

# Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Schedule 4). Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges — [both available on the Council's web page](#).

## 1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?  Yes  No

## 2. Type of Consent being applied for

*(more than one circle can be ticked):*

- |   |   |
|---|---|
| <input type="radio"/> Land Use  | <input type="radio"/> Discharge                           |
| <input type="radio"/> Fast Track Land Use*  | <input type="radio"/> Change of Consent Notice (s.221(3)) |
| <input checked="" type="radio"/> Subdivision  | <input type="radio"/> Extension of time (s.125)           |
| <input type="radio"/> Consent under National Environmental Standard<br>(e.g. Assessing and Managing Contaminants in Soil) |   |
| <input type="radio"/> Other (please specify) _____  |   |

\* The fast track is for simple land use consents and is restricted to consents with a controlled activity status.

## 3. Would you like to opt out of the Fast Track Process?

Yes  No

## 4. Consultation

Have you consulted with iwi/Hapū?  Yes  No

If yes, which groups have you consulted with?

Who else have you consulted with?

For any questions or information regarding iwi/hapū consultation, please contact Te Hono at Far North District Council [tehonosupport@fndc.govt.nz](mailto:tehonosupport@fndc.govt.nz)

## 5. Applicant Details

**Name/s:**

Kevin Coombridge

**Email:**

**Phone number:**

**Postal address:**

(or alternative method of service under section 352 of the act)

## 6. Address for Correspondence

*Name and address for service and correspondence (if using an Agent write their details here)*

**Name/s:**

Tohu Consulting C/- Nina Pivac

**Email:**

**Phone number:**

**Postal address:**

(or alternative method of service under section 352 of the act)

*\* All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.*

## 7. Details of Property Owner/s and Occupier/s

*Name and Address of the Owner/Occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)*

**Name/s:**

Kevin and Glenys Coombridge

**Property Address/  
Location:**

1698 State Highway 10 RD1 Mangonui

**Postcode**

## 8. Application Site Details

*Location and/or property street address of the proposed activity:*

**Name/s:**

As above

**Site Address/  
Location:**

_____
_____
_____
<b>Postcode</b>

**Legal Description:**

Lot 2 DP 314590

**Val Number:**

--

**Certificate of title:**

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Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

### Site visit requirements:

Is there a locked gate or security system restricting access by Council staff?

**Yes**  **No**

**Is there a dog on the property?**  **Yes**  **No**

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

Please contact applicant to arrange site visit.

## 9. Description of the Proposal:

Please enter a brief description of the proposal here. Please refer to Chapter 4 of the District Plan, and Guidance Notes, for further details of information requirements.

Subdivision in Rural Production Zone to create one additional allotment.

If this is an application for a Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s), with reasons for requesting them.

## 10. Would you like to request Public Notification?

**Yes**  **No**

## 11. Other Consent required/being applied for under different legislation

(more than one circle can be ticked):

- Building Consent**
- Regional Council Consent (ref # if known)**
- National Environmental Standard consent**
- Other (please specify)**

## 12. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following:

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)  **Yes**  **No**  **Don't know**

Is the proposed activity an activity covered by the NES? Please tick if any of the following apply to your proposal, as the NESCS may apply as a result.  **Yes**  **No**  **Don't know**

- Subdividing land**
- Changing the use of a piece of land**
- Disturbing, removing or sampling soil**
- Removing or replacing a fuel storage system**

## 13. Assessment of Environmental Effects:

*Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as Written Approvals from adjoining property owners, or affected parties.*

**Your AEE is attached to this application**  **Yes**

## 13. Draft Conditions:

Do you wish to see the draft conditions prior to the release of the resource consent decision?  **Yes**  **No**

If yes, do you agree to extend the processing timeframe pursuant to Section 37 of the Resource Management Act by 5 working days?  **Yes**  **No**

## 14. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

<b>Name/s:</b> (please write in full)	As per applicant details	
<b>Email:</b>		
<b>Phone number:</b>	<b>Work</b>	<b>Home</b>
<b>Postal address:</b> (or alternative method of service under section 352 of the act)		
	<b>Postcode</b>	

### Fees Information

An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

### Declaration concerning Payment of Fees

I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

<b>Name:</b> (please write in full)	Kevin Coombridge	
<b>Signature:</b> (signature of bill payer)		<b>Date</b> 18 February 2025

**MANDATORY**

## 15. Important Information:

### Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form. You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

### Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement. A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

### Privacy Information:

Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, [www.fndc.govt.nz](http://www.fndc.govt.nz). These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

## 15. Important information continued...

### Declaration

The information I have supplied with this application is true and complete to the best of my knowledge.

**Name:** (please write in full)

Nina Pivac

**Signature:**

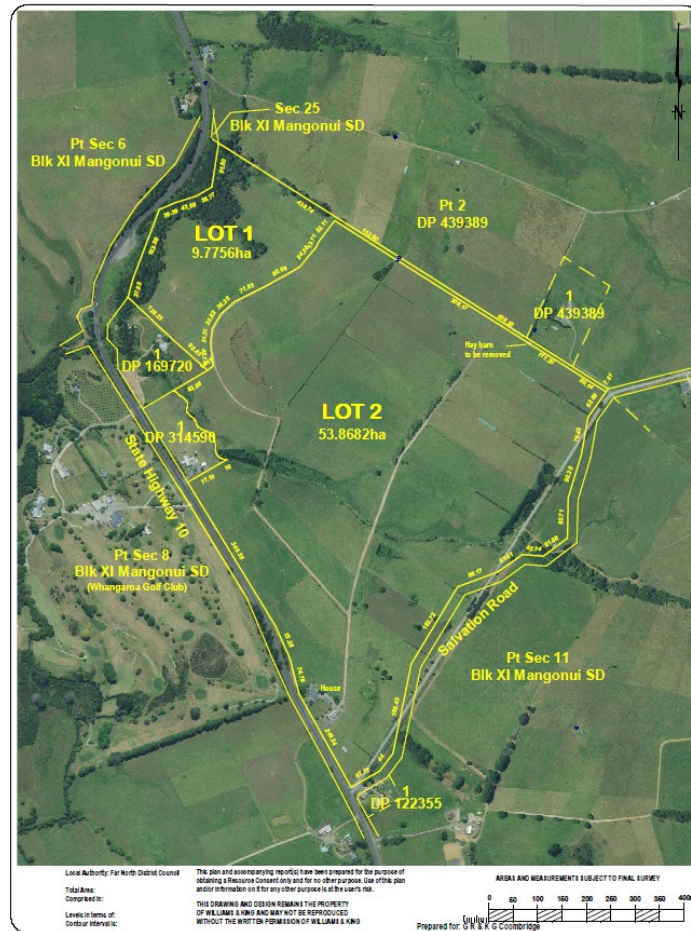
*A signature is not required if the application is made by electronic means*

**Date** 18 February 2025

### Checklist (please tick if information is provided)

- Payment (cheques payable to Far North District Council)
- A current Certificate of Title (Search Copy not more than 6 months old)
- Details of your consultation with Iwi and hapū
- Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- Applicant / Agent / Property Owner / Bill Payer details provided
- Location of property and description of proposal
- Assessment of Environmental Effects
- Written Approvals / correspondence from consulted parties
- Reports from technical experts (if required)
- Copies of other relevant consents associated with this application
- Location and Site plans (land use) AND/OR
- Location and Scheme Plan (subdivision)
- Elevations / Floor plans
- Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.



