GEOTECHNICAL INVESTIGATION REPORT

PROPOSED NEW SLEEPOUT & GARAGE

38 KAITERITERI-SANDY BEACH ROAD

KAITERITERI

TASMAN

TIM TIPPLE

Reference: **CN367**

Prepared: **20 December 2021**

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Contents

1. INTRODUCTION

This report presents the findings of a geotechnical investigation carried out for proposed new sleepout and garage at 38 Kaiteriteri-Sandy Beach Road, Kaiteriteri, Tasman.

The purpose of our investigation was to determine subsoil conditions, assess the proposed development and provide recommendations for building foundations.

This report has been prepared for Tim Tipple in accordance with our proposal letter dated 20 February 2020.

1. SITE/OBSERVATIONS

The subject site (legally described as Lot 2 DP 7124) is located on the south-eastern side of Kaiteriteri-Sandy Beach Road and comprises an irregular shaped property with an area of 809m^2.

The property is located on the hillside adjacent to the northern end of Kaiteriteri Beach. A dwelling is located on near level platforms surrounded by steep slopes. The slopes fall steeply to very steeply to the west and south. These steep slopes are retained in some instances below the dwelling.

To the west of the dwelling is a concrete crib wall up to 2.2 m in height. At the base of this crib wall there is some unsupported sloping ground. From here there is a break in the slope, with a level benched area, where an existing single garage is located. This garage and the area immediately surrounding it constitutes the 'subject site'.

The eastern wall of the garage is a block retaining wall supporting cut of approximately 1.2m. The eastern site boundary is partially supported by tiered timber pole retaining walls

See image 1 below for an aerial image of the property and its approximate boundaries and topography outlined in yellow.

2. SITE PHOTOGRAPHS

Photo 1:

Looking to the east at the steeply sloping area adjacent to block wall boundary with 44A. Note the crib wall above the unsupported slope (circled).

Photo 2:

Looking south-east adjacent to the existing garage that is to be removed. The formation of a cut of up to approximately 4.0m is proposed in this area to form the eastern wall of the sleepout.

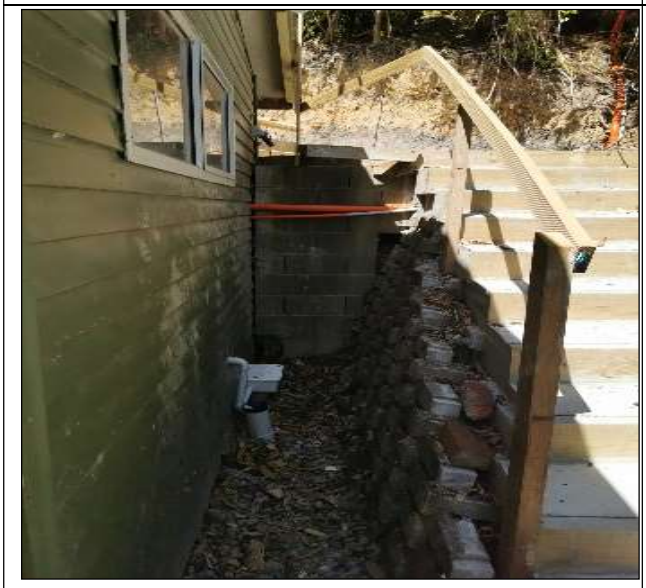

Photo 3:

Looking east at the 1.2 m high garden retaining wall with a further exposed cut above this adjacent of the steps of approximately 1.7 m.

Photo 4:

Looking south at the western site boundary and the adjacent tiered timber pole retaining wall.

3. EXISTING GEOTECHNICAL INFORMATION

3.1 Aerial Photographs

Geoconsult has considered historic aerial photographs dated 1940-49 and 1980-89, available from Tasman District Council's top of the south maps. Based on this we understand that the dwelling was constructed after 1980-89. Based on aerial photographs the site and surrounding sites were vegetated at the time of the photographs and no obvious signs of instability are noted.

