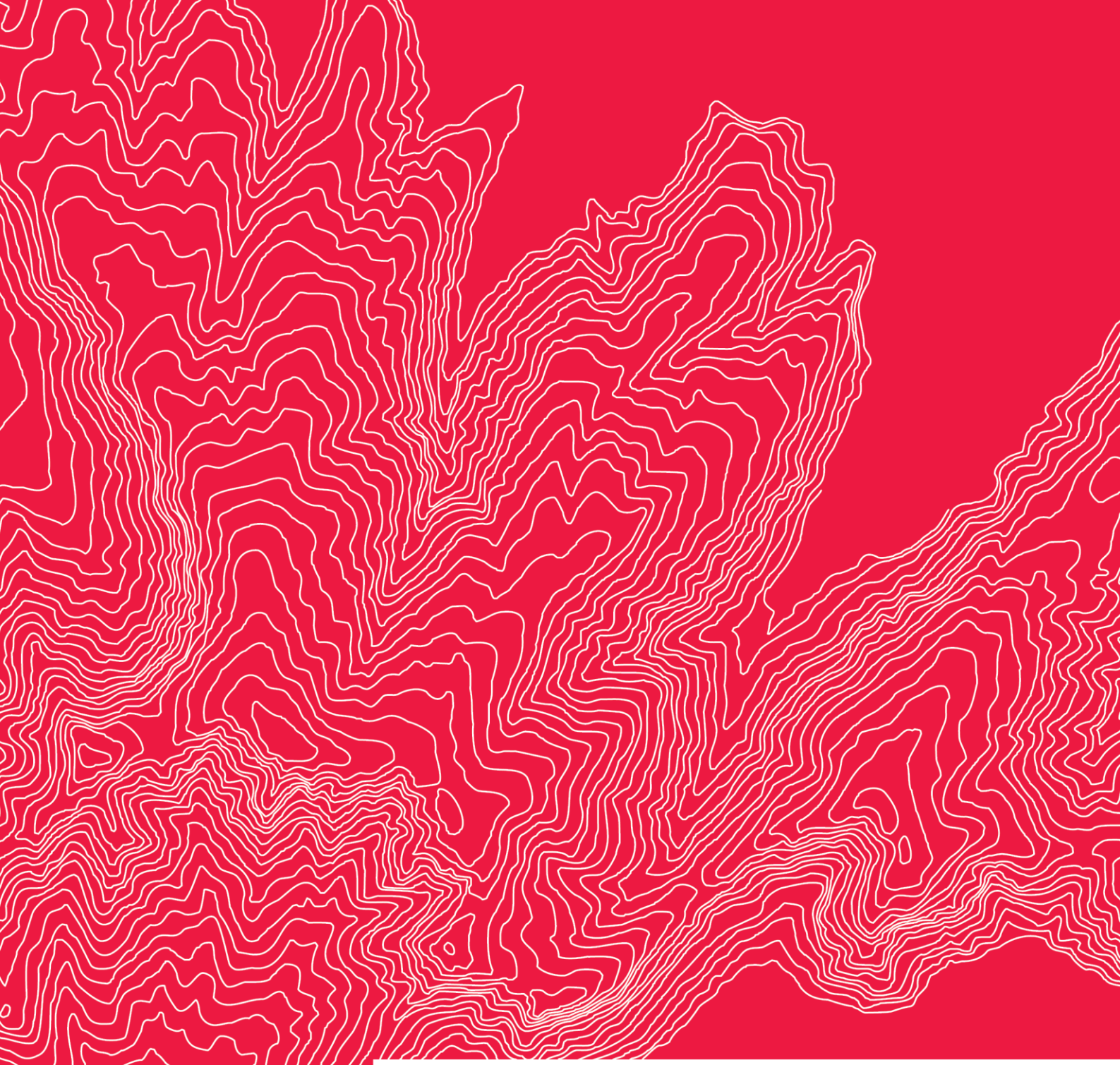


Subdivision Suitability Report

Version A

Section 41 SO 13711, Tauranga Bay Road, Westport

Prepared for Tauranga Bay Holdings Ltd

510322

eliot sinclair

Subdivision Suitability Report

Section 41 SO 13711, Tauranga Bay Road, Westport

Prepared for Tauranga Bay Holdings Ltd

510322

Quality Control Certificate

Eliot Sinclair & Partners Limited

eliotsinclair.co.nz

Action	Name	Signature	Date
Prepared by:	David Hatton Geotechnical Engineer BE (Hons) Civil		06 March 2025
Reviewed by:	Andrei Cotiga Geotechnical Engineer BE (Hons) Civil ME CPEng		10 March 2025
Directed and approved for release by:	Andrei Cotiga Geotechnical Engineer BE (Hons) Civil ME CPEng		10 March 2025
Status:	Version A		
Release date:	12 March 2025		
Distributed to:	Tauranga Bay Holdings Ltd		

Version History

Status	Description	Author	Release Date
A	First issue of document	D.Hatton	12 March 2025

Contents

1. Introduction

Eliot Sinclair & Partners Ltd were engaged by Tauranga Bay Holdings Ltd to assess the risk of natural hazards affecting the land at Section 41 SO 13711, Tauranga Bay Road, Cape Foulwind (*'The Site'*) and to report on the risk from natural hazards. This report supersedes a first version which was issued on 16 June 2022.

This report addresses the risk of natural hazards as they relate to the proposed residential subdivision in terms of section 106 of the Resource Management Act (RMA), 1991.

Eliot Sinclair has previous issued a Stormwater Design Report[1], and an Infrastructure and Servicing Report[2] for the proposed subdivision. Information from those reports has been referenced in this report to help inform our Natural Hazards Assessment.

The report is intended to be used as technical supporting documentation for an application for subdivision consent.

2. Scope of Work

The scope of work for this assessment comprised:

- Review available data from the New Zealand Geotechnical Database [3] (NZGD), Te Tai o Poutini Plan Hazard and risk maps[4], and the Institute of Geological & Nuclear Sciences' (GNS) Active Faults Database[5],
- Walkover inspection and shallow geotechnical testing on 04 May 2022 and 20 December 2022, comprising:
  - i) Inspection of machine dug test pits to investigate the nature of the shallow soils at the site.
  - ii) Dynamic cone penetrometer (DCP) tests to investigate the soil bearing capacity.
- Assess the risk of material damage from potential natural hazards.
- Prepare a Natural Hazards Risk Assessment report to comment on the hazards relevant to Section 106 of the Resource Management Act 1991, to summarise the general geotechnical conditions encountered across the site and to provide geotechnical recommendations that should be addressed at time of subdivision consent.

3. Site description

3.1. Legal description and proposed subdivision

The legal description of the site is Section 41 SO 13711 and it is around 10.48Ha in area. The site is in Cape Foulwind, which is roughly 14km west of Westport. Figure 1 below illustrates an overview of the site location.

It is proposed to undertake a 21 Lot residential subdivision of the site, along with a road to vest and several right of ways. The proposed scheme plan is shown in Appendix A.

The Proposed lots will comprise of a minimum area of 0.4Ha each, with the road to vest adjoining to Wilsons Lead Road.

[1] Eliot Sinclair "*Stormwater Design Report, Section 41 SO 13711, Tauranga Bay Road, Westport*" Ref 510322, 13 March 2023
[2] Eliot Sinclair "*Infrastructure Servicing Report, Section 41 SO 13711, Tauranga Bay Road, Westport*" Ref 510322, 14 March 2024
[3] New Zealand Geotechnical Database (NZGD) - https://www.nzgd.org.nz/
[4] https://westcoast.isoplan.co.nz/eplan/property/24862/0/78?_t=property
[5] GNS Active Faults Database - http://maps.gns.cri.nz/website/af/viewer.htm

Figure 1. Figure showing location of site (Eliot Sinclair, 2025)

The Site is bordered by Wilsons Lead Road to the north-east Tauranga Bay Road to the north-west, and pasture area to the south. An aerial image illustrating the Site boundary is shown in Figure 2 below.

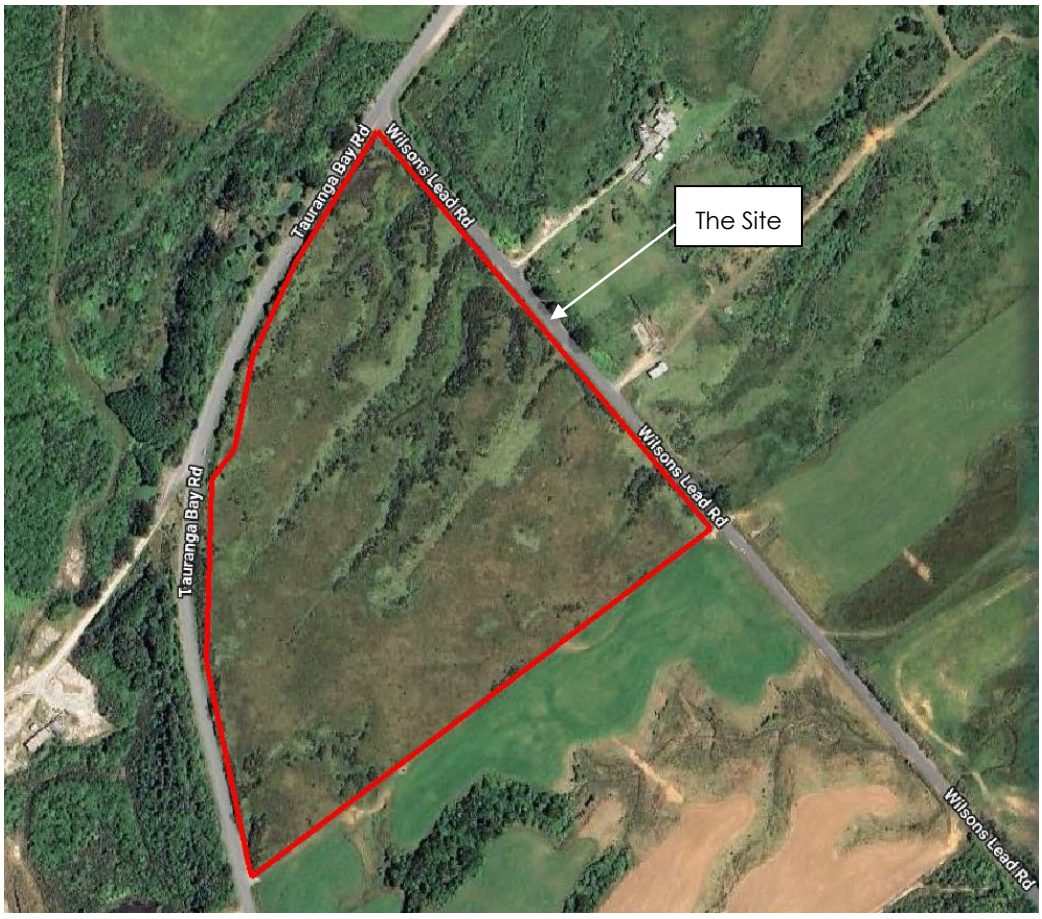


Figure 2. Aerial imagery showing site boundary (Eliot Sinclair, 2025)

3.2. Site Topography

The site is currently a pasture with the northern portion falling from west to east and the southern portion falling towards the south. The site has two valleys 'A' and 'B' which drain from the centre of the site towards the north and through a culvert under Wilsons Lead Road near the Tauranga Bay Rd intersection. A further smaller valley 'C' is located in the south-east part of the development. The valley locations are shown in Figure 3 below.