## SUBDIVISION RESOURCE CONSENT APPLICATION

1698 SH10 KAEO  
 LOT 2 DP 314590

## ASSESSMENT OF ENVIRONMENTAL EFFECTS

PREPARED FOR:  
 KEVIN COOMBRIDGE

18 February 2025  
 REV A



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Appendix A – Scheme Plan

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Appendix C – Site Suitability Reports



## 1.0 THE APPLICANT AND PROPERTY DETAILS

<b>To:</b>	Far North District Council
<b>Site address:</b>	1698 SH10 Kaeo
<b>Applicant's name:</b>	Kevin Coombridge
<b>Address for service:</b>	Tohu Consulting Limited Attn: Nina Pivac 50-64 Commerce Street Kaitaia 0410
<b>Legal description:</b>	Lot 2 DP 314590
<b>Site area:</b>	63.65ha
<b>Site owner:</b>	Kevin and Glenys Coombridge
<b>Operative District Plan zoning:</b>	Rural Production Zone
<b>Operative District Plan overlays/resource areas:</b>	Partially flood susceptible
<b>Proposed District Plan zoning:</b>	Rural Production
<b>Operative District Plan overlays/resource areas:</b>	Treaty Settlement Area of Interest River Flood Hazard Zone (10 Year ARI) River Flood Hazard Zone (100 Year ARI)
<b>Brief description of proposal:</b>	To undertake a subdivision of Lot 2 DP 314590 to create one additional allotment in the Rural Production Zone, resulting in the following allotment areas:  Lot 1 – 9.7756ha (vacant) Lot 2 – 53.8682ha (contains existing dwelling and farm sheds)
<b>Summary of reasons for consent:</b>	Overall, the proposal has been assessed as a <b>Discretionary Activity</b> under the Far North District Plan.

We attach an assessment of environmental effects that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.

### AUTHOR



### **Nina Pivac**

Director | BAppSC | PGDipPlan | Assoc. NZPI

**Date: 18 February 2025**

## 2.0 PROPOSAL

The applicant, Kevin Coombridge, proposes to undertake a subdivision in the Rural Production Zone to create one additional allotment resulting in the following allotment areas:

- Lot 1 – 9.7756ha (vacant)
- Lot 2 – 53.8682ha (contains existing house and farm sheds)

Overall, the proposal has been assessed as a **Discretionary Activity** under the operative Far North District Plan (District Plan).

A Site Suitability Report has been prepared by Wilton Joubert in support of the application, which confirms that the subject site is able to accommodate the proposed development subject to the implementation of those recommendations outlined in their report. See **Appendix C**. The applicant accepts that these recommendations will form conditions of consent.

The following Assessment of Environmental Effects (AEE) has been prepared in accordance with the requirements of Section 88 of and Schedule 4 of the Resource Management Act 1991 (the Act) and is intended to provide the information necessary for a full understanding of the activity for which consent is sought and any actual or potential effects the proposal may have on the environment.

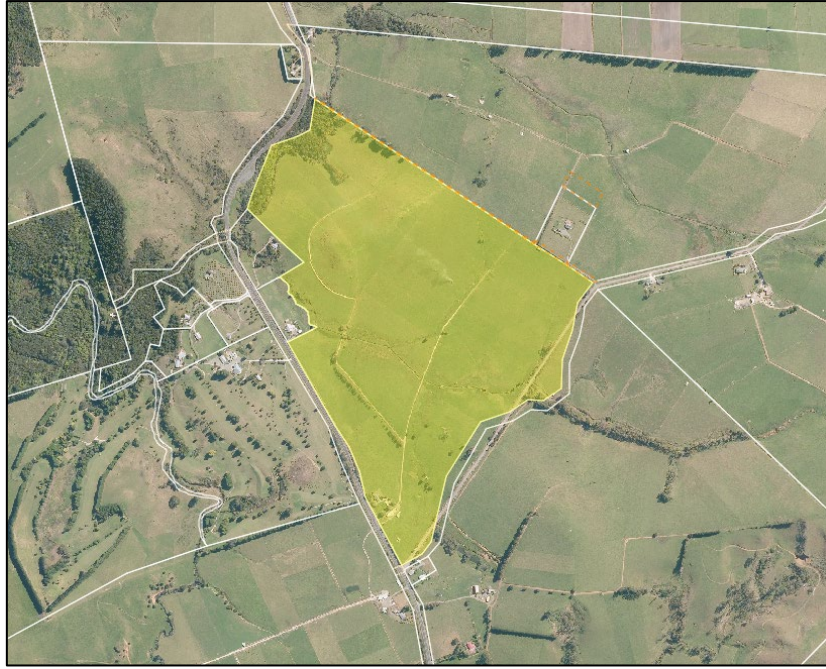
## 3.0 SITE CONTEXT

The subject site is situated at 1698 SH10 Kaeo and is legally described as Lot 2 DP 314590 (RT. 57741). A copy of the Certificate of Title (CT) is attached as **Appendix B**.

The subject site has a current land area of 63.6500ha. Proposed Lot 1 is currently vacant and in productive use while proposed Lot 2 contains an existing house and farm sheds. The curtilage surrounding the house is currently in productive use.

The existing house and sheds within proposed Lot 2 are currently accessed via existing vehicle crossings off SH10 which are formed to an adequate standard. Given the use of this lot will not change, and that up to four dwellings can be constructed on this lot as a permitted activity under the residential intensity rules, it is considered that access upgrades are not warranted in this instance.

Proposed Lot 1 will be accessed via a new vehicle crossing and accessway off Salvation Road. The vehicle crossing will be constructed to Council's Engineering Standards.



**Figure 1: Aerial map showing subject site (Premise)**

In terms of vegetation, the site is largely in pasture with the exception of a small area of vegetation on the north-western boundary of proposed Lot 1. This vegetation largely comprises a mix of exotic species, and has not been mapped as significant.

There are no other significant areas of indigenous vegetation or significant habitats of indigenous fauna. No vegetation clearance is required as part of this application.

The surrounding environment is largely rural in character which will remain unchanged as a result of the proposal. Based on the assessment of effects below, it is considered that the proposed level of development is consistent with existing development patterns in the surrounding environment.

## 4.0 DISTRICT PLAN RULES ASSESSMENT

### OPERATIVE DISTRICT PLAN

#### **SUBDIVISION:**

An assessment of the proposal against the relevant subdivision rules of the Far North District Plan is provided below:

<b>Rural Production Zone</b>	<b>Relevant Standards</b>	<b>Compliance</b>
<b>Rule 13.7.2.1(i)</b> Subdivision within the Rural Production Zone (minimum lot sizes)	Discretionary:  1. Minimum lot size of 4ha; or	With a minimum lot size of 9.7756ha, the proposal is able to meet clause (1).  <b>Discretionary Activity</b>

Rural Production Zone	Relevant Standards	Compliance
	2. Maximum of 3 lots provided that the minimum lot size if 2000m <sup>2</sup> and there is at least 1 lot with a minimum of 4ha.	
<b>Rule 13.7.2.2</b> Allotment Dimensions	A minimum square building envelope of 30m x 30m is required and should not encroach into the permitted activity boundary setbacks for the relevant zones.	Both lots have ample area to accommodate multiple 30x30m building envelopes exclusive of setback requirements.  <b>Controlled Activity</b>

Overall, resource consent is required as a Discretionary Activity under the operative District Plan.

### PROPOSED DISTRICT PLAN

The Proposed Far North District Plan (PDP) was notified on Wednesday 27 July 2022. Rules in a Proposed Plan have legal effect once the council makes a decision on submissions relating to that rule and publicly notified this decision, unless the rule has immediate legal effect in accordance with section 86(3) of the Resource Management Act 1991 (the Act).