3.2 Land Disturbance Area

The Nelson City Council and Tasman District Councils report 'Nelson Tasman Erosion and Sediment Control Guidelines' dated July 2019 classifies the Separation Point Granites as being a land disturbance area 2. Therefore, these soils are considered to be highly erodible with specific rules pertaining to land disturbances undertaken within this geology.

3.3 Geology and Active Faults

The Geological Map of the Nelson Area *(M.S. Rattenbury, R.A. Cooper, M.R. Johnston, and S. Nathan (Compilers) 1998, Geology of the Nelson Area, Institute of Geological & Nuclear Sciences, 1:250,000 geological maps 9. 67 p. + 1folded map. Lower Hutt, New Zealand. GNS Science)* shows the site to be underlain by the Separation Point Suite, comprising equigranular biotite granite.

A review of the GNS Active Faults Database indicates the property is located approximately 36 km to the north-west of the Bishopdale Fault, approximately 37 km to the north-west of the Waimea Flaxmore Fault System and approximately 41 km to the north-east of the Whangamoa Fault.

4. PROPOSED WORKS

We have been supplied with Cohesive Design, Draft drawings; Sheets Numbered 1 to 5; version V01; titled Sleepout/Garage, locations at 38 Kaiteriteri-Sandy Beach Rd, Kaiteriteri; dated 28/10/2021. Following this, two cross sections and summary of the proposed plans have been received via email correspondence and indicated where vertical cuts were proposed. Based on this information we understand that the proposed development will comprise:

- Removal of the existing garage.
- Excavation of cuts up to approximately 4.0m in height, into the existing slope. This will include the removal of part of the landscape crib retaining adjacent to the existing dwelling above.
- Construction of a retaining wall incorporated into the eastern side of the proposed sleepout structure to support the two levels.
- Construction of a two level sleepout with attached double garage.

5. SITE INVESTIGATION

Our site investigation work comprised the following:

- A walkover appraisal of the site.
- The drilling of 2 hand auger boreholes to depths of 4.0 m.
- Two cut face/retaining wall exposures description logs.

The approximate locations of the boreholes or exposure logs are shown on our attached site plan drawing number CN367/1; the borehole logs and exposure log are also attached. The soil descriptions given on the logs are in general accordance with the New Zealand Geotechnical Society's 'Field Description of Soil and Rock'.

6. SUBSOIL CONDITIONS

Detailed descriptions of the subsoils encountered in the boreholes are given on the attached borehole and cut face exposure logs. The subsoils are generally found to comprise:

Upper Surface of Layer	Soil Description
0m	Topsoils/Colluvium and interbedded paleo topsoils/non-engineered fills.
0.9-1.5 m	Residual Soils; very stiff, light grey streaked orange and red. Clayey Silt, Silt and trace sand.*

*The weathered granite is expected below this residual soil at current unknow depth.

Observations made on site suggest the soil profile within the proposed development area is a product of chemical weathering of the granite of the 'Separation Point Suite'. The process begins with tightly locked blocks of unweatherd granite rock. Waterflow through fractures within the rock degrades the fracture surface transforming it to a soil with time.

As the process continues, the blocks of granite start to lose contact with each other and eventually become isolated boulders floating within a matrix of soil. This process continues until none of the parent rock remains.

Because the process is most prevalent near the surface we anticipate the soils will transition from soils (completely weathered rock) at the surface through to less weathered and to tightly interlocked granite blocks with depth. During out investigations the boreholes encountered residual soils to termination of the testes at depths of 4.0 m.

Because this process is controlled by the defect spacing (closer fractures=faster erosion) significant variations in soil depth can occur across the site in response to fracture spacing.

Groundwater was not encountered in any of the hand auger boreholes during our time on site. The site is on elevated terrain. The development of a standing groundwater close to the surface is unlikely; however saturation of the subsoils is likely during heavy rainfall events.

7. DISCUSSION

7.1 Stability of the Existing Cut Faces

Based upon site observations and available survey/contour data, we estimate the elevation change between the garage driveway area are to be in the order of 5m. The 'slope' between these two areas was characterised by steeply sloping to near vertical slopes/cut faces, and a concrete crib wall with questionable foundation stability.