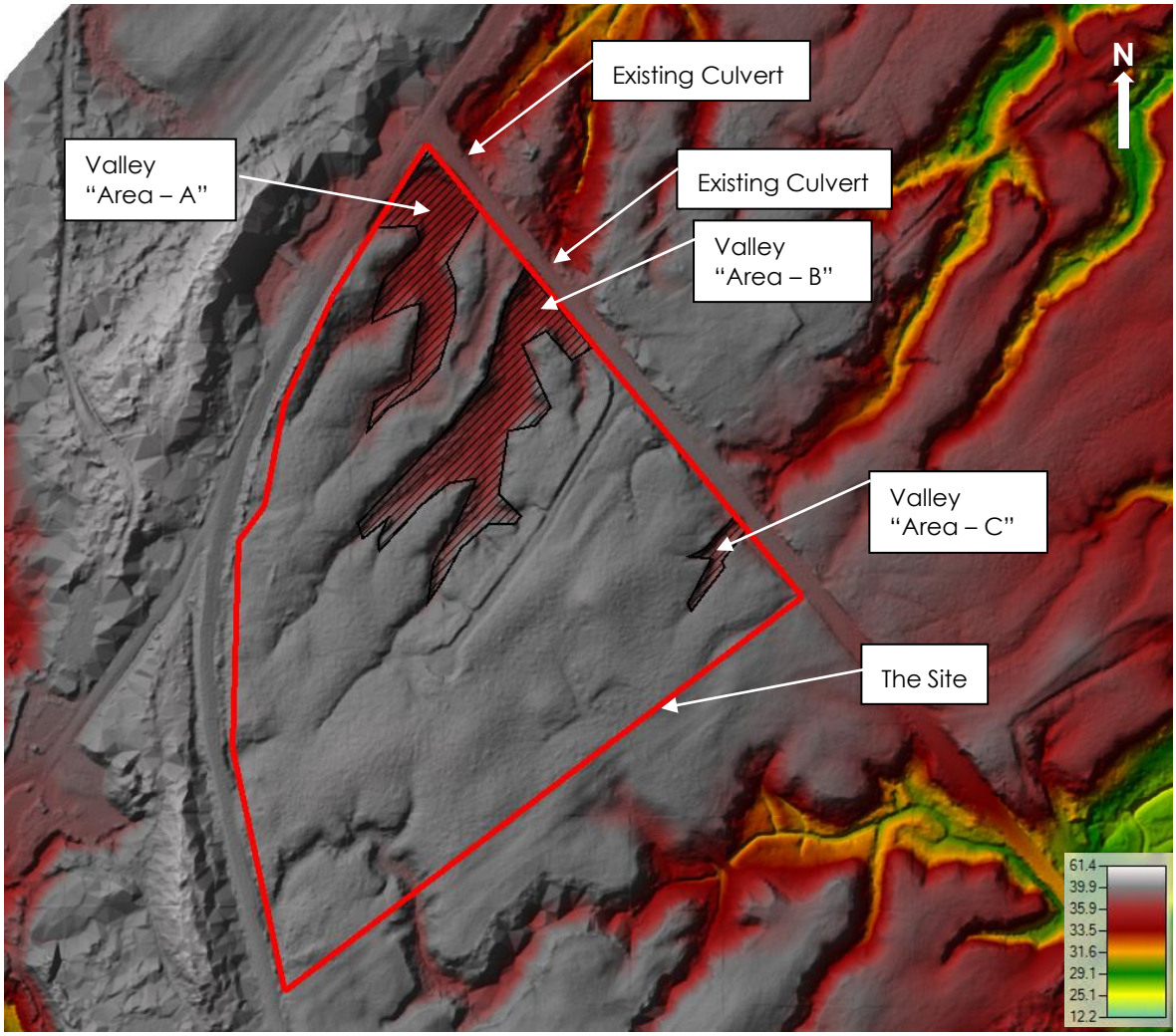


Figure 3. Site topography and valley locations

3.3. Geology

The published geology for the area[6] indicates the site is underlain by Late Pleistocene shoreline deposits (Q5b) consisting of marine sand and gravel.

The GNS Active Fault Database[7] indicates the closest active fault is the Lower Buller Fault located 13km south-east of the site.

[6] GNS 250K geological units map New Zealand Geotechnical Database, retrieved January 2021.
[7] GNS Active Faults Database - http://maps.gns.cri.nz/website/af/viewer.htm

4. Site Investigation

On 3rd May 2022 we undertook a geotechnical site investigation which consisted of a site walkover, sixteen DCP tests, and the inspection of twelve machine dug test pits. On 20 December 2022 we undertook an additional three DCP tests to get better coverage of the southern portion of the site. Investigation Records can be found in Appendix C.

4.1. Machine dug test pit

The test pits were excavated to depths of between 1.4m and 2.4m below existing ground level. A consistent ground profile was found across the site with surficial layers of topsoil and silt overlaying an iron pan layer and dense sand. The depth to the iron pan layer varied from 0.2m to 1.55m at our test locations. At two test locations suspected uncontrolled fill consisting of soft silt was encountered. The fill overlaid the iron pan layer and was 1.55m thick at the deepest point we encountered during our investigation.

4.2. Dynamic Cone Penetrometer Tests (DCP)

DCP resistances were variable and generally low within the surficial topsoil, silt, and suspected fill. When the iron pan layer was encountered the DCP resistances increased significantly with refusal of the DCP occurring within the top 500mm of that layer.

DCP resistances within the iron pan and dense sand exceeded 5 blows per 100mm which meets the requirements to be considered "Good Ground" as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

4.3. Groundwater

Groundwater was not encountered during our shallow testing at depths of up to 2.9m below the existing ground level.

5. Liquefaction Assessment

The BECA 2021 West Coast Regional Liquefaction Assessment Report Report[8] identifies the site as belonging to Liquefaction Damage is Unlikely.

Based on the in-situ ground investigations we consider that the site is unlikely to experience significant liquefaction and therefore recommend that it is treated as belonging to Technical Category 1 (TC1).

6. Natural Hazards Risk Assessment

6.1. Introduction

Council can refuse subdivision consent if there is a significant risk due to natural hazards. To determine whether there is a significant risk due to natural hazards, decision-makers are guided by the matters set out in RMA Section 106(1A). An assessment of the risk from natural hazards requires a combined assessment of:

- The **likelihood** of natural hazards occurring (whether individual or in combination); and
- The **consequences** (material damage) that would result from natural hazards to land where the consent is sought, other land, or structures; and

[8] https://www.wcrc.govt.nz/publications/natural-hazard-reports

- Any **likely subsequent use** of the land where the consent is sought that would **accelerate, worsen, or result in material damage**.

Decision-makers are required to consider the magnitude of risk of natural hazards, including natural hazards that have a high impact but low probability of occurrence. This will align assessments with the definition of 'effect' in Section 3 of the RMA.

The RMA defines natural hazards as:

Any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment[9].

We have considered the risk of **drought**, **geothermal activity**, **wind**, **climate change**, **sea level rise**, and **volcanic activity** and conclude these are very unlikely to pose an unacceptable risk to life at this site. In relation to other potential natural hazards, we comment as follows:

6.2. Seismic Hazards

6.2.1. Earthquake Shaking

New Zealand is a seismically active country. The strength of earthquake shaking is incorporated into industry design guidance such as NZS 1170, NZS 3604 and NZGS/MBIE Module 6. New buildings and infrastructure will be designed, consented, and built to acceptable industry standards and New Zealand Building Code requirements and as such will be designed for any likely shaking as detailed in the current design codes, which will address the risk.

6.2.2. Earthquake Fault Rupture

Active faults are mapped on GNS's Active Faults Database[10]. The nearest mapped active fault is the Lower Buller Fault located 13 kilometres to the southwest. We consider fault rupture to pose an acceptably low risk to the site.

6.2.3. Liquefaction

The site has been classified as "Liquefaction Damage is Unlikely" as referenced in section above. The sands at the site are considered too dense to liquefy. We consider liquefaction poses an acceptably low risk to the site.

6.3. Land Slippage

No evidence of land slippage was observed during our site walkover and is not in an area vulnerable to rockfall or cliff collapse. The site is generally flat with an undulating ground surface and small slopes around the identified valleys. Provided stormwater runoff and site development is managed as described in the Stormwater Design Report, the risk of land slippage will be minimised and is considered acceptably low.

6.4. Flooding

A stormwater and flooding assessment of the site has been undertaken with the findings presented in the previously issued Storm Water Design Report. Based on that report the proposed lots 4, 5, 8, 9, 10, 21, are susceptible to partial flooding during a 1%AEP rainfall event. To mitigate the hazard of flooding,

[9] https://www.mfe.govt.nz/publications/rma/resource-legislation-amendments-2017-fact-sheet-series
[10] https://data.gns.cri.nz/af/

consent notices will be required on these lots to confirm a minimum building platform level of R.L 38.7m. A Plan showing the buildable areas above R.L38.7m is shown in Appendix A. The plan also shows suitable building area of 20m x 20m within each of the lots, showing that all 21 lots have suitable space for a residential building. Provided the controls proposed in the Stormwater Design Report, including the minimum formation level for building platforms, are followed the consequences of flooding are acceptably low.

6.5. Subsidence

The site is underlain by competent Late Pleistocene sand deposits. Localised areas of suspected uncontrolled fill were encountered during our investigation. Lot specific geotechnical investigations and construction inspections will identify any areas of unsuitable material on a lot-by-lot basis. This material can then be removed and replaced with engineered fill as required.

Consequences of land subsidence assuming normal good practice design and development controls are implemented is acceptably low.

6.6. Fire

It is proposed that water supply on site be via stormwater fed tanks which will also provide for firefighting purposes. Sufficient water volume, pressure and flows shall be provided in accordance with New Zealand Fire Service (NZFS) Fire Fighting Water Supplies Code of Practice SNZ PAS 4509:2008. Provided these recommendations are followed the consequence of fire is acceptably low.

6.7. Combinations of Hazards

Common hazard combinations for a development of this nature include:

1. Flood + erosion + sedimentation + landslip.
2. Earthquake + landslip.
3. Wind + fire.
4. Wind + fire + drought.

Specific comments on these common hazard combinations are as follows:

1. As discussed above, if normal good practice design and development controls are implemented then the combined hazard of flood, erosion, sedimentation and landslip (or sub-sets of these) are deemed to be acceptable.
2. To cater for earthquake-induced land instability, any new retaining walls should be designed in accordance NZGS/MBIE Module 6 - *Earthquake resistant retaining wall design*[11].
3. With the forecast climate change effects comes the expectation of increased fire hazard. With requirements for onsite firefighting reserves the combined risk of wind and fire is deemed to be manageable and tolerable.
4. As for Comment 3.