As of Monday 4 September 2023, the further submission period on the PDP has closed. However, Council are yet to make a decision on submissions made and publicly notify this decision. Therefore, only rules in the PDP with immediate legal effect are relevant. These rules are identified with a 'hammer' in the plan. Rules that do not have immediate legal effect do not trigger the need for a resource consent under the PDP.

An assessment of the proposal against the rules with immediate legal effect has been undertaken. In this case there are none that are relevant to the proposal. Therefore, no consideration needs to be given to any of the rules under the PDP.

## 5.0 NATIONAL ENVIRONMENTAL STANDARDS FOR CONTAMINATED SOILS (NES CONTAMINATED SOILS)

All applications that involve subdivision, or an activity that changes the use of a piece of land, or earthworks are subject to the provisions of the NES Contaminated Soils. The regulation sets out the requirements for considering the potential for soil contamination, based on the HAIL (Hazardous Activities and Industries List) and the risk that this may pose to human health as a result of the proposed land use.

Based on a search of Council records, historic aerial images and archives, and the documentation provided in support of this application, there is no evidence to suggest that a HAIL activity is, has

been, or is more than likely to not have been undertaken on any part of the site. Therefore, the NES Contaminated Soils is not applicable in this instance.

## 6.0 NATIONAL ENVIRONMENTAL STANDARDS FOR FRESHWATER (NES FRESHWATER)

A review of aerial images, including NRC's wetland maps, reveal no evidence to suggest that there are any wet areas that may be subject to the NES Freshwater provisions. Therefore, no further assessment is required under the NES Freshwater.

## 7.0 NATIONAL POLICY STATEMENT FOR HIGHLY PRODUCTIVE LAND (NPSHPL)

The subject site contains LUC 4 soils which are not deemed as 'highly productive' under the NPSHPL. Therefore, no further consideration needs to be given under the NPSHPL.

## 8.0 NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY (NPS-IB)

The objective of the NPS-IB is to 'maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity after the commencement date'. The NPS-IB aims to achieve this in a number of ways including by protecting and restoring indigenous biodiversity as necessary to achieve the overall maintenance of indigenous biodiversity. The site does not contain any significant areas of indigenous vegetation or habitats for indigenous fauna.

## 9.0 PUBLIC NOTIFICATION ASSESSMENT (SECTIONS 95A, 95C TO 95D)

### **Step 1: Mandatory public notification is required in certain circumstances**

*Under Section 95A(3) an application must be publicly notified if:*

- a) the applicant has requested that the application be publicly notified;*
- b) public notification is required under Section 95C.*

The applicant is not requesting public notification under clause (a). Clause (b) provisions relate to where an applicant does not provide further information formally requested under Section 92, which is not applicable in this case.

Public notification is not required and therefore Step 2 must be considered.

### **Step 2: If not required by Step 1, public notification precluded in certain circumstances**

*Under Section 95A (4) an application must not be publicly notified if:*

- a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes public notification;*
- b) the application is for a resource consent for 1 or more of the following, but no other, activities:*
  - i. a controlled activity;*

*ii. a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity:*

None of the above apply, therefore public notification is not precluded.

Step 3 must be considered.

### **Step 3: Public notification required in certain circumstances**

Public notification is precluded if:

- a) *the application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification;*
- b) *the consent authority decides, in accordance with section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor.*

The proposal requires consideration under s95D of the Act. An assessment of environmental effects is provided in Section 8.0 below which concludes that any adverse effect will be less than minor.

### **Step 4: Public notification in special circumstances**

Section 95A(9) sets out that the council is required to determine whether special circumstances exist that warrant it being publicly notified.

Special circumstances are those that are:

- exceptional or unusual, but something less than extraordinary; or
- outside of the common run of applications of this nature; or
- circumstances which make notification desirable, notwithstanding the conclusion that the adverse effects will be no more than minor.

If the answer is yes, then those persons are required to be notified.

In this case, the proposal is for a subdivision activity to accommodate future rural-lifestyle development on a Rural Production zoned site. As such, it is considered that this level of development is anticipated by the Far North District Plan and that there is nothing out of the ordinary that could give rise to special circumstances.

### **Public Notification Conclusion**

Having undertaken the s95A public notification tests, the following conclusions are reached:

- Under step 1, public notification is not mandatory;
- Under step 2, public notification is not precluded;
- Under step 3, public notification is not required as effect will be less than minor; and
- Under step 4, there are no special circumstances.

Therefore, this application can be processed without public notification.

## 10.0 LIMITED NOTIFICATION ASSESSMENT (SECTIONS 95B, 95E TO 95G)

### **Step 1: Certain affected protected customary rights groups must be notified**

Step 1 requires limited notification where there are any affected protected customary rights groups or customary marine title groups, or affected persons under a statutory acknowledgement affecting the land.

The above does not apply to this land.

### **Step 2: If not required by step 1, limited notification precluded in certain circumstances**

Step 2 describes that limited notification is precluded where all applicable rules and NES preclude limited notification; or the application is for a controlled activity (other than the subdivision of land) or a prescribed activity under section 360H(1)(a)(ii).

The above does not apply to the proposal, and therefore limited notification is not precluded.

### **Step 3: If not precluded by step 2, certain other affected persons must be notified**

Step 3 requires that where limited notification is not precluded under step 2 above, a determination must be made as to whether any of the following persons are affected persons:

- In the case of a boundary activity, an owner of an allotment with an infringed boundary;
- In the case of a prescribed activity under s360H(1)(b), a prescribed person; and
- In the case of any other activity, a person affected in accordance with s95E.

The application is not for a boundary or prescribed activity as defined in the Act or a prescribed activity under s360H(1)(b), and therefore an assessment in accordance with S95E is required, of which is set out below.

Overall, it is considered that any adverse effects in relation to adjacent properties will be less than minor, and accordingly that no persons are adversely affected.

### **Step 4: Further notification in special circumstances**

In addition to the findings of the previous steps, the council is also required to determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined as eligible for limited notification.

In this instance, having regard to the assessment above, special circumstances are not considered to apply to this proposal.

## **SECTION 95E STATUTORY MATTERS**

If the application is not publicly notified, a council must decide if there are any affected persons and give limited notification to those persons. A person is affected if the effects of the activity on that person are minor or more than minor (but not less than minor).

The sections below set out an assessment in accordance with section 95E, and an assessment of potential adverse effects.

## Written Approvals

No written approvals have been provided as it is considered that any adverse effects will be less than minor.

It is anticipated that Council will forward this application to the relevant iwi authority for comment.

## Permitted Baseline

The Rural Production Zone provides for the construction of one dwelling per 12ha as a permitted activity under the Residential Intensity rules. Based on an area of 63.65ha, the site currently provides for the construction of up to four dwellings as a permitted activity. The proposal will result in only one additional allotment anticipated for rural-residential use. This forms a permitted baseline that could usefully be applied to the situation.

## Assessment of Effects on the 'Localised Environment'

The matters to which Council shall restrict its discretion, as outlined in Sections 13.7.3 and 13.10 of the Far North District Plan, are addressed below:

### *ALLOTMENT SIZES AND DIMENSIONS*

The subject site has a current land area of 63.65ha which is largely in productive use. There is an existing dwelling and farm sheds located near the southern boundary of the site which will be contained within proposed Lot 2. The use of this site will remain unchanged.

Proposed Lot 1 is currently vacant, and anticipated for future rural-residential development. With a land area of 9.7756ha, it is considered that there is ample opportunity for residential development to occur in conjunction with rural production activities.