This 'slope' is not considered sufficiently stable in its current arrangement for the proposed development. Stability could also further reduce, particularly if the toe/base of these existing cuts are excavated further to form the 4m cuts as is currently proposed.

The exposed soils observed showed some slacking of the exposed cut faces. Erosion can mechanically reduce the strength of soils and can reduce existing foundations embedment's depths affecting the foundations performance.

Evidence from historical aerial photographs and the soils land disturbance 2 categorisation indicates that this cut face geology is highly erodible.

Given the above Geoconsult consider large unsupported cut faces within these soils would be ill advised and retention of the proposed cut is recommended as outlined below

8. RECOMMENDATIONS

8.1 Earthworks

8.1.1 General

The site was found to have a crust of topsoil and alternating colluvium and paleo topsoils over or overlying the in-situ residual soils which are overlying weathered granite rock at a depth below the hand auger test depths of 4.0 m.

This material is considered to be potentially unstable when cut to form any unsupported excavations and will require long term support and careful consideration by the contractor of the temporary works situation.

8.1.2 Topsoil, Fill and Unsuitable Soils

All vegetation, topsoil, fill and any soft or otherwise unsuitable material should be removed from the building platform or earthworks areas where foundations are proposed, the topsoil and buried paleo topsoil layers were found to depths of 0.9 m to 1.5 m at our test locations, but depths may vary elsewhere across the property.

The topsoil and colluvium interbedded within the paleo topsoil is not considered suitable for founding purposes.

All excavated topsoil and unsuitable material should be removed from site or stockpiled away from the building platform and/or earthworks area and clear of the steeper site slopes.

8.1.3 Site Excavations

Due to the extent of the proposed excavations of up to approximately 4.0 m (based on current site plans) to form the eastern edge of the sleepout and the lack of space to form a suitable batter slope of the proposed sleepout block wall it is likely to be impractical to form site cuts at stable permanent or temporary batter slopes.

Where required the cut faces of the building platform excavation should be supported by retaining walls specifically designed to support the proposed cut face prior to bulk excavation. A soldier pile wall is recommended for this.

If wall locations move during detailed design or much lower height walls are proposed than currently anticipated, then the matter should be referred to Geoconsult for further consideration.

Once the soldier piles have been excavated and poured and the concrete cured, the piles can then be exposed, and shotcrete applied over reinforcing steel and mesh to provide additional support and protection. This could be designed as a temporary wall or as part of the permanent works. Your structural engineer should be engaged to carry out the design of any temporary and permanent works required.

We recommend the earthworks contractor engage an independent Geotechnical professional to review the construction methodology proposal for the site excavation and retaining construction works. Depending on the final plans temporary retaining may be required.

8.1.4 Solider Pile Wall

As mentioned above a solider pile wall is required along the western sleepout edge. It should comprise a row of bored reinforced concrete piles spaced at 3 times the pile diameter.

The piles should be designed to resist lateral earth pressure over the excavated level plus 0.5 m for over dig below the ground surface. The magnitude of lateral loading acting on each pile should be calculated assuming active earth pressures over a width of 3 times the pile diameter to the required depth to resist lateral earth pressure using a coefficient of lateral earth pressure Ka = 0.33 for temporary walls or Ka=0.5 for permanent walls and a soil unit weight of 18 kN/m3. Passive resistance in front of the piles can be calculated using Broms method with a soil undrained shear strength Cu = 50 kPa.

8.2 Foundations

8.2.1 General

The subsoils at this site were found to comprise stiff or very stiff natural soils beneath a surface layer of fills and Paleo soils inferred to have been placed without engineering supervision or testing. The fill material is likely to be subject to ongoing settlement over time and/or under additional load and is not considered suitable to support building loads.

The natural soils beneath the fill layer have adequate bearing capacity, are of relatively low compressibility and are considered suitable foundation soils for the proposed sleepout. Once an up to date site plan is available for review a leading edge pile may be required along western edge of the proposed garage.

Specific recommendations are outlined below.

8.2.2 Shallow Footings

Conventional shallow pad and strip footings, generally in accordance with the requirements of NZS3604:2011, should be embedded a minimum depth of 450 mm below cleared ground level into stiff natural soils.