7. Discussion

7.1. Foundations

Based on our geotechnical investigation, we consider the shallow iron pan will provide bearing capacity in excess of that required for "Good Ground" as defined in NZS3604: 2011. Our testing confirmed that the iron pan is a consistent layer beneath the site and at our test locations was

[11] https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/module-6-earthquake-retaining-wall-design/

between 0.2m and 1.55m below the existing ground level. Site specific engineering design, investigation, and construction observation is required once the location and nature of buildings are known.

We propose the following foundation systems are suitable for the site. The specific foundation solutions for each lot to be determined following a lot specific geotechnical investigation.

7.1.1. NZS3604:2011 Standard Foundations

On lots where the underlying iron pan and dense sand is suitably shallow. Buildings designed in accordance with NZS3604:2011 may use standard NZS3604:2011 foundations.

7.1.2. Gravel Raft and slab on grade

Where the iron pan is encountered within 2m of the existing ground surface the softer soil overlaying the iron pan can be removed and replaced with a compacted gravel raft. A slab on grade can then be constructed on top of the gravel raft.

7.1.3. Driven and Bored Piles

Driven piles are unlikely to reach the required embedment described in NZS3604:2011 due to the high density of the underlying iron pan and sand. Driven piles may be suitable subject to specific engineering design based on the findings of the site-specific geotechnical investigation and may require a braced sub-floor solution.

Bored piles founded in the underlying iron pan and dense sand are a suitable foundation option subject to subject to specific engineering design based on the findings of the site-specific geotechnical investigation.

7.2. Retaining Walls

All cut banks exceeding 0.5m height should be retained to avoid the risk of erosion and slippage. Retaining walls should be designed in accordance NZGS/MBIE Module 6 *Earthquake resistant retaining wall design*.

7.3. Driveway Access

Most lots will be accessed via a road to vest and two right of ways which join on to Wilsons Lead Road. Some lots may access directly off Wilsons Lead Road.

7.4. Services

7.4.1. Stormwater

Refer to the previously issued Stormwater Design Report.

7.4.2. Wastewater

There is no Council sewer available to the site. Onsite wastewater treatment and disposal will be required. The test pits did not encounter groundwater within 3.0m of the ground surface, however, the Iron Pan and dense sand present a layer with little to no infiltration capacity. We recommend the implementation of secondary wastewater treatment systems discharged by a dripper line to a land application bed. Each system should be designed to have adequate capacity for the proposed dwelling. We consider the overlying silty topsoil to have some infiltration and treatment capacity, and we would classify the soil as category 3 sandy loam. The design of the wastewater system should be done at the building consent stage when the number of bedrooms is known.

We consider that an appropriately designed wastewater system at least 20m from any drainage channel, and 50m from any surface water body, will comply the Rule 79 of the West Coast Regional Council Land and Water Plan. If the wastewater system and land application field is within 20m of any drainage channel, then resource consent from the West Coast Regional Council will be required. All lots have suitable areas above the 1%AEP flood levels in which a land application field can be placed, however due to the stormwater swales and valleys in the north of the site some lots are likely to require a discharge consent. Based on the latest subdivision layout those lots are Lots 4, 5, 8, 9, 21, however this will need to be confirmed when the individual lots are developed.

7.4.3. Water Supply

The water supply for each lot is to be managed on-site with rain-water harvesting tanks. The design will be submitted to the Council during building consent stage. The water supply tank is to be sized depending on the water demand of each lot owner and be filled up as required by a water tanker if the water demand is not met by rainwater harvesting. All the potable water tanks are to be designed to meet Taumata Arowai and New Zealand Building Code requirements.

The fire-fighting water supply for each lot is to be a FW2 category as per water supply classification mentioned in Table 1, SBZ PAS 4509: 2008. Minimum fire-fighting water storage of 45 m^3 is required in tanks for each lot, within a distance of 90 m from a dwelling as per Table 2, SNZ PAS 4509: 2008.

7.4.4. Common Services (Power / Telecommunications / Gas)

Refer to the previously issued Infrastructure Servicing Report.

7.5. Statement of Professional Opinion

In accordance with the Statement of Professional Opinion (refer to Appendix CE), we report the following regarding Section 2:

1. The site investigation is detailed in this risk assessment report.
2. The site is not prone to liquefaction due its underlying geology and terrain setting.
3. The risk of flooding, and earthquake effects are specifically addressed in this risk assessment and the Stormwater Design Report.
4. Slope stability and ground bearing capacity are specifically addressed in this risk assessment.
5. Providing normal good practice design and development controls are implemented we have found no significant risks from natural hazards that would prevent the granting of a subdivision consent.

8. Recommendations

In order to limit the risk associated with natural hazards, we recommend the following be adopted as a condition of subdivision consent;

- Nil

In order to limit the risk associated with natural hazards, we recommend the following be adopted as a Consent Notice on the Record of Titles for Lots 1, 2, 4, 5, 8, 9, 10, 21;

- Minimum floor levels of RL 38.7m.

We note development of new buildings on the site should be supported by a site-specific geotechnical investigation and report that comments on any specific geotechnical requirements for the proposed dwelling foundations, and any requirements for excavation and filling earthworks and

retaining walls. This is a normal requirement and therefore does not specifically need to be recorded as a Consent Notice.

9. Conclusions

We have considered the risk associated with natural hazards as required by RMA s106 and conclude that either the risk and consequence of potential natural hazards is either acceptable or tolerable, or providing the recommendations of this report are followed, will be acceptable or tolerable.

Providing normal good practice design and development controls are implemented we have found no significant risks from natural hazards that would prevent the granting of a subdivision consent.

A Statement of Professional Opinion on the suitability of the land subdivision is attached in Appendix E.

10. Disclaimer

This report has been prepared by Eliot Sinclair & Partners Limited ("Eliot Sinclair") only for the intended purpose as a Natural Hazards Risk Assessment. Our analysis is based on our inspection of the site and geotechnical testing.

The report is based on:

- Information shown on the NZGD, Canterbury Maps and GNS's Active Faults Database.
- Ministry of Business, Innovation and Employment's (MBIE) December 2012 guidelines.

Where data supplied by Tauranga Bay Holdings Ltd or other external sources, including previous site investigation reports, have been relied upon, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Eliot Sinclair for incomplete or inaccurate data supplied by other parties.

Whilst every care has been taken during our investigation and interpretation of the subsurface conditions to ensure that the conclusions drawn, and the opinions and recommendations expressed are correct at the time of reporting, Eliot Sinclair has not performed an assessment of all possible conditions or circumstances that may exist at the site. Variations in conditions may occur between investigatory locations and there may be conditions such as subsoil strata and features that were not detected by the scope of the investigation that was carried out or have been covered over or obscured over time. Additionally, on-going seismicity in the general area may lead to deterioration or additional ground settlement that could not have been anticipated at the time of writing this report. Eliot Sinclair does not provide any warranty, either express or implied, that all conditions will conform exactly to the assessments contained in this report.

The exposure of conditions that vary from those described in this report, or occurrence of additional strong seismicity, or any future update of MBIE's guidelines may require a review of our recommendations. Eliot Sinclair should be contacted to confirm the validity of this report should any of these occur.

This report has been prepared for the benefit of Tauranga Bay Holdings Ltd and West Coast Regional Council for the purposes as stated above. This report is specifically prepared for the proposed subdivision and should not be used to support any future consent application without prior review and approval by Eliot Sinclair. No liability is accepted by Eliot Sinclair or any of their employees with respect to the use of this report, in whole or in part, for any other purpose or by any other party.

Appendix A. Subdivision Scheme Plan

Legend

Buildable areas over R.L 38.7m

1%AEP Flood level plus 500mm freeboard

Example 20m x 20m building platform within buildable within flood affected lots

NOTES
1. Contractors to verify all dimensions and the location of all underground services on site prior to commencing work.
2. Unless noted otherwise, all work shall be undertaken in accordance with the NZBC and any relevant Territorial Authority Engineering Standards and Specifications as a minimum standard.

REV.	DRAWN	DATE	NOTE
A	DSH	06.03.25	Preliminary

CLIENT

Tauranga Bay Holdings Ltd

DESIGNED		DSH
DRAWN		DSH
REVIEWED		AC
APPROVED	7/03/2025	AC
STATUS		PRELIMINARY
SCALE		1:3000 [A3]

CAPEFOULWIND DEVELOPMENT
Section 41 SO 13711
Tauranga Bay Road, Westport

Buildable Areas Plan

PROJECT	REV.
510322	A
SET	SHEET
XX	XXXX

eliot sinclair

Appendix B. Site Photos

Figure 1. Facing north-east across from eastern part of site.

Figure 2. Looking towards Valley B.

Figure 3. Facing north-west towards Tauranga Bay from centre of site.

Figure 4. Drainage adjacent to Tauranga Bay Road on western side of site.

Figure 5. Southern end of Valley B.

Figure 6. Facing north from looking across a Valley A towards the Wilson Lead Road and Tauranga Bay Rd intersection.

Figure 7. Test pit in area A.

Figure 8. Dense sand encountered at test location 3.

Figure 9. Test pit at test location 6

Figure 10. Test pit at Test Location 7

Figure 11. Test pit at Test Location 8

Figure 12. Test pit at Test Location 9

Figure 13. Test pit at Test Location 11

Figure 14. Test pit at Test Location 12

Appendix C. Site Investigation Records

G:\Jobs\51\510322\GIS\Automated_Mapping\510322_Core-GS_AutoMAP_250306_1311

NOTES
1. Contractors to verify all dimensions and the location of all underground services on site prior to commencing work.
2. Unless noted otherwise, all work shall be undertaken in accordance with the NZBC and any relevant Territorial Authority Engineering Standards and Specifications as a minimum standard.