The site suitability report confirms that there is adequate land area within each lot to accommodate future residential development, and that allotment sizes and dimensions are sufficient for operational and maintenance requirements.

The subject site is located on the outskirts of the Kaeo and Totara North villages, and is zoned Rural Production. The immediate surrounding environment is largely characterised by rural lifestyle activities.

### *NATURAL AND OTHER HAZARDS*

As per NRC Maps, the site is partially mapped as flood susceptible. However, all built development will be located outside of the flood extent. The Site Suitability Report prepared by Wilton Joubert provides a comprehensive assessment of the flooding hazard. Overall, it is concluded that the proposed development will not exacerbate any natural hazards.

### *INDIGENOUS FLORA AND FAUNA*

The site does not contain any significant areas of indigenous vegetation or significant habitats of indigenous fauna. No vegetation clearance is required.



#### *WATER SUPPLY*

As concluded in the site suitability report, there is ample land area within each lot to achieve adequate water supply including for firefighting purposes.

#### *STORMWATER DISPOSAL*

As concluded in the site suitability report, existing stormwater disposal systems are performing adequately, and there is ample land area within Lot 1 to achieve adequate stormwater management.

#### *SANITARY SEWAGE DISPOSAL*

As concluded in the site suitability report, existing wastewater disposal systems are performing adequately, and there is ample land area within Lot 1 to achieve adequate wastewater disposal.

#### *ENERGY SUPPLY*

New electricity connections are not a requirement in the Rural Production Zone. However, it is noted that proposed Lot 2 has an existing electricity connection. It is anticipated that a consent notice condition will be imposed informing future owners that new connections will be their responsibility.

#### *TELECOMMUNICATIONS*

New telecommunications connections are not a requirement in the Rural Production Zone. However, it is noted that proposed Lot 2 has an existing telecommunications connection. It is anticipated that a consent notice condition will be imposed informing future owners that new connections will be their responsibility.

#### *EASEMENTS FOR ANY PURPOSE*

No easements are required in this instance.

#### *PROPERTY ACCESS*

Access to the existing dwelling and farm sheds within Lot 2 is currently gained via an existing vehicle crossing on SH10. This crossing is considered to be formed to an adequate standard. Given the use of this allotment will not change, and that up to 5 dwellings can be constructed on the site as a permitted activity, it is considered access upgrades are not warranted where they relate to existing crossings on the state highway.

Proposed Lot 1 will be accessed via a new vehicle crossing off Salvation Road. This crossing will be constructed to Council's Engineering Standards.

#### *EFFECTS OF EARTHWORKS AND UTILITIES*

It is anticipated that minimal earthworks will be required as a result of new access construction.

#### *PRESERVATION OF HERITAGE RESOURCES, VEGETATION, FAUNA AND LANDSCAPE, AND LAND SET ASIDE FOR CONSERVATION PURPOSES*

The site has not been mapped as containing any such features.

#### *ACCESS TO RESERVES AND WATERWAYS*

No waterways will be affected by the proposal.

### *LAND USE COMPATIBILITY*

The use of Lot 2 will remain unchanged. With a land area of 9.7756ha, it is considered that proposed Lot 1 has ample land area to accommodate future residential development whilst providing for production activities. On this basis, it is considered that the proposed development is entirely compatible with the immediate surrounding environment.

### *PROXIMITY TO AIRPORTS*

The subject site is located at least 49km from the nearest airport. As such, this matter is not relevant to the proposal.

### *CONCLUSION*

Taking the above into account, it is considered that there will be no adverse effects on the wider and localised environment. As such, no parties are considered to be adversely affected.

### **LIMITED NOTIFICATION CONCLUSION**

Having undertaken the s95B limited notification tests, the following conclusions are reached:

- Under step 1, limited notification is not mandatory;
- Under step 2, limited notification is not precluded;
- Under step 3, limited notification is not required as it is considered that the activity will not result in any adversely affected persons; and
- Under step 4, there are no special circumstances.

Therefore, it is recommended that this application be processed without limited notification.

## **11.0 CONSIDERATION OF APPLICATIONS (SECTION 104)**

Subject to Part 2 of the Act, when considering an application for resource consent and any submissions received, a council must, in accordance with section 104(1) of the Act have regard to:

- any actual and potential effects on the environment of allowing the activity;
- any relevant provisions of a national environmental standard, other regulations, national policy statement, a New Zealand coastal policy statement, a regional policy statement or proposed regional policy statement; a plan or proposed plan; and
- any other matter a council considers relevant and reasonably necessary to determine the application.

## **12.0 EFFECTS ON THE ENVIRONMENT (SECTION 104(1)(A))**

An assessment of effects on adjacent properties has been provided and it was concluded that any adverse effects will be less than minor.

Further, it is considered that the proposal will result in positive effects including the following:

- Addressing the current housing crisis that the exponential growth that the Far North population is experiencing;
- Contributing to the local economy through the engagement of local contractors;
- Contributing to the social and economic well-being of the applicants.

Overall, it is considered that when taking into account the positive effects, any actual and potential adverse effects on the environment of allowing the activity are appropriate.

## 13.0 DISTRICT PLAN AND STATUTORY DOCUMENTS (SECTION 104(1)(B))

The following planning documents prepared under the RMA are considered relevant to this application.

### Regional Policy Statement for Northland

The Northland Regional Policy Statement (RPS) covers the management of natural and physical resources across the Northland region. The provisions within the RPS give guidance at a higher planning level in terms of significant regional issues, therefore providing guidance to consent applications and the development of District Plans on a regional level. Given the nature and scale of the proposal, which will result in one additional residential allotment, it is considered that this level of development is compatible with the intent of the RPS.

### Operative Far North District Plan – Objectives and Policies

The relevant objectives and policies of the District Plan can be found in the Rural Production Zone and Subdivision Chapters and are assessed as follows:

Rural Production Zone - Objectives	
Objective	Comment
8.6.3.1 To promote the sustainable management of natural and physical resources in the Rural Production Zone.	The proposed development enables the efficient use of land where the site can continue to be used for rural production and lifestyle activities in a manner that will not degrade the natural and physical resources in the area.
8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety.	The proposal will enable the efficient use of surplus land in a manner that provides for the social and economic well being of the applicants.
8.6.3.3 To promote the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.	With a land area of at least 63ha, it is considered that ample open space will be maintained so as to protect the rural amenity values of the site.
8.6.3.4 To promote the protection of significant natural values of the Rural Production Zone.	There are no significant natural values within, or in proximity to, the site which warrant protection.
8.6.3.5 To protect and enhance the special amenity values of the frontage to Kerikeri Road between its intersection with SH10 and the urban edge of Kerikeri.	Not applicable

<b>Rural Production Zone - Objectives</b>	
<b>Objective</b>	<b>Comment</b>
8.6.3.6 To avoid, remedy or mitigate the actual and potential conflicts between new land use activities and existing lawfully established activities (reverse sensitivity) within the Rural Production Zone and on land use activities in neighbouring zones.	As concluded in the assessment of effects above, the proposal will not result in any reverse sensitivity effects.
8.6.3.7 To avoid remedy or mitigate the adverse effects of incompatible use or development on natural and physical resources.	As above.
8.6.3.8 To enable the efficient establishment and operation of activities and services that have a functional need to be located in rural environments.	Not applicable.
8.6.3.9 To enable rural production activities to be undertaken in the zone.	The proposed development will not adversely affect rural production activities occurring in the area.