The following bearing capacities are considered appropriate for foundation design:

Ultimate Bearing Capacity	300 kPa
Allowable Bearing Pressure (F.O.S = 3)	100 kPa
Dependable Bearing Capacity (Φ = 0.5)	150 kPa

8.2.3 Waffle Raft Slabs

Waffle raft slabs should be designed for moderately expansive soils in accordance with the requirements of AS2870:2011.

Ultimate Bearing Capacity	300 kPa
Allowable Bearing Pressure (F.O.S = 3)	100 kPa
Dependable Bearing Capacity (Φ = 0.5)	150 kPa

8.2.4 Floor Slab

Either a conventional slab on grade concrete floor, in accordance with the requirements of NZS3604:2011, or a waffle raft slab designed for moderately expansive soils in accordance with the requirements of AS2870:2011 is considered appropriate.

A conventional slab on grade should be founded on a layer of clean, well graded, compacted hardfill placed on ground stripped of vegetation, topsoil, fill and any soft or otherwise unsuitable material. The hardfill should be compacted using a vibrating plate compactor or roller and topped with a blinding layer of sand or other approved fines.

Care should be taken in the preparation of the slab subgrade so that the soil does not dry out or become excessively wet prior to pouring of the floor slab. In this respect some moisture conditioning or protection of the subgrade may be required prior to placing hardfill and/or pouring the slab.

8.2.5 Pile Foundations

If leading edge piles are required along the western edge of the garage, the following is considered suitable.

Either bored and cast in situ reinforced concrete piles or bored and concrete encased timber piles would be suitable.

Piles should be embedded a minimum depth of 2.0 m below final ground level, at least 0.5 m below any fill into stiff natural ground. Greater pile depths may be required to satisfy structural design considerations.

If the proposed piles are to be within the zone of influence on any existing or proposed retaining structures this will have to be considered in the pile design.

The following soil parameters are considered appropriate for axial load design purposes:

	End Bearing	Side Adhesion*
Ultimate Capacity	900 kPa	30 kPa
Allowable Stress (F.O.S. = 3)	300 kPa	10 kPa
Dependable Capacity (Φ = 0.5)	450 kPa	15 kPa

** Side adhesion should be ignored over any portion of the pile shaft passing through fill and over the upper 1.0 m below ground level whichever is the greater depth.*

The piles should also be designed to resist lateral earth pressure over the upper 1.0 m below the ground surface. The magnitude of lateral loading acting on each pile should be calculated assuming at rest earth pressures over a width of 3 times the pile diameter to a depth of 1.0 m using a coefficient of lateral earth pressure Ko = 0.5 and a soil unit weight of 18kN/m^3. Passive resistance in front of the piles below 1.0 m depth can be calculated using Broms method with a soil undrained shear strength C_u = 50 kPa.

The subsoils encountered beneath the site were found to comprise stiff or very stiff natural soils beneath a surficial layer of unsuitable topsoil/fill. These materials are likely to be relatively stable during pile hole drilling, but foundation contractors should, as a precaution, make allowance for potential pile hole collapse during construction. Pile construction should be carried out so that bored pile holes are not left open for longer than necessary, especially where groundwater is encountered within the bored pile depth.

8.3 Retaining Walls

Where required, retaining walls should be provided to support cut or fill faces. Masonry block retaining walls incorporated within the sleepout foundations are proposed to support the western cut face. Free standing cantilever walls can be designed for active earth pressures, walls that are incorporated within the structure of the dwelling should be designed for at rest earth pressures.

The following soil parameters are considered appropriate for retaining wall design:

Cohesion (c')	0 kPa
Angle of Internal Friction (ϕ')	30^o
Soil Unit Weight (γ)	18 kN/m^3

For masonry block cantilever walls and gravity walls the foundation bearing capacity may be calculated using the above soil parameters and an unfactored soil shear strength Cu = 50 kPa. When calculating sliding resistance an undrained shear strength of Cu = 40 kPa can be assumed for the soil at the base of the wall.