LEGEND

Dynamic Cone Penetrometer (DCP)

Test, Inspection Pit

REV.	DRAWN	DATE	NOTE
A	GIS	06.03.25	Preliminary

CLIENT

TAURANGA BAY HOLDINGS LTD

DESIGNED		GIS
DRAWN		GIS
CHECKED		DSH
APPROVED	06.03.25	DSH
STATUS		PRELIMINARY
SCALE	1:3000	[A3]

TESTING LOCATIONS PLAN FROM CORE-GS

Section 41 SO 13711
Westport

GEOTECHNICAL TEST LOCATION PLAN
XX

PROJECT	SET	SHEET	REV.
510322	01	XXXX	A

eliot sinclair

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

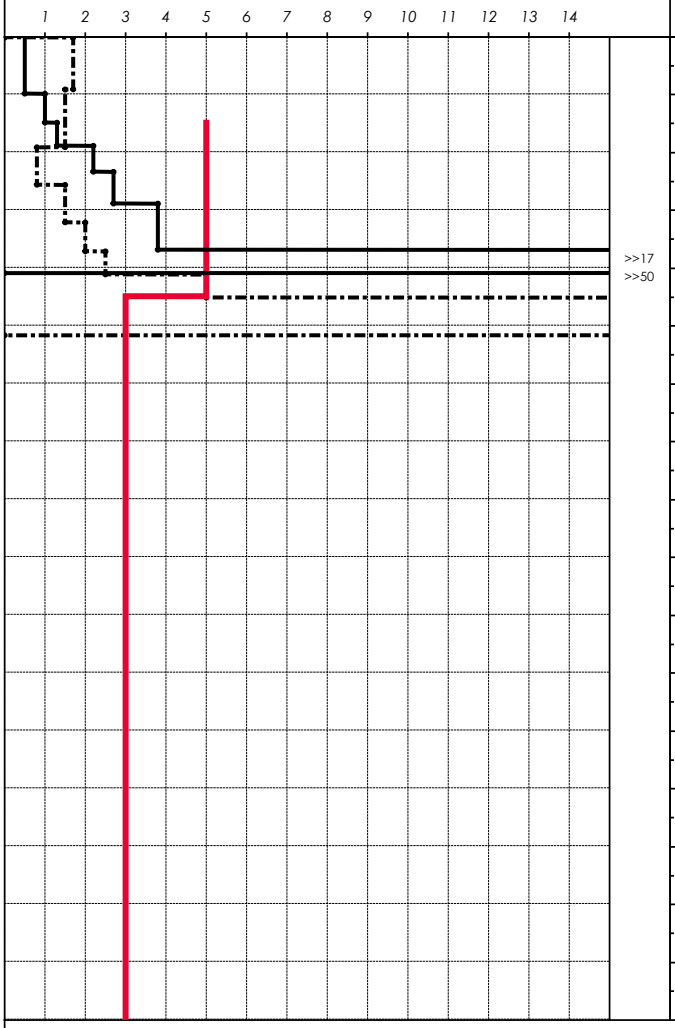
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



01 02

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 01

Water

Groundwater Not Encountered

TOPSOIL & SILT; brown.

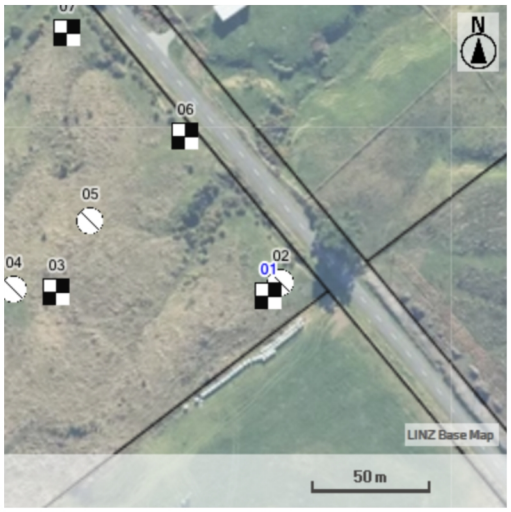
SAND; orange. Iron pan.

SAND; orange brown.

SAND; orange light brown.

EOH: 2.2m - Target Depth.

Site Plan: (Not to Scale)



Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

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Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

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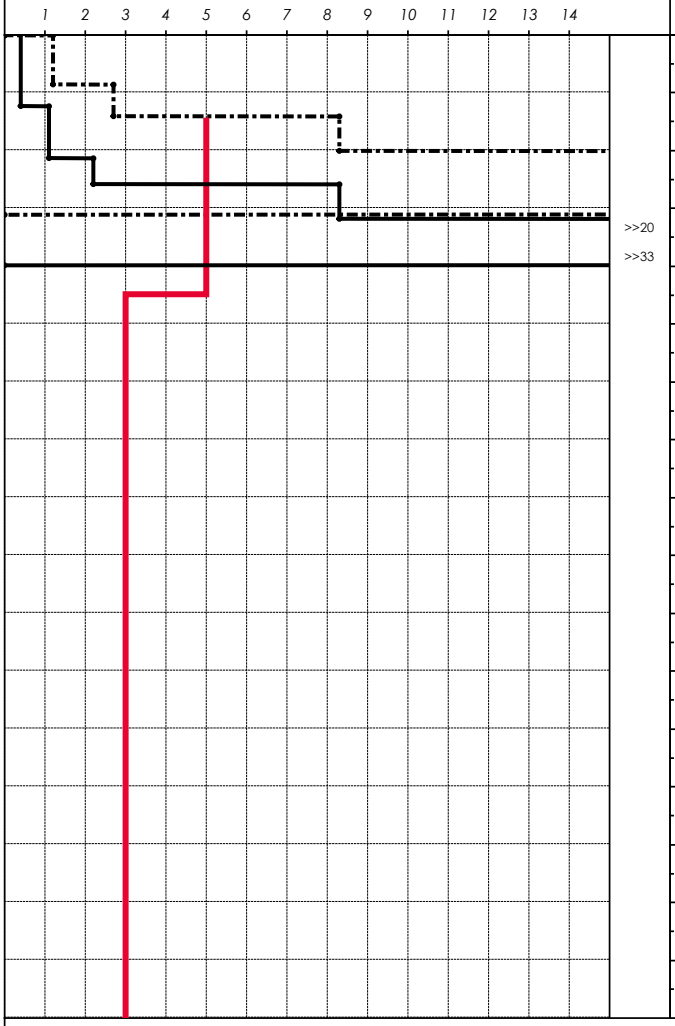

03 04

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 03

Water

Groundwater Not Encountered

TS
T
TS

TOPSOIL & SILT, with some sand; brown.

SAND; orange. Iron pan.

SAND; orange brown.

EOH: 2.4m

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Report Published: 6/03/2025 1:23:20 pm

Produced with CORE-GS

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

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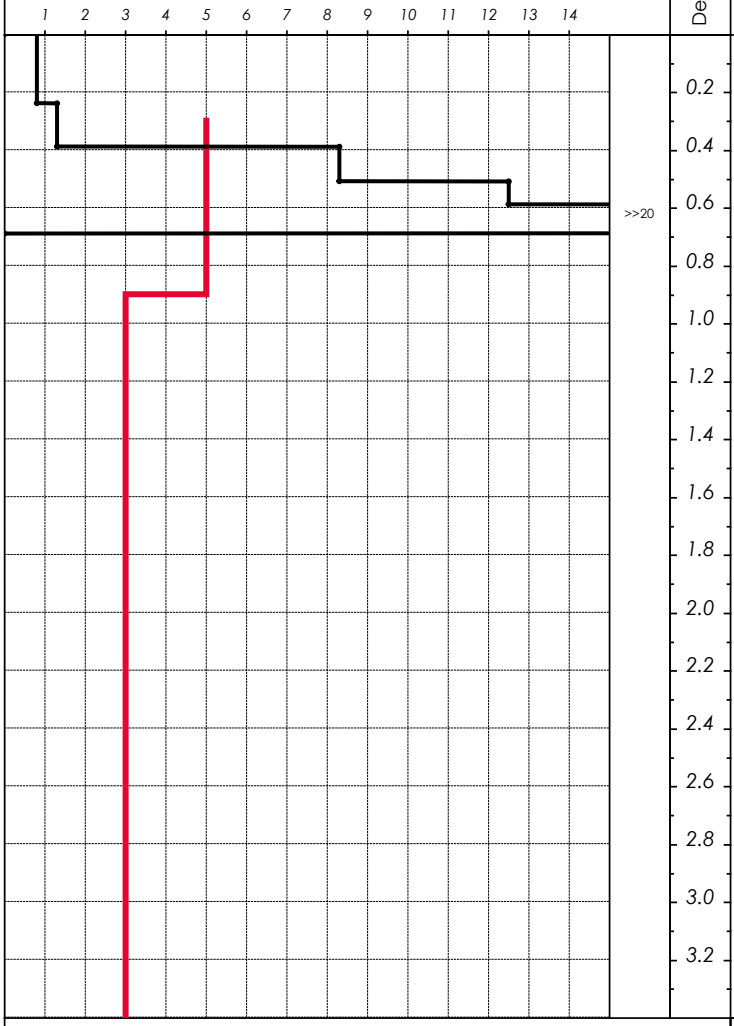
Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



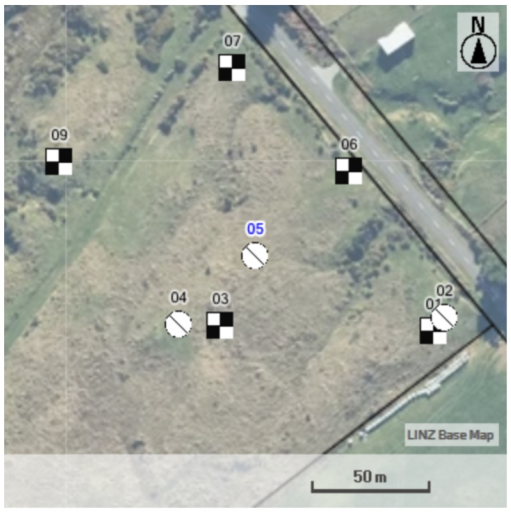
Soil Profile

Water

05

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)



Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
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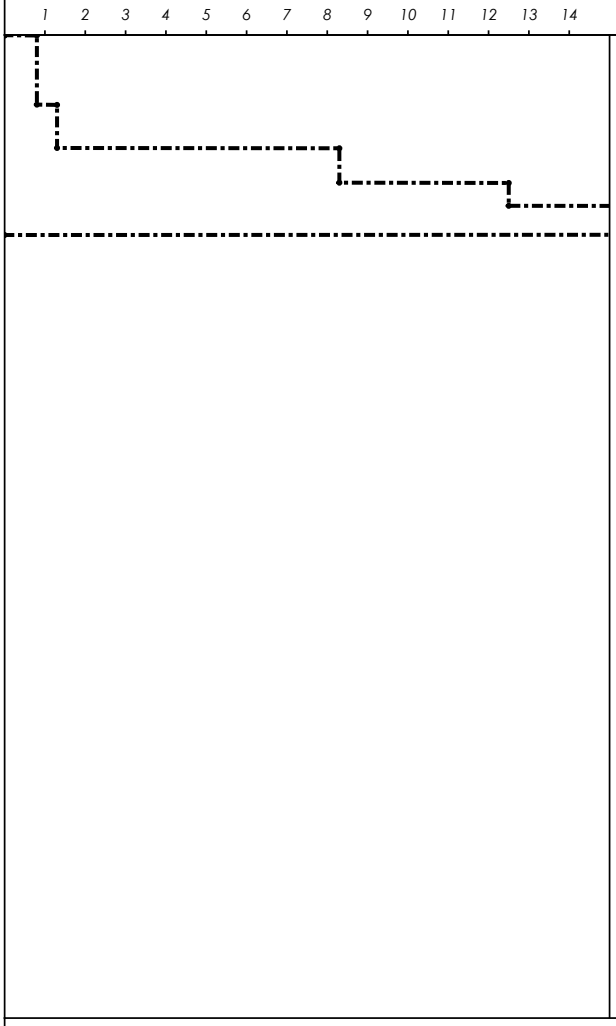
Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m)

0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2

Soil Profile

Test Location 06

TS	TOPSOIL & SILT, with some sand; brown.
	SAND; orange. Iron pan.
	SAND; orange brown.
	SAND; greyish brown.
	EOH: 2m - Target Depth.