<b>Rural Production Zone - Policies</b>	
<b>Policy</b>	<b>Comment</b>
8.6.4.1 That the Rural Production Zone enables farming and rural production activities, as well as a wide range of activities, subject to the need to ensure that any adverse effects on the environment, including any reverse sensitivity effects, resulting from these activities are avoided, remedied or mitigated and are not to the detriment of rural productivity.	The use of Lot 2 will remain unchanged. Proposed Lot 1 has ample area to accommodate future residential development whilst allowing production activities to continue. On this basis, it is considered that the proposed development is entirely compatible with surrounding land uses and will not give rise to reverse sensitivity effects.
8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.	As above.
8.6.4.3 That land management practices that avoid, remedy or mitigate adverse effects on natural and physical resources be encouraged.	As above.
8.6.4.4 That the type, scale and intensity of development allowed shall have regard to the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.	As above.
8.6.4.5 That the efficient use and development of physical and natural resources be taken into account in the implementation of the Plan.	As above.
8.6.4.6 That the built form of development allowed on sites with frontage to Kerikeri Road between its intersection with SH10 and Cannon Drive be maintained as small in scale, set back from the road,	Not applicable

<b>Rural Production Zone - Policies</b>	
<b>Policy</b>	<b>Comment</b>
relatively inconspicuous and in harmony with landscape plantings and shelter belts.	
8.6.4.7 That although a wide range of activities that promote rural productivity are appropriate in the Rural Production Zone, an underlying goal is to avoid the actual and potential adverse effects of conflicting land use activities.	As concluded in the assessment of effects above, the proposal will not result in any reverse sensitivity effects.
8.6.4.8 That activities whose adverse effects, including reverse sensitivity effects, cannot be avoided remedied or mitigated are given separation from other activities.	As concluded in the assessment of effects above, the proposal will not result in any reverse sensitivity effects.
8.6.4.9 That activities be discouraged from locating where they are sensitive to the effects of or may compromise the continued operation of lawfully established existing activities in the Rural Production zone and in neighbouring zones	As concluded in the assessment of effects above, the proposal will not result in any reverse sensitivity effects.

<b>Subdivision Chapter - Objectives</b>	
<b>Objective</b>	<b>Comment</b>
13.3.1 To provide for the subdivision of land in such a way as will be consistent with the purpose of the various zones in the Plan, and will promote the sustainable management of the natural and physical resources of the District, including airports and roads and the social, economic and cultural well being of people and communities.	As concluded in the assessment of effects, the proposed subdivision will be keeping in character with the surrounding environment. The subdivision will provide for the social and economic well-being of current and future owners of the site.
13.3.2 To ensure that subdivision of land is appropriate and is carried out in a manner that does not compromise the life-supporting capacity of air, water, soil or ecosystems, and that any actual or potential adverse effects on the environment which result directly from subdivision, including reverse sensitivity effects and the creation or acceleration of natural hazards, are avoided, remedied or mitigated	The life-supporting capacity of natural resources will not be affected by the subdivision, nor will the proposal give rise to reverse sensitivity effects or exacerbate natural hazards.
13.3.3 To ensure that the subdivision of land does not jeopardise the protection of outstanding landscapes or natural features in the coastal environment.	No such landscapes or features will be affected.
13.3.4 To ensure that subdivision does not adversely affect scheduled heritage resources through alienation of the resource from its immediate setting/context.	No such resources will be affected.
13.3.5 To ensure that all new subdivisions provide a reticulated water supply and/or on-site water storage and include storm water management	As concluded in the Site Suitability Report, proposed Lots 1 and 2 have the ability to accommodate future residential development and adequate services.

Subdivision Chapter - Objectives	
Objective	Comment
sufficient to meet the needs of the activities that will establish all year round.	
13.3.6 To encourage innovative development and integrated management of effects between subdivision and land use which results in superior outcomes to more traditional forms of subdivision, use and development, for example the protection, enhancement and restoration of areas and features which have particular value or may have been compromised by past land management practices.	N/A
13.3.7 To ensure the relationship between Maori and their ancestral lands, water, sites, wahi tapu and other taonga is recognised and provided for.	There are no recorded archaeological sites or registered Sites of Cultural Significance within, or in proximity to, the subject site. It is anticipated that Council will forward this application to the relevant iwi authority
13.3.8 To ensure that all new subdivision provides an electricity supply sufficient to meet the needs of the activities that will establish on the new lots created.	Electricity supply is not a requirement in the Rural Production Zone. However, connections are available.
13.3.9 To ensure, to the greatest extent possible, that all new subdivision supports energy efficient design through appropriate site layout and orientation in order to maximise the ability to provide light, heating, ventilation and cooling through passive design strategies for any buildings developed on the site(s).	Owing to the topography, the site has the ability to accommodate future dwellings with a northerly aspect.
13.3.10 To ensure that the design of all new subdivision promotes efficient provision of infrastructure, including access to alternative transport options, communications and local services.	There are no alternative transport options available to the site.
13.3.11 To ensure that the operation, maintenance, development and upgrading of the existing National Grid is not compromised by incompatible subdivision and land use activities	Not applicable.

Subdivision Chapter - Policies	
Objective	Comment
13.4.1 That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on: (a) natural character, particularly of the coastal environment; (b) ecological values; (c) landscape values; (d) amenity values; (e) cultural values; (f) heritage values; and (g) existing land uses.	As concluded in the assessment of effects, the proposed subdivision will not result in such adverse effects.

<b>Subdivision Chapter - Policies</b>	
<b>Objective</b>	<b>Comment</b>
13.4.2 That standards be imposed upon the subdivision of land to require safe and effective vehicular and pedestrian access to new properties.	All new vehicle crossings will be constructed/upgraded in accordance with Council's Engineering Standards.
13.4.3 That natural and other hazards be taken into account in the design and location of any subdivision.	As concluded in the Site Suitability Report, the proposed development will not exacerbate any natural hazards.
13.4.4 That in any subdivision where provision is made for connection to utility services, the potential adverse visual impacts of these services are avoided.	New connections are available.
13.4.5 That access to, and servicing of, the new allotments be provided for in such a way as will avoid, remedy or mitigate any adverse effects on neighbouring property, public roads (including State Highways), and the natural and physical resources of the site caused by silt runoff, traffic, excavation and filling and removal of vegetation.	Minimal earthworks are required. No vegetation clearance is required.
13.4.6 That any subdivision proposal provides for the protection, restoration and enhancement of heritage resources, areas of significant indigenous vegetation and significant habitats of indigenous fauna, threatened species, the natural character of the coastal environment and riparian margins, and outstanding landscapes and natural features where appropriate.	No such resources will be affected.
13.4.7 That the need for a financial contribution be considered only where the subdivision would: (a) result in increased demands on car parking associated with non-residential activities; or (b) result in increased demand for esplanade areas; or (c) involve adverse effects on riparian areas; or (d) depend on the assimilative capacity of the environment external to the site	Not applicable.
13.4.8 That the provision of water storage be taken into account in the design of any subdivision.	The sites are able to accommodate adequate on-site water supply.
13.4.9 That bonus development donor and recipient areas be provided for so as to minimise the adverse effects of subdivision on Outstanding Landscapes and areas of significant indigenous flora and significant habitats of fauna.	Not applicable.
13.4.10 The Council will recognise that subdivision within the Conservation Zone that results in a net conservation gain is generally appropriate.	Not applicable.
13.4.11 That subdivision recognises and provides for the relationship of Maori and their culture and traditions, with their ancestral lands, water, sites, waahi tapu and other taonga and shall take into account the principles of the Treaty of Waitangi.	There are no recorded archaeological sites or registered Sites of Cultural Significance within, or in proximity to, the subject site. Iwi have provided their written approval. It is therefore considered that the proposed subdivision will not result in any adverse cultural effects.