The effects of sloping ground above and/or below the walls should be considered in wall design along with boundary and any other surcharges that may apply. Walls of any height which carry any type of surcharge load will require specific structural design and a building consent.

Free draining granular backfill and a perforated drain coil should be provided behind all retaining walls. Retaining walls should be constructed as soon as possible following excavation of steep site cuts. Steep cut faces left unprotected may be detrimental to the stability of the site and neighbouring sections.

As indicated above, care should be exercised during building platform excavation. Temporary retaining and/or staged excavation and retaining wall construction may be required. Geoconsult should be engaged to review a construction methodology proposal for the site excavation and retaining construction works

As discussed above, due to the close proximity of the proposed excavation to the site boundaries and neighbouring sections caution should be exercised during site excavation works. Initial excavation should be carried out in the presence of a geotechnical engineer. Where satisfactorily stable cut batter slopes can't be achieved temporary retaining works may be required to support the cut faces during retaining wall construction. To help protect against cut face failure, site earthworks should be carried out during a forecast period of fine weather only with wall construction completed through to drainage backfill stage no later than 3 days following excavation.

8.4 Stormwater Control

Stormwater from paved areas, roofs, tanks, overflows, and all other sources should be collected in sealed pipes and discharged into the council stormwater system or if a public system is unavailable to a safe disposal point away from the development area with an energy dissipater fitted at its outlet. Concentrated stormwater flows should not be allowed to discharge onto or into the ground close to the buildings or on sloping ground as this would be detrimental to foundation conditions and site stability.

8.5 Plan Review – Assessment of Any further Required Works

It is recommended that Geoconsult be engaged to reviewed when more detailed development plans when they are available. This is to ensure that the information used as the basis of this report is consistent with final development proposals and that the recommendations outlined in this report have been interpreted correctly depending on the final location and depth of the proposed western site cut further deeper testing or auger hole excavation is recommended to establish if rockhead will be encountered within the pile design depths.

8.6 Site Inspections during Construction

It is recommended that a suitably qualified geotechnical professional be engaged to inspect excavations during construction. This is to confirm expected ground conditions and to ensure compliance with the recommendations contained in this report.

Council are likely to make geotechnical inspections during construction, and receipt of a Producer Statement - Geotechnical Review (PS4), a requirement of Building Consent.

It is the Client's responsibility to ensure that we are notified of any required inspections and that we are given adequate notice to carry out the inspections (at least 48 hours).

We will issue a Producer Statement - Geotechnical Review (PS4) upon successful completion of the inspected works. The inspections and preparation of the Producer Statement will be at additional cost to that of preparing this report.

If driven timber piles are to be used your structural engineer should be engaged to carry out inspections of the pile driving operations, record driving sets, and to provide appropriate as built certification.

9. LIMITATIONS

The recommendations and opinions contained in this report are based on the subsoils encountered at discrete test locations. We have made assumptions about the nature of the ground conditions across the site based on this limited subsoil information and actual ground conditions may vary from those assumed in this report. If any variations from the assumed ground conditions are found to exist during construction the matter should be referred back to Geoconsult.

This report has been prepared solely for the benefit of Tim Tipple as our client and their nominated agents for the purposes of the specific brief as stated in this report. Geoconsult accepts no liability in respect to any matters arising from the use of the information given in this report by any other person or organisation or for any other purpose except that it may be relied upon by council in processing a building consent application for the proposed development as described herein.

GEOCONSULT

Author:	**Nick Ferigo** **Engineering Geologist**	**Signed:**
Authorised:	**Phil Williams** **Geotechnical Team Leader**	**Signed:**

HAND AUGER INVESTIGATION LOG

Job No.:	CN367
No.:	01
Sheet:	1 of 1
Date:	25/11/21

Client: Tipple Trust c/o- Gun City	**Coordinates:** E 1,601,771.61 N 5,457,410.79	**Ground Level:** 0
Project: 38 Kaiteriteri-Sandy Beach Road	**Location:** Kaiteriteri	