Water

Groundwater Not Encountered

06 05

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

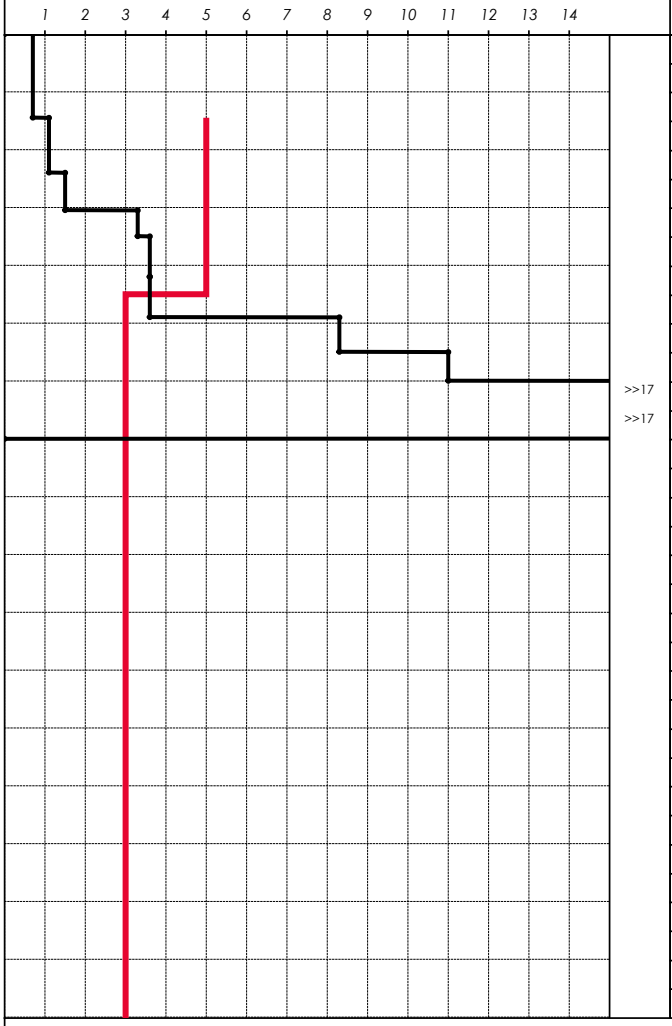
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



07

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 07

Depth (m)	
0.2	TOPSOIL & SILT, with some sand; dark brown.
1.2	SILT, with some sand, with minor organics, wood; brown.
1.4	SAND; orange. Iron pan.
2.2	SAND; orange.
2.4	EOH: 2.3m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

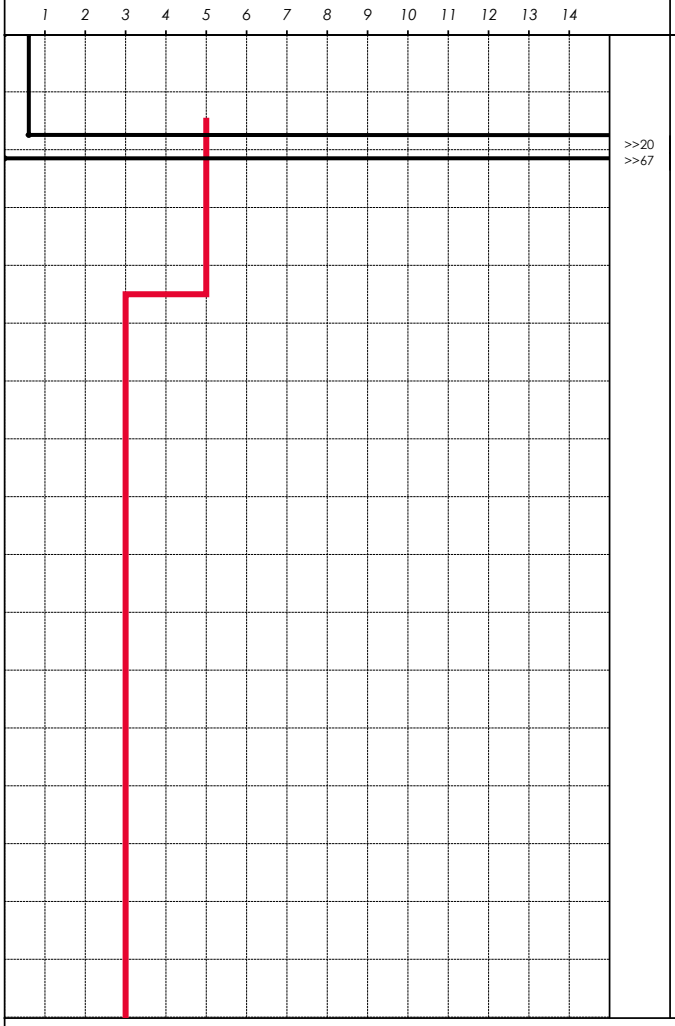
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



Depth (m)

Soil Profile

Test Location 08

Water

TOPSOIL & SILT, with some sand; brown.

Orange. Iron pan.

SAND; orange brown.

EOH: 1.4m - Target Depth.

08

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

Technical Category:

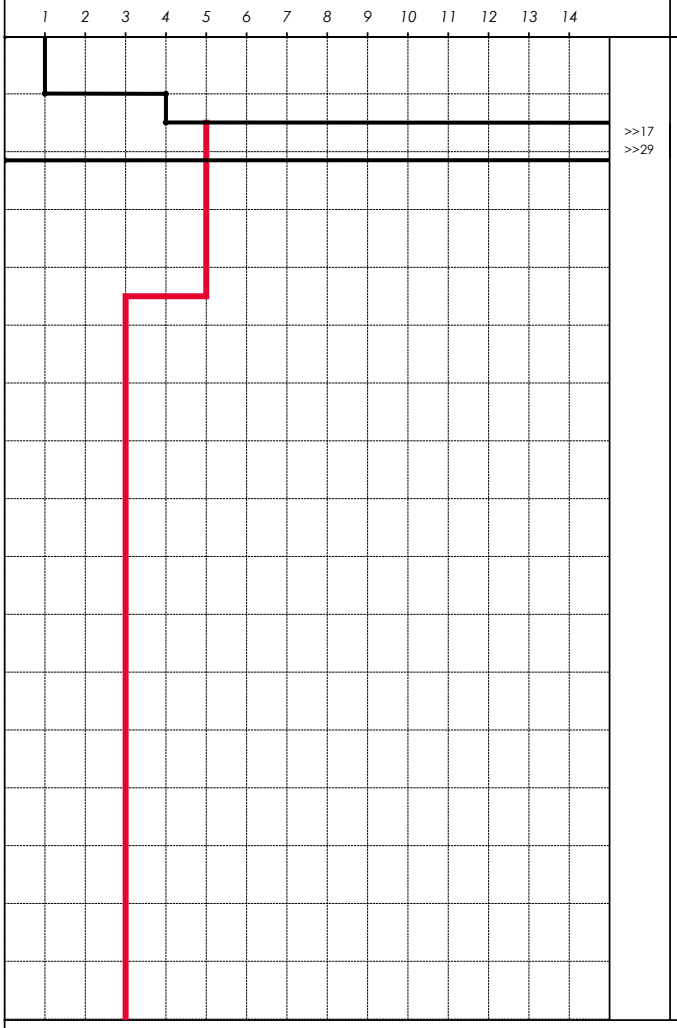
Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m)

Soil Profile

Test Location 09

Water

TOPSOIL & SILT, with minor sand; brown.

SAND; orange. Iron pan.

SAND; orange brownish. Firm.

EOH: 2.2m - Target Depth.

09

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

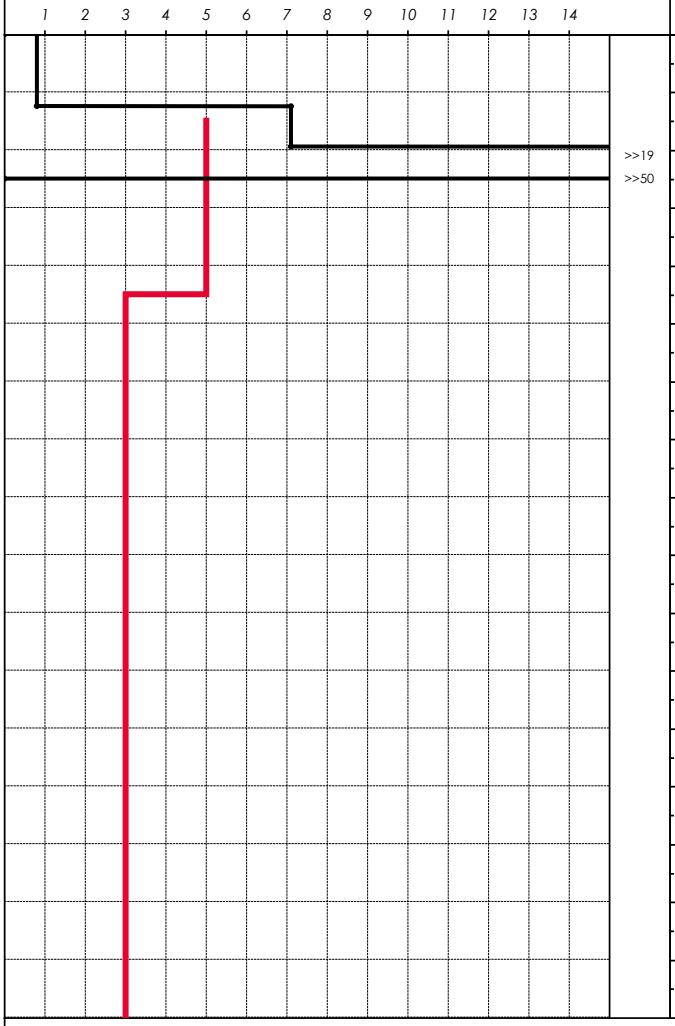
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



10

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 10

Depth (m)	Soil Profile
0.0 – 0.4	TOPSOIL & SILT, with some sand; brown.
0.4 – 2.2	SAND; orange. Iron pan. SAND; orange brown.
2.2	EOH: 2.2m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

