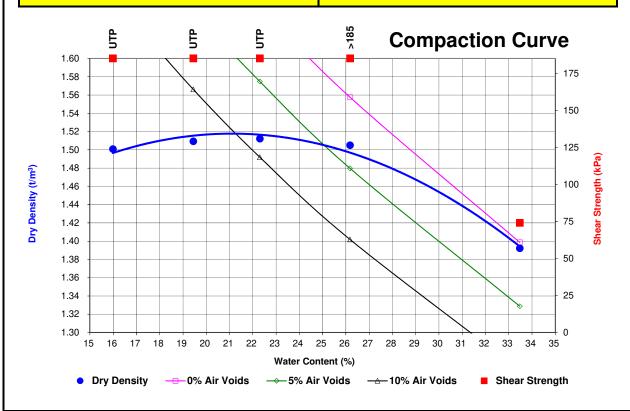
Natural Water Content (%): 33.5

TEST RESULTS

Water Content (%)	16.0	19.4	22.3	26.2	33.5
Bulk Density (t/m³)	1.74	1.80	1.85	1.90	1.86
Dry Density (t/m³)	1.50	1.51	1.51	1.51	1.39
Air Voids (%)	18.9	13.3	8.8	3.4	0.5
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	74

*UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.52 t/m³ Optimum Water Content: 21 %





Job Number:	63743#L	Page 4 of 6
Registration Number:	2848	Page 4 of 6

PROJECT:

Version Date:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Version Number:

 Tested By:
 WEC / JL
 Dec 2024

 Compiled By:
 JL
 18/12/2024

 Checked By:
 JF
 20/12/2024

 February 2023
 Authorised By:
 W. Campton

Sample ID: TP27 / BULK

Sample Depth: 4.60 - 5.20m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.68 t/m³ (measured / assumed)

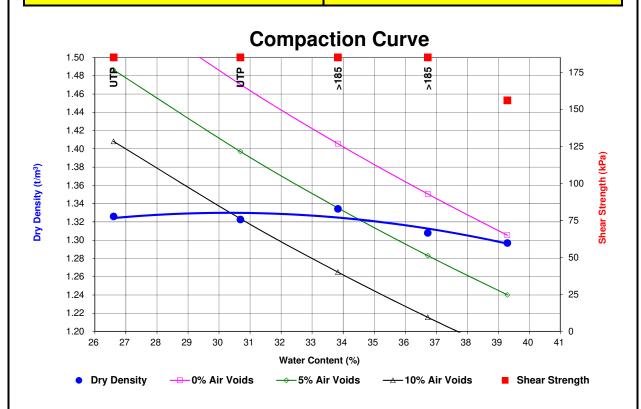
Natural Water Content (%): 52.3

TEST RESULTS

Water Content (%)	26.6	30.7	33.8	36.7	39.3
Bulk Density (t/m³)	1.68	1.73	1.79	1.79	1.81
Dry Density (t/m³)	1.33	1.32	1.33	1.31	1.30
Air Voids (%)	15.3	10.1	5.1	3.2	0.7
Shear Strength (kPa)	UTP*	UTP*	>185	>185	156

^{*}UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.33 t/m³ Optimum Water Content: 31 %





Job Number:	63743#L	Page 5 of 6
Registration Number:	2848	Page 5 01 0

PROJECT:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

 Tested By:
 SG / WEC
 Dec 2024

 Compiled By:
 SG
 Dec 2024

 Checked By:
 JF
 19/12/2024

 ruary 2023
 Authorised By:
 W. Campton

Sample Depth: 3.20 - 4.60m

 Version Number:
 5
 Version Date:
 February 2023
 Authorised By:
 W. C

Sample ID: TP41 / BULK

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve

Solid Density of Soil Particles: 2.60 t/m³ (measured / assumed)

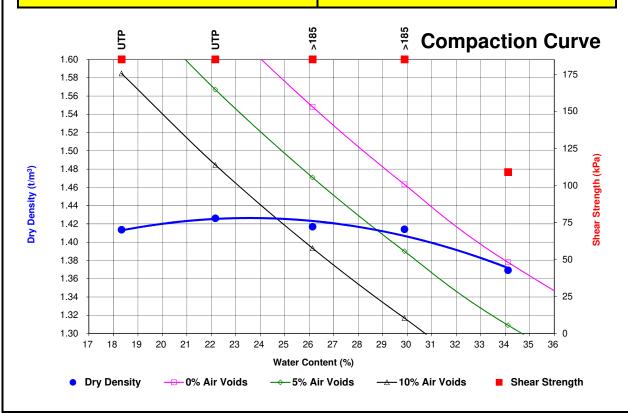
Natural Water Content (%): 48.1

TEST RESULTS

Water Content (%)	18.3	22.2	26.1	29.9	34.1	48.1
Bulk Density (t/m³)	1.67	1.74	1.79	1.84	1.84	1.70
Dry Density (t/m³)	1.41	1.43	1.42	1.41	1.37	1.15
Air Voids (%)	19.7	13.5	8.5	3.4	0.6	0.5
Shear Strength (kPa)	UTP*	UTP*	>185	>185	109	5

^{*}UTP = unable to penetrate sample with the shear vane.

Maximum Dry Density: 1.43 t/m³ Optimum Water Content: 25 %





Job Number:	63743#L	Page 6 of 6
Registration Number:	2848	Page 0 01 0

PROJECT:

Version Date:

RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Version Number:

Tested By: Dec 2024 Compiled By: JL 18-Dec-24 WEC 18-Dec-24 Checked By: February 2023 **Authorised By:** W. Campton

JL

Sample ID: TP47 / BULK

Sample Depth: 1.00 - 2.00m

Sample History: Air-dried from natural water content **Compaction Used:** New Zealand Standard Compaction

Test Performed On: Whole Soil / Fraction Passing the 19mm Sieve 2.64 t/m³ **Solid Density of Soil Particles:** (measured / assumed)

Natural Water Content (%): 37.2

TEST RESULTS

Water Content (%)	23.0	26.4	29.9	33.3	37.2
Bulk Density (t/m³)	1.69	1.76	1.86	1.86	1.81
Dry Density (t/m³)	1.38	1.39	1.43	1.40	1.32
Air Voids (%)	16.3	10.7	3.2	0.6	0.7
Shear Strength (kPa)	UTP*	UTP*	>185	132	64

*UTP = unable to penetrate sample with the shear vane.

1.42 t/m³ **Maximum Dry Density: Optimum Water Content:** 29 %