Subdivision Chapter - Policies	
Objective	Comment
13.4.12 That more intensive, innovative development and subdivision which recognises specific site characteristics is provided for through the management plan rule where this will result in superior environmental outcomes.	Not applicable.
13.4.13 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regards to s6 matters. In addition subdivision, use and development shall avoid adverse effects as far as practicable by using techniques including: (a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns; (b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area; (c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas; (d) through siting of buildings and development, design of subdivisions, and provision of access that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District (refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and Perspectives" (2004); (e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests; (f) protecting historic heritage through the siting of buildings and development and design of subdivisions. (g) achieving hydraulic neutrality and ensuring that natural hazards will not be exacerbated or induced through the siting and design of buildings and development.	As concluded in the assessment of effects, the subdivision is able to achieve this policy.
13.4.14 That the objectives and policies of the applicable environment and zone and relevant parts of Part 3 of the Plan will be taken into account when considering the intensity, design and layout of any subdivision.	This assessment concludes that the subdivision is consistent with the relevant objectives and policies of the District Plan.
13.4.15 That conditions be imposed upon the design of subdivision of land to require that the layout and orientation of all new lots and building platforms created include, as appropriate, provisions for achieving the following: (a) development of energy	It is anticipated that a number of conditions will be imposed including those relating to servicing, foundation design and general accordance conditions.



Subdivision Chapter - Policies	
Objective	Comment
efficient buildings and structures; (b) reduced travel distances and private car usage; (c) encouragement of pedestrian and cycle use; (d) access to alternative transport facilities; (e) domestic or community renewable electricity generation and renewable energy use.	
13.4.16 When considering proposals for subdivision and development within an existing National Grid Corridor the following will be taken into account: (a) the extent to which the proposal may restrict or inhibit the operation, access, maintenance, upgrading of transmission lines or support structures; (b) any potential cumulative effects that may restrict the operation, access, maintenance, upgrade of transmission lines or support structures; and (c) whether the proposal involves the establishment or intensification of a sensitive activity in the vicinity of an existing National Grid line.	Not applicable.

### Proposed Far North District Plan – Objectives and Policies

As of Monday 4 September 2023, the further submission period on the PDP has closed. However, Council are yet to make a decision on submissions made and publicly notify this decision. Therefore, the application shall only 'have regard to' the relevant objectives and policies in the PDP.

Relevant objectives and policies in the PDP are contained within the Subdivision and Rural Lifestyle Chapters. Based on the AEE, it is considered that the proposal is largely consistent with the anticipated outcome of the relevant objectives and policies, particularly the following:

- SUB-01
- SUB-03
- SUB-P1
- SUB-P3
- SUB-P4
- SUB-P6
- SUB-P8
- SUB-P11
- RLZ-01 to RLZ-04
- RLZ-P1 to RLZ-P4

### Conclusion

For the reasons outlined above, it is considered that the proposal is consistent with the relevant objectives and policies of the RPS, ODP, and PDP.

## 14.0 PART 2 MATTERS

Section 5 of Part 2 identifies the purpose of the RMA as being the sustainable management of natural and physical resources. This means managing the use, development and protection of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being and health and safety while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Section 6 of the Act sets out a number of matters of national importance including (but not limited to) the protection of outstanding natural features and landscapes and historic heritage from inappropriate subdivision, use and development.

Section 7 identifies a number of “other matters” to be given particular regard by Council and includes (but is not limited to) Kaitiakitanga, the efficient use of natural and physical resources, the maintenance and enhancement of amenity values, and maintenance and enhancement of the quality of the environment.

Section 8 requires Council to take into account the principles of the Treaty of Waitangi. Pre-consultation has been undertaken with the relevant iwi authority as per Appendix D.

Overall, as the effects of the proposal are considered to be less than minor, and the proposal accords with the relevant objectives and policies of the RPS, and the Operative District Plan provisions. Accordingly, it is considered that the proposal will not offend the general resource management principles set out in Part 2 of the Act.

## 15.0 OTHER MATTERS (SECTION 104(1)(C))

There are no other matters considered relevant to this proposal.

## 16.0 CONCLUSION

The applicant, Kevin Coombridge, proposes to undertake a subdivision in the Rural Production Zone to create one additional residential allotment.

The proposed subdivision will result in the following allotment areas:

- Lot 1 – 9.7756ha (vacant)
- Lot 2 – 53.8682ha (contains existing dwelling)

Based on the assessment of effects above, it is concluded that any potential adverse effects on the existing environment would be no more than minor and can be managed in terms of appropriate conditions of consent.

It is therefore concluded that the proposal satisfies all matters the consent authority is required to assess, and that the application for resource consent can be granted on a non-notified basis.

It is respectfully requested that draft conditions are sent to the agent for review prior to the issuing of any decision.