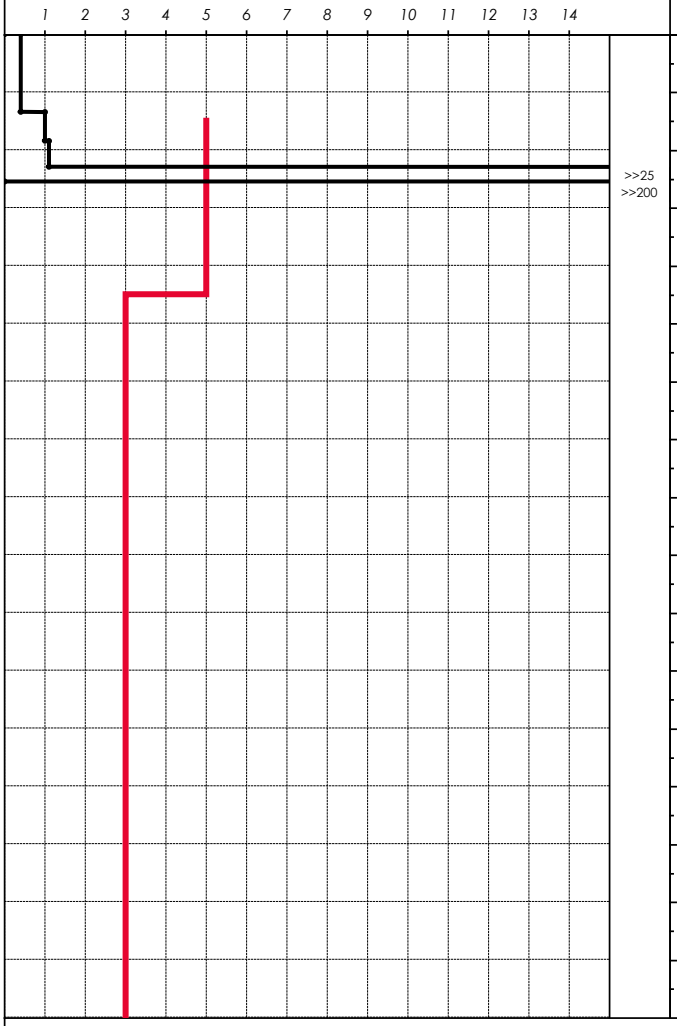
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



11

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 11

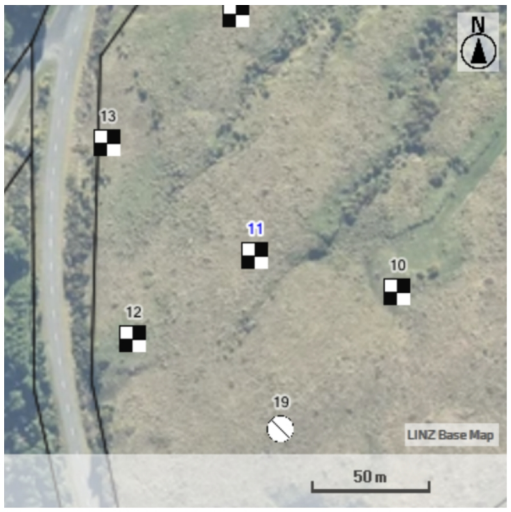
TS T TS T	TOPSOIL & SILT, with some sand; brown.
	SAND; orange. Iron pan.
	SAND; orange brown.
	SAND; orange light brown.
	SAND; orange brown.
	EOH: 2.2m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)



Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

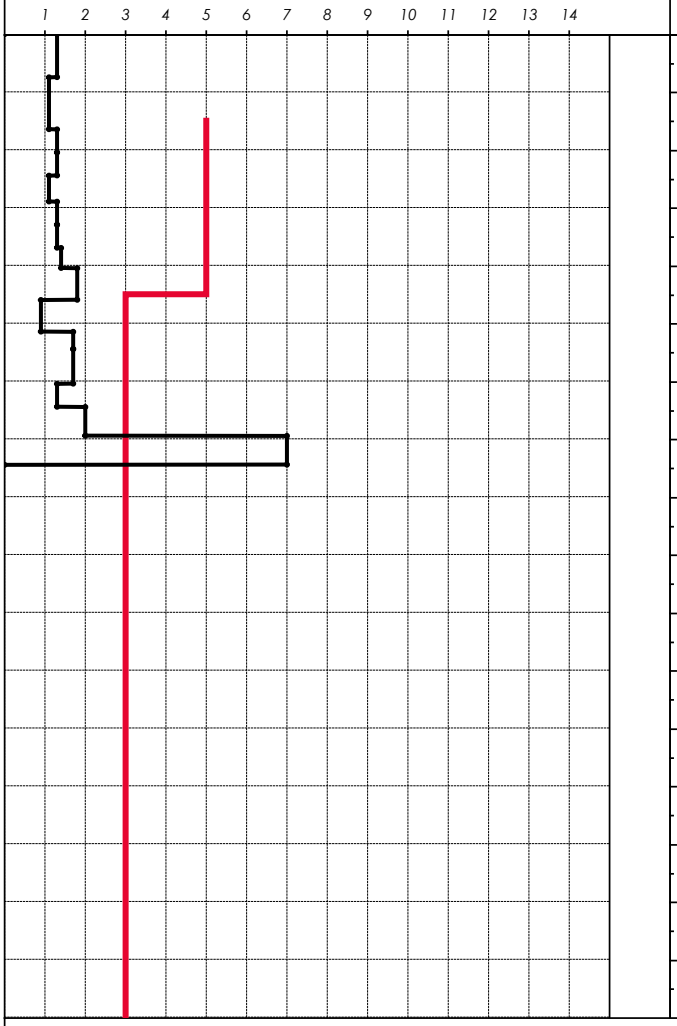
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



12

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

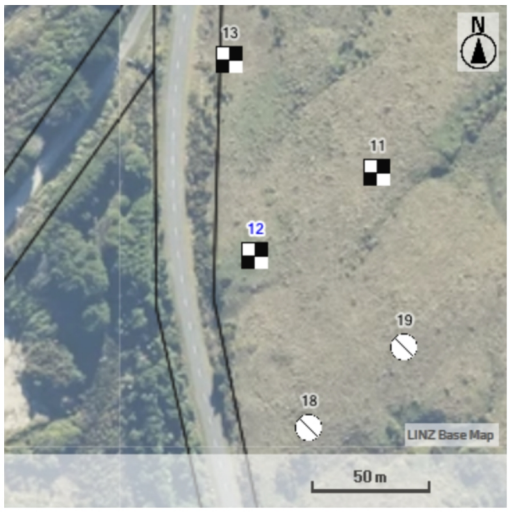
Soil Profile

Test Location 12

Depth (m)	Soil Profile
0.0	TOPSOIL & SILT, with some sand; brown.
0.2	FILL: SILT, with some peat (fibrous) and sand; brown. Organics.
1.6	SAND; orange. Iron pan.
1.8	SAND; orange brown.
3.0	EOH: 2.9m - Target Depth.
3.2	

Water: Groundwater Not Encountered

Site Plan: (Not to Scale)



Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

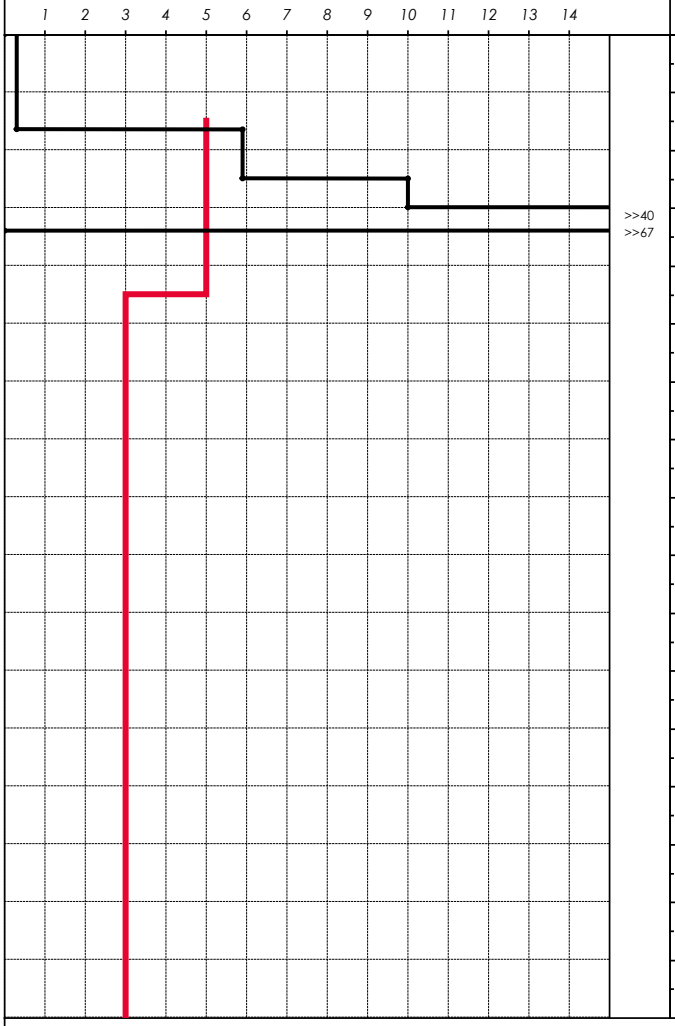
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



13

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Test Location 13

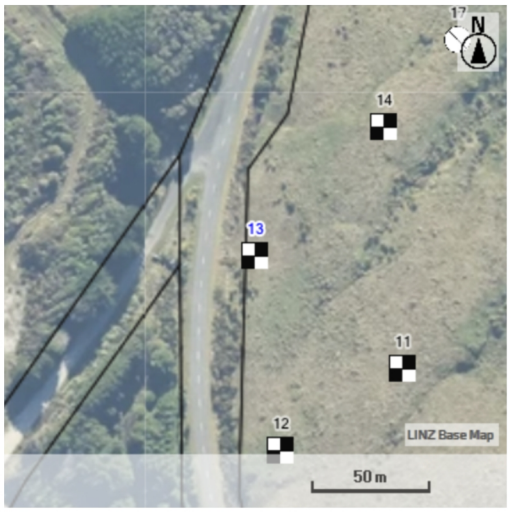
Depth (m)	
0.0	TOPSOIL & SILT, with some sand; brown.
0.2	SILT, with minor sand; brown.
0.8	SAND; orange. Iron pan.
0.8	SAND; orange brown.
1.6	SAND; orange light brown.
2.2	EOH: 2.2m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)



Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

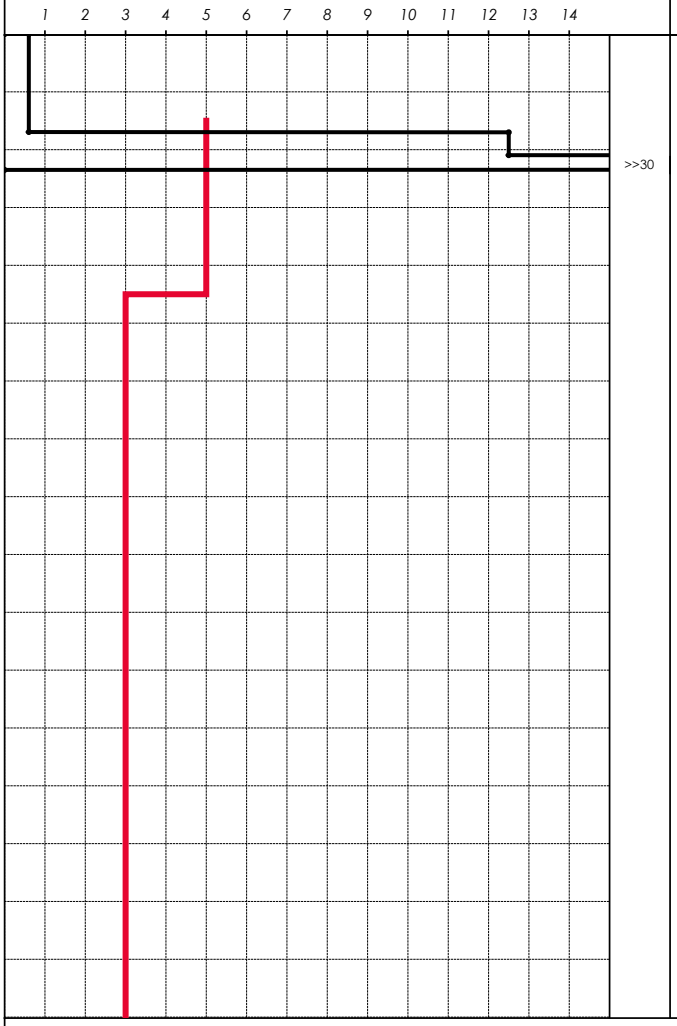
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



14

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Depth (m)

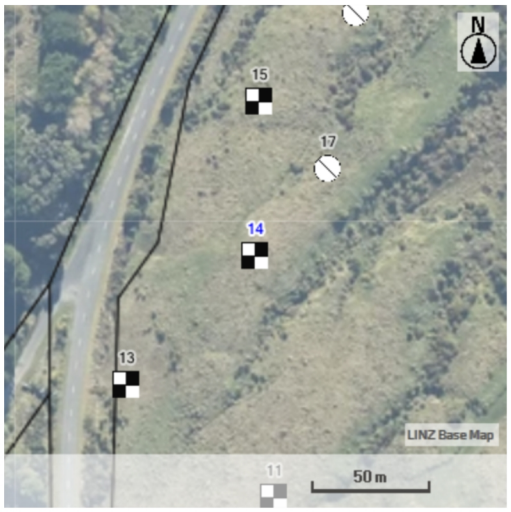
Soil Profile

Test Location 14

Water

Depth (m)	Soil Profile
	SandyTOPSOIL & SILT; brown.
	SAND; orange. Iron pan.
	SAND; orange brown.
	EOH: 2m - Target Depth.

Site Plan: (Not to Scale)



Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

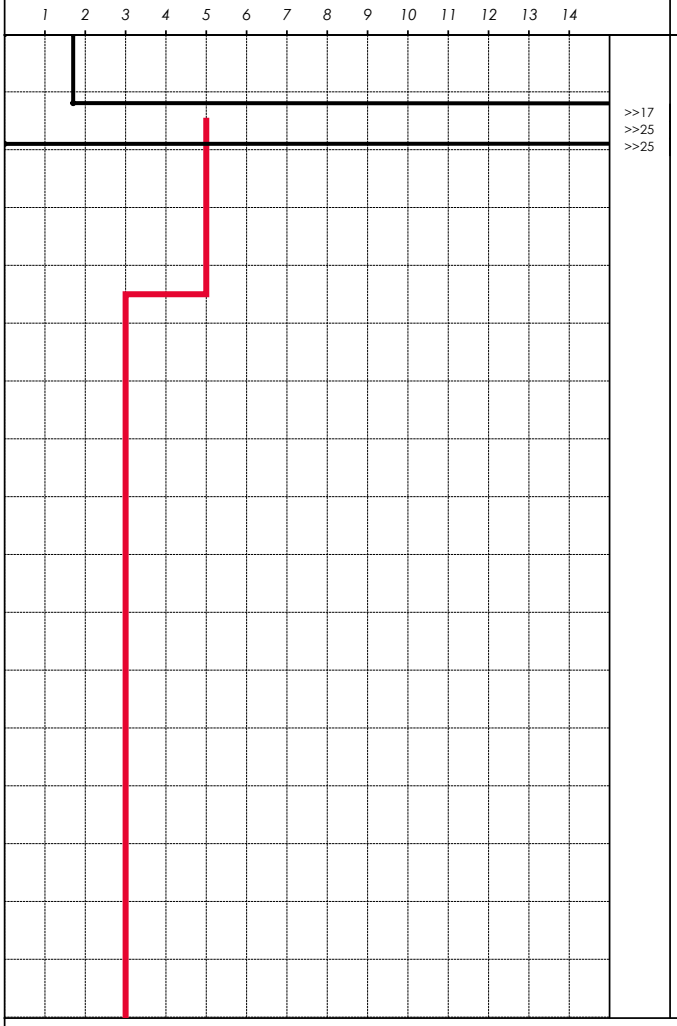
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



Depth (m)

Soil Profile

Test Location 15

Water

TS
T

SandyTOPSOIL & SILT; brown.

SAND; orange. Iron pan.

SAND; orange brown.

EOH: 2m - Target Depth.

15

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 6/03/2025 1:23:20 pm

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

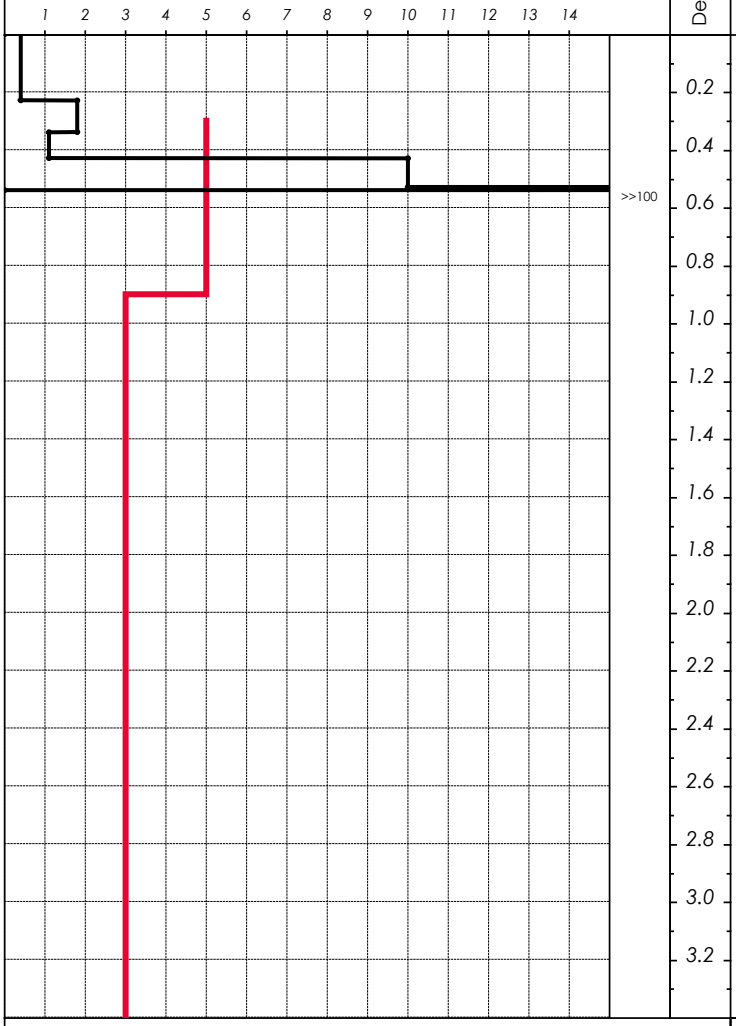
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



16

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

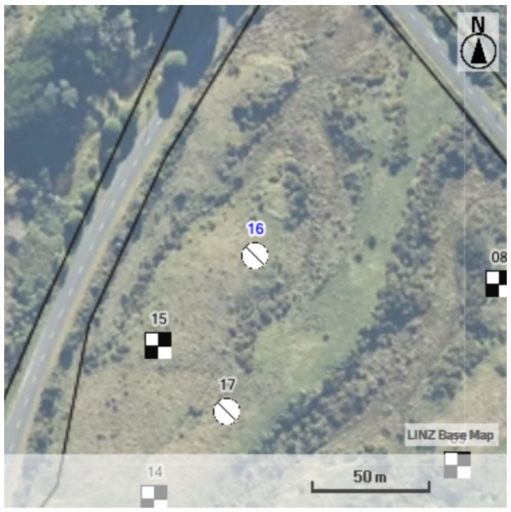
Soil Profile

Water

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☐ Test Pit

Site Plan: (Not to Scale)



Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

Technical Category:

Lot: Section 41 **D.P.:** SO 13711

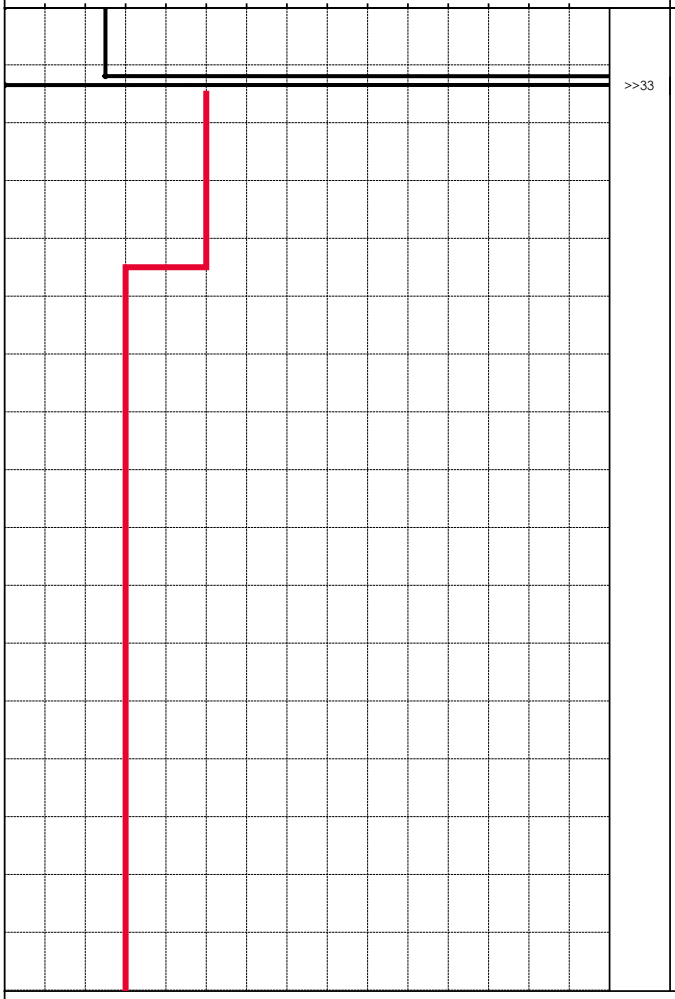
Date Tested: 3-May-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14