Geological Interpretation (Logged in accordance with NZGS guidelines for field description of soil and rock)	Depth (m)	Scala Penetrometer (Blows / 50mm)	Hand Shear Vane (Corrected)
TOPSOIL , trace gravel; dark brown speckled black . Moist; gravel, medium to coarse, Charcoal fragments (NON-ENGINEERED FILL)	0.2, 0.4, 0.6, 0.8		
Clayey SILT, trace sand; orange . Very stiff; low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils	1.0, 1.2, 1.4		SV: 1.00m, >206 kPa / 47 kPa
1.6m: Minor sand.	1.6		SV: 1.50m, >206 kPa / 47 kPa
1.8m: Trace sand.	1.8, 2.0		SV: 2.00m, >206 kPa / 47 kPa
Silty CLAY, trace sand; orange . Very stiff; high plasticity; moist; sand, fine to medium, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils	2.2, 2.4, 2.6, 2.8, 3.0		SV: 2.50m, >206 kPa / 47 kPa SV: 3.00m, 131 kPa / 47 kPa
3.3m: Some sand. Sand, fine to coarse	3.2, 3.4		SV: 3.50m, 155 kPa / 80 kPa
3.6m - 3.8m: Medium to coarse SAND, minor clay; light oangy grey. Non-plastic; wet; sand, Clear to frosted, quartz, slightly to moderaly weatherd	3.6, 3.8		
EOH	4.0, 4.2, 4.4, 4.6, 4.8		SV: 4.00m, 103 kPa / 37 kPa

Hand Auger Remarks:
Down slope corner of garage at slab level

Scala Remarks:

Logged By:	Checked By:	Hole Depth:	Legend:
WS	PW	4.00 m	In Flow, Out Flow, Standing Water Level

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HAND AUGER INVESTIGATION LOG

Job No.:	CN367
No.:	02
Sheet:	1 of 1
Date:	25/11/21

Client: Tipple Trust c/o- Gun City	**Coordinates:** E 1,601,780.52 N 5,457,409.11	**Ground Level:** 0
Project: 38 Kaiteriteri-Sandy Beach Road	**Location:** Kaiteriteri	

Geological Interpretation (Logged in accordance with NZGS guidelines for field description of soil and rock)	Depth (m)	Hand Shear Vane (Corrected)
TOPSOIL; dark brown. (TOPSOIL)	0.0	
Clayey SILT, trace sand; orange . Very stiff; low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd (COLLUVIUM)	0.4	
TOPSOIL; dark brown . Paleo soil (TOPSOIL)	0.6	SV: 0.50m, >206 kPa / 43 kPa
Clayey SILT, trace sand; light grey streaked orange and red. Very stiff; low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils (COLLUVIUM)	1.0	SV: 1.00m, 191 kPa / 43 kPa
	1.4	SV: 1.50m, >206 kPa / 40 kPa
Silty CLAY, trace sand; light grey streaked orange and red. Very stiff; high plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils (COLLUVIUM)	1.6	
2.0m: Minor sand.	2.0	SV: 2.00m, 184 kPa / 40 kPa
	3.2	SV: 3.10m, 81 kPa / 34 kPa
	3.3	SV: 3.30m, 133 kPa / 59 kPa
3.4m: Trace sand.	3.4	
	3.5	SV: 3.50m, 177 kPa / 53 kPa
EOH	4.0	SV: 4.00m, 140 kPa / 47 kPa

Scala Penetrometer (Blows / 50mm): 2 4 6 8 10 12 14 16 18

Water

Hand Auger Remarks:
Top back corner of existing garage, 3m above slab level

Scala Remarks:

Logged By:	Checked By:	Hole Depth:	Legend:
WS	PW	4.00 m	In Flow / Out Flow / Standing Water Level

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CUT FACE LOG

Geoconsult GEOTECHNICAL CONSULTANTS

No.: 03			
Job No.: CN367			
Client: Tipple Trust c/o- Gun City	**Project:** 38 Kaiteriteri-Sandy Beach Road		**Date:** 25/11/2021
Location: Kaiteriteri	**Coordinates:** E 1,601,779.49 , N 5,457,421.72	**Ground Level:**	**Sheet:** 1 of 1