**AUTHOR**



**Nina Pivac**

Director | BAppSC | PGDipPlan | Assoc. NZPI

**Date: 18 February 2025**

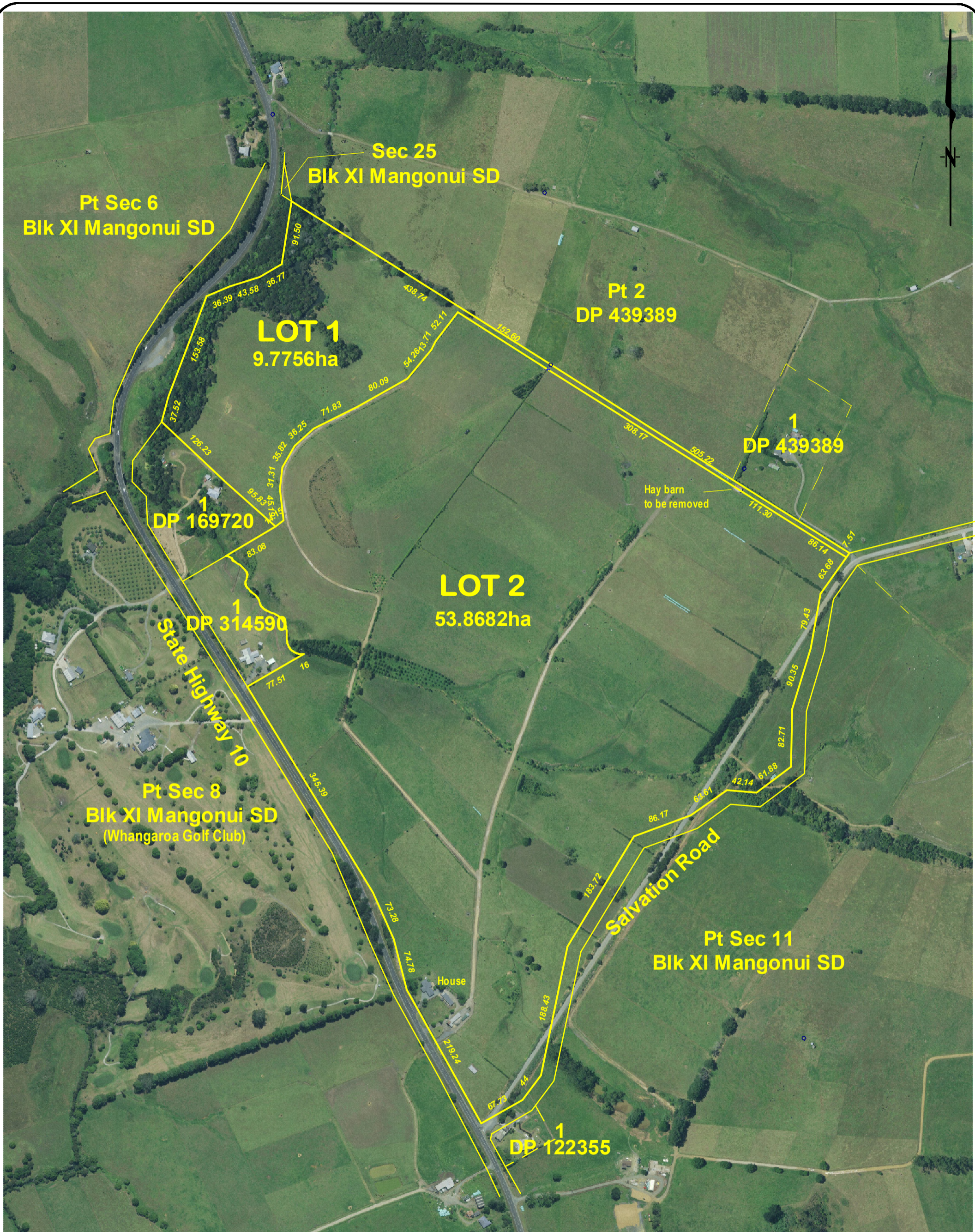
**Appendices:**

**Appendix A – Scheme Plan**

**Appendix B – Certificate of Title**

**Appendix C – Site Suitability Reports**

## Appendix A – Scheme Plan



Local Authority: Far North District Council

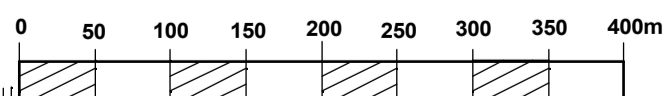
Total Area:  
Comprised in:

Levels in terms of:  
Contour interval is:

This plan and accompanying report(s) have been prepared for the purpose of obtaining a Resource Consent only and for no other purpose. Use of this plan and/or information on it for any other purpose is at the user's risk.

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AREAS AND MEASUREMENTS SUBJECT TO FINAL SURVEY



Prepared for: G R & K G Coombridge

**WILLIAMS AND KING**  
Registered Land Surveyors, Planners &  
Land Development Consultants

Ph: (09) 407 6030  
Email: kerikeri@saps.co.nz

27 Hobson Ave  
PO Box 937 Kerikeri

## Proposed Subdivision of Lot 2 DP 314590

Survey	Name	Date	ORIGINAL SCALE	SHEET SIZE
Design			1:5000	A3
Drawn	W & K	Feb 2025		
Rev				

24537

## **Appendix B – Certificate of Title**



**RECORD OF TITLE  
UNDER LAND TRANSFER ACT 2017  
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land  
Transfer Act 2017**



  
R. W. Muir  
Registrar-General  
of Land

**Identifier** **57741**  
**Land Registration District** **North Auckland**  
**Date Issued** 29 May 2003

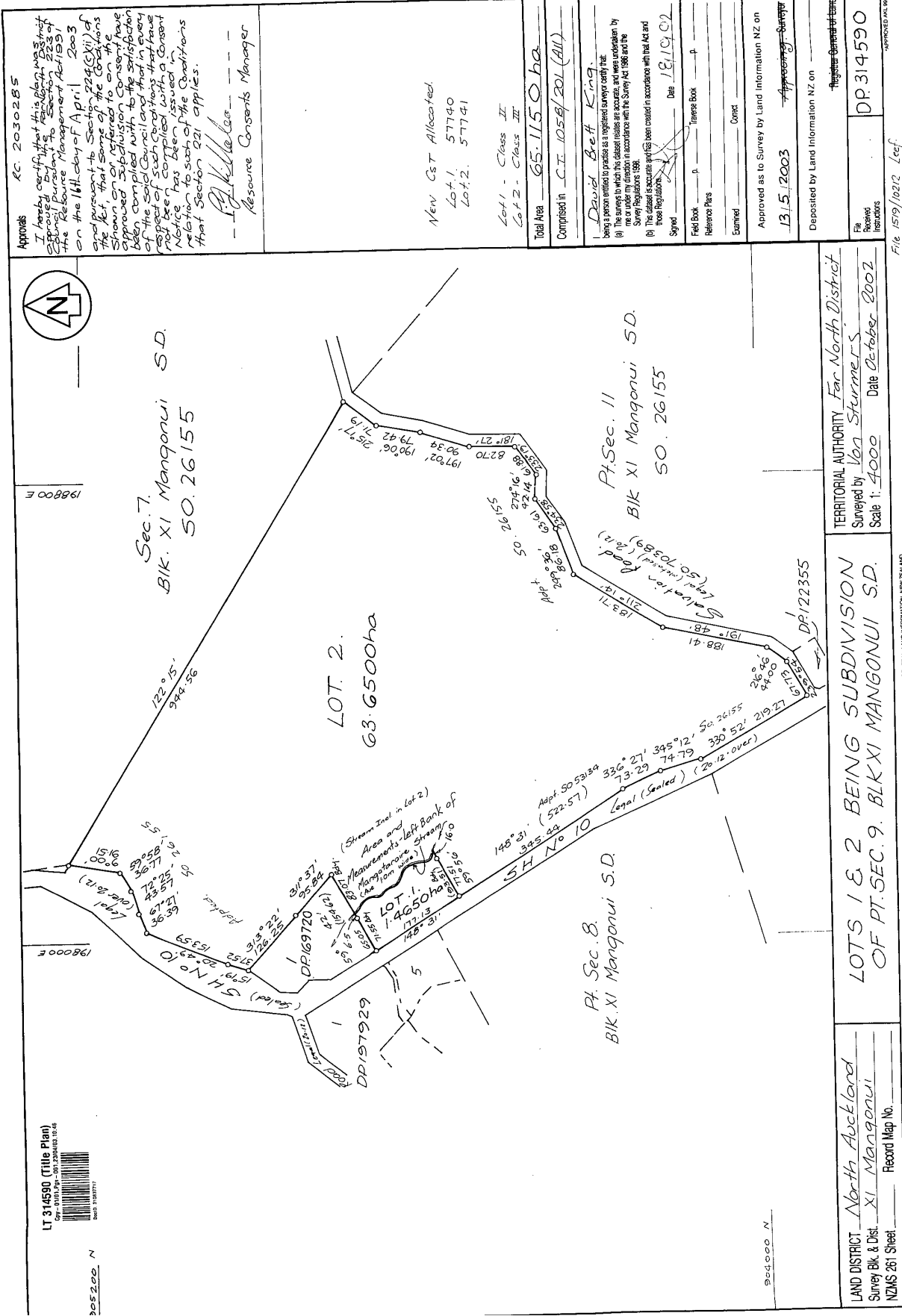
**Prior References**  
NA105B/201

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**Estate** Fee Simple  
**Area** 63.6500 hectares more or less  
**Legal Description** Lot 2 Deposited Plan 314590  
**Registered Owners**  
Kevin George Coombridge and Glenys Ruth Coombridge

---

**Interests**  
Subject to Section 59 Land Act 1948



Approvals AC. 2030285  
 I hereby certify that this plan was first approved by the Registrar of Land under Section 223 of the Resource Management Act 1991 on the 16th day of April 2003 and pursuant to Section 224(5)(ii) of the Act, that some of the conditions shown on this plan referred to on the above subdivision consent have been complied with to the satisfaction of the local Council and that in every respect of such conditions that have not been complied with a consent notice has been applied with a consent relation to such of the conditions that Section 221 applies.  
 P. Killeen  
 Resource Consents Manager