Depth (m)

Soil Profile

Water

17

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SHJ & EAW	EAW	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC	SCC	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

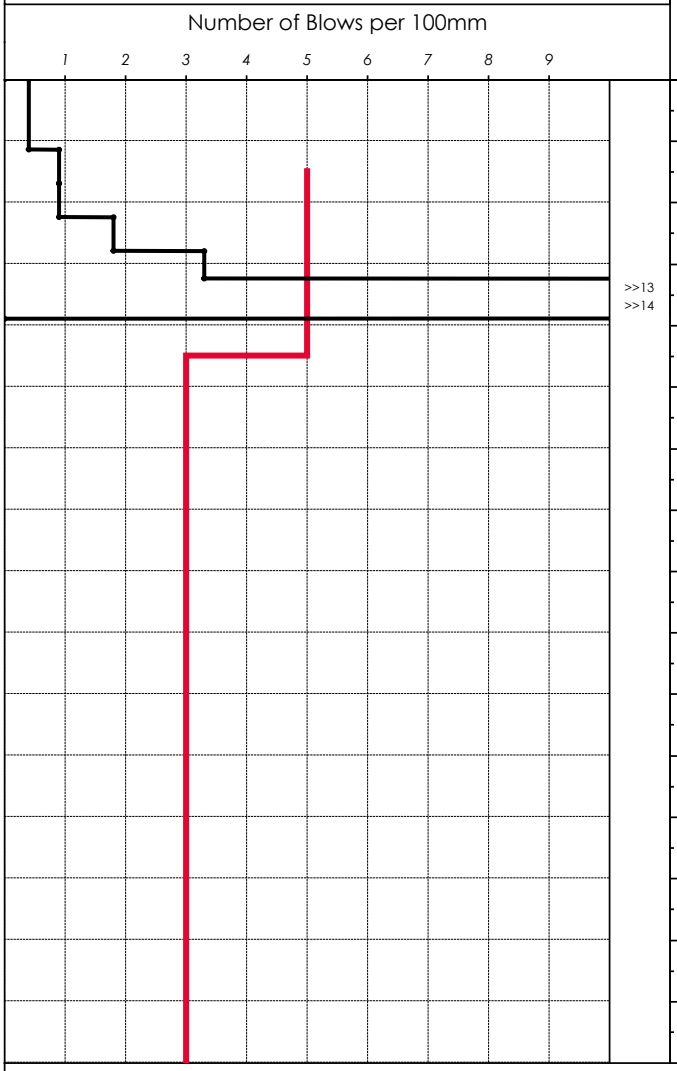
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 20-Dec-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



Soil Profile

Water

18

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SJH and AWM	AWM	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC		☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

Technical Category:

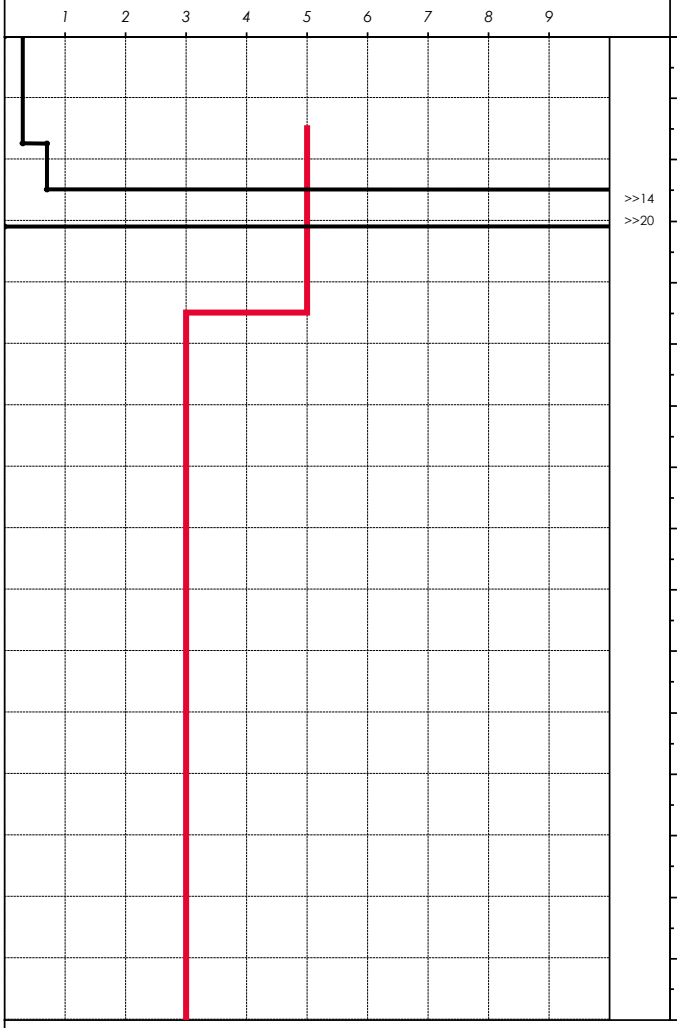
Lot: Section 41 **D.P.:** SO 13711

Date Tested: 20-Dec-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Soil Profile

Water

19

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SJH and AWM	AWM	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC		☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Site Investigation Record

Client: Tauranga Bay Holdings Ltd

Site: Section 41 SO 13711, Tauranga Bay Road, Westport

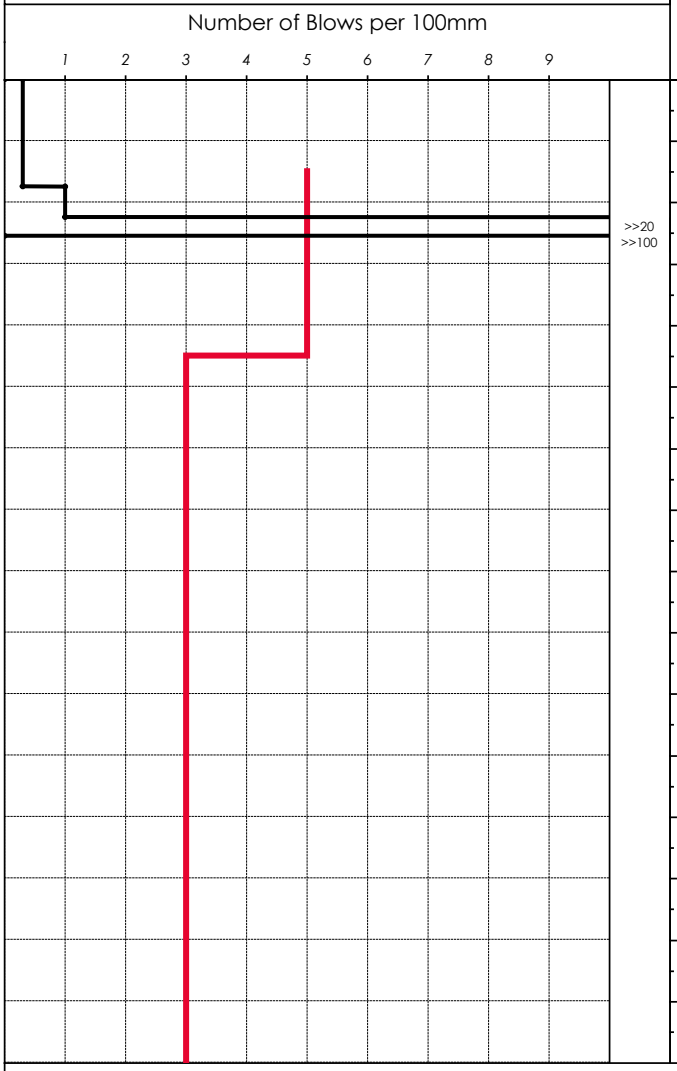
Technical Category:

Lot: Section 41 **D.P.:** SO 13711

Date Tested: 20-Dec-2022

Log Sheet No.: 1 of 1 **Project No.:** 510322

Dynamic Cone Penetrometer (DCP) Test Results



20

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Soil Profile

Water

Site Plan: (Not to Scale)

Comments:

Field Staff:	Prepared By:	Soil Profile From:
SJH and AWM	AWM	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
AC		☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Appendix D. Statement of Professional Opinion

SCHEDULE 2A

STATEMENT OF PROFESSIONAL OPINION ON SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

Development 21-lot subdivision.....

Developer Tauranga Bay Holdings Ltd.....

Location Section 41 SO 13711.....

I Andrei Cotiga..... of Eliot Sinclair and Partners Ltd.....

(Full name) (Name and address of firm)

Hereby confirm that:

1. I am a geo—professional as defined in clause 1.2.2 of NZS 4404:2010 and was retained by the developer as the geo-professional on the above development.

2. The extent of my preliminary investigations are described in my Report(s) number 510322, dated 16 June 2022, and the conclusions and recommendations of that/those document(s) have been re-evaluated in the preparation of this report. ~~The extent of my inspections during construction, and the results of all tests and/or re-evaluations carried out are as described in my geotechnical completion report dated .....~~

3. In my professional opinion, not to be construed as a guarantee, I consider that (delete as appropriate):

~~a) The earth fills shown on the attached Plan No..... have been placed in compliance with the requirements of the ..... Council and my specification~~

~~b) The completed works take into account land slope and foundation stability considerations, subject to the appended foundation recommendations and earthworks restrictions, (which should be read in conjunction with the appended final site contour plan).~~

c) Subject to 3(a) and 3(b) of this Schedule, the original ground not affected by filling is suitable for the erection of buildings designed according to NZS 3604 provided that:

   i) The recommendations of our report are followed.

   ii) .....

~~d) Subject to 3(a) and 3(b) of this Schedule, the filled ground is suitable for the erection of buildings designed according to NZS 3604 provided that:~~

   i) .....

   ii) .....

e) The original ground not affected by filling and the filled ground are not subject to erosion, subsidence, or slippage in accordance with the provisions of section 106 of the Resource Management Act 1991 provided that:

   i) The recommendations of our report are followed.

   ii) .....

NOTE —~ These subclauses may be deleted or added to as appropriate, to include such considerations as expansive soils where excluded from NZS 3604, and site seismic characteristics as covered in clause 3.1.3 of NZS 1170.5.

4. This professional opinion is furnished to the TA and the developer for their purposes alone on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any building.

5. This certificate shall be read in conjunction with my geotechnical report referred to in clause 2 above and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.

Signed ..... Date 7 March 2025

Andrei Cotiga

Geotechnical Engineer

BE (Hons) Civil ME CPEng

(Name, title, and professional qualifications)