Soil Description	Samples	Depth (m)	Legend	Scala Penetrometer (Blows / 50mm)	Water
Crib wall.		0.0	N/R		Groundwater Not Encountered
TOPSOIL; dark brown. (TOPSOIL)		2.2	TS		
SILT, minor clay, trace sand; orange. Low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd (COLLUVIUM)		2.6			
TOPSOIL; dark brown. Paleo soil (TOPSOIL)		2.8	TS		
Clayey SILT, trace sand; orange . Stiff; low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils		3.4			
Silty CLAY; orange . Stiff; high plasticity; wet; Residual soils		4.4			
EOH:4.50 m		4.6			

Scala Penetrometer (Blows / 50mm): 2, 4, 6, 8, 10, 12, 14, 16, 18

Hand Auger Remarks:

Scala Remarks:

Logged By:	Checked By:	Hole Depth:	Legend:
WS	PW	4.50 m	In flow; Out flow; Standing Water Level

Produced with Core-GS

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CUT FACE LOG

Geoconsult GEOTECHNICAL CONSULTANTS

No.: 04		
Job No.: CN367		
Client: Tipple Trust c/o- Gun City	**Project:** 38 Kaiteriteri-Sandy Beach Road	**Date:** 25/11/2021
Location: Kaiteriteri	**Coordinates:** E 1,601,778.55 , N 5,457,413.44	**Ground Level:**
Sheet: 1 of 1		

Soil Description	Samples	Depth (m)	Legend	Scala Penetrometer (Blows / 50mm)	Water
TOPSOIL; dark brown. (TOPSOIL)		0.0 – 0.2	TS T		Groundwater Not Encountered
Clayey SILT, trace sand; orange . Low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd (COLLUVIUM)		0.2 – 0.4			
TOPSOIL; dark brown. Paleo soil (TOPSOIL)		0.4 – 0.8	TS		
Clayey SILT, trace sand; orange . Low plasticity; moist; sand, medium to coarse, Clear to frosted, quartz, slightly to moderaly weatherd (COLLUVIUM)		0.8 – 1.0			
TOPSOIL; dark brown. Paleo soil (TOPSOIL)		1.0 – 1.4	TS T TS		
Clayey SILT, trace sand; orange . Low plasticity; moist; sand, fine to coarse, Clear to frosted, quartz, slightly to moderaly weatherd; Residual soils		1.4 – 1.6			
EOH:1.70 m		1.6 – 4.8			

Scala Penetrometer (Blows / 50mm): 2, 4, 6, 8, 10, 12, 14, 16, 18

Hand Auger Remarks:

Scala Remarks:

Logged By:	Checked By:	Hole Depth:	Legend:
WS	PW	1.70 m	In flow; Out flow; Standing Water Level

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Notes:

1. LOCATIONS OF ALL FEATURES ARE APPROXIMATE ONLY.
2. THIS DRAWING IS BASED ON AUCKLAND COUNCIL GIS PHOTOGRAPHY LAYOUT BASED ON DRAWINGS RECIEVED BY COHESIVE DESIGN DRAFT SITE PLAN V01.
3. DRAWING NOT TO BE USED FOR CONSTRUCTION PURPOSES.

Key:

HAND AUGER BOREHOLE LOCATION OF CUT FACE LOG (CFL)

APPROXIMATE CUT AREA FOR SLEEPOUT

APPROXIMATE SOLDIER PILE WALL ALIGNMENT

REV:	DESCRIPTION:	BY:	DATE:
-	-	-	-

STATUS: NOT FOR CONSTRUCTION

GEOCONSULT
2 PIERMARK DRIVE, ROSEDALE, AUCKLAND
PO BOX 302002, NORTH HARBOUR, AUCKLAND 0751
P: 09 836 5311 W: www.geoconsult.co.nz

PROJECT: TIM TIPPLE
PROPOSED NEW SLEEPOUT AND GARAGE

SITE: 38 KAITERITERI-SANDY BEACH ROAD, KAITERITERI

TITLE: SITE PLAN

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1 : 200	DEC 2021	NF	PW

SHEET NO:	DRAWING NO:	REVISION:
1 OF 1	CN367/1	-