New GST Allocated.  
 Lot 1. 57740  
 Lot 2. 57741  
 Lot 1 - Class II  
 Lot 2 - Class III  
 Total Area 65.1150 ha  
 Comprised in C.T. 1058/201 (All)

David Brett King.  
 being a person entitled to practise as a registered surveyor certify that:  
 (a) The survey to which this plan relates is accurate, and was undertaken by me or under my direction in accordance with the Survey Act 1986 and the Survey Regulations 1986.  
 (b) The detail (sections and/or) been created in accordance with the Act and those Regulations.  
 Signed: [Signature] Date: 18/10/02  
 Field Book p. Terrace Book p. p.  
 Reference Plans  
 Examined  
 Correct  
 Approved as to Survey by Land Information NZ on 13.15.2003  
 Approved by: [Signature]  
 Deposited by Land Information NZ on  
 Registered General of Plans  
 File No. DP 314590  
 Received Instructions

LT 314590 (Title Plan)  
 Copy with this plan is available for sale  
 0800 333 333  
 0800 333 333



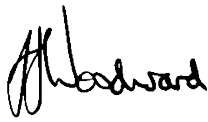
LAND DISTRICT North Auckland  
 Survey Blk. & Dist. XI Manganui  
 NZMS 261 Sheet  
 Record Map No.  
 TERRITORIAL AUTHORITY For North District  
 Surveyed by Ian Sturmes  
 Scale 1:4000 Date October 2002  
 File 15/9/02/212 1/2/02



## **Appendix C – Site Suitability Reports**

<b>SITE</b>	<b>1698 State Highway 10, Totara North</b>
<b>LEGAL DESCRIPTION</b>	<b>Lot 2 DP 314590</b>
<b>PROJECT</b>	<b>2-Lot Rural Production Zoned Subdivision (1 Lot for Assessment)</b>
<b>CLIENT</b>	<b>Kevin Coombridge</b>
<b>REFERENCE NO.</b>	<b>137963</b>
<b>DOCUMENT</b>	<b>Geotechnical Assessment Report</b>
<b>STATUS/REVISION NO.</b>	<b>Final – Issued for Resource Consent</b>
<b>DATE OF ISSUE</b>	<b>28 January 2025</b>

Report Prepared For	Attention	Email
Kevin Coombridge C/- TOHU Consulting Limited	Nina Pivac	<a href="mailto:glevin@xtra.co.nz">glevin@xtra.co.nz</a> <a href="mailto:nina@tohuconsulting.nz">nina@tohuconsulting.nz</a>

<b>Authored by</b>	<b>S. Page</b> <i>Pt NZDE (Civil)</i>	Engineering Technician	<a href="mailto:shaun@wjl.co.nz">shaun@wjl.co.nz</a>	
<b>Reviewed by</b>	<b>J. Mitchell</b> <i>Pt NZDE (Civil)</i>	Engineering Technician	<a href="mailto:justin@wjl.co.nz">justin@wjl.co.nz</a>	
<b>Approved by</b>	<b>S.J. Woodward</b> <i>MEng, CPEng, CMEngNZ</i>	Principal Geotechnical Engineer	<a href="mailto:simonwoodward@wjl.co.nz">simonwoodward@wjl.co.nz</a>	

## 1 EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

<b>Development Type:</b>	2-Lot Subdivision (1 Lot for Assessment).
<b>District Plan Zone:</b>	Rural Production Zoned.
<b>Development Proposals Supplied:</b>	Yes – Sketch Plan of the proposed Subdivision.
<b>Proposed Lot Sizes:</b>	Proposed Lot 1 for assessment will be approximately 8ha.
<b>Geology Encountered:</b>	Undifferentiated Tangihua Complex Basalt in Northland Allochthon.
<b>Fill Encountered:</b>	No.
<b>Overall Site Gradient:</b>	Gently sloping (<10°) and reducing in grade downslope.
<b>Natural Hazards:</b>	<p><b>Stability:</b> Overall Low Risk of deep-seated global instability within the proposed allotment – refer to Section 8.1.</p> <p><b>Liquefaction:</b> Negligible risk of liquefaction susceptibility within the proposed allotment - refer to Section 8.2.</p>
<b>Foundations:</b>	<p>Subject to appropriate landform modifications and expansive soil considerations, we expect that new residential dwellings designed in general accordance with NZS3604 can be built on proposed Lots 1, making use of, but not limited to, various of the following foundation options:</p> <ul style="list-style-type: none"> <li>• Timber Pile Type Foundations,</li> <li>• Reinforced Concrete Stiffened Raft Type Floor System, or</li> <li>• Conventional Reinforced Concrete Slab, with Perimeter Reinforced Concrete Foundations on Ground / Masonry Block Foundation Walls, both designed for expansive soils which require specific engineering design.</li> </ul>
<b>Foundation Bearing Capacity:</b>	Yes – Engineered Hardfill and Competent Natural Ground. Geotechnical Ultimate Bearing Capacity = 300kPa.
<b>NZBC B1 Expansive Soil Classification :</b>	CLASS M – Highly Expansive (ys=44mm). Refer to report text for guidance and limitations.
<b>NZS1170.5:2004 Site Subsoil Classification:</b>	Class C – Shallow Soil stratigraphy.
<b>Earthworks:</b>	<p>Although no earthworks proposals have been supplied, it is envisioned that localised cut/fill earthworks operations will be undertaken to form level building platforms.</p> <p>Refer to report text for guidance and limitations.</p>
<b>Further Geotechnical Review of Development Proposals Required:</b>	<p>Any revision of the final Subdivision Scheme Plan that differs from the supplied Sketch Plan (see Figure 1) should be referred to us for review. Additionally, this report is not intended to support any Building Consent application regarding future residential construction at proposed Lot 1 without review of final development and foundation drawings. Such a review may also require further site-specific Geotechnical assessments depending on the intended foundations for use and proposed earthwork extents.</p>

## 2 INTRODUCTION

### 2.1 SCOPE OF WORK

Wilton Joubert Limited (WJL) was engaged by **Kevin Coombridge** (the client), to undertake a Geotechnical site assessment of ground conditions at the above site, where we understand, it is proposed to subdivide the existing Rural Production zoned property into two individual allotments.

The primary purpose of this report is to provide Geotechnical assessments and preliminary recommendations pertaining to future residential construction within an identified Designated Building Platform (DBP) at proposed Lot 1 only. It is our understanding that this report will be submitted as part of a Resource Consent application for the proposed subdivision.

Our scope does not include any:

- Environmental assessments of site subsoils or groundwater, or
- Civil assessments, including flooding.

### 2.2 SUPPLIED INFORMATION

Our assessment is based on a supplied singular sketch plan of the proposed subdivision, overlaid onto a Far North District Council (FNDC) on-line GIS aerial image. No architectural drawings or plans regarding future residential construction at proposed Lot 1 have been provided.



Figure 1: Screenshot of the supplied Sketch Plan.

Any revision of the final Subdivision Scheme Plan that differs from the supplied Sketch Plan (see Figure 1) should be referred to us for review. Additionally, this report is not intended to support any Building Consent application regarding future residential construction at proposed Lot 1 without geotechnical review of final development and foundation drawings. Such a review may also require further site-specific Geotechnical assessments depending on the intended foundations for use and proposed earthwork extents.

### 3 **SITE DESCRIPTION**

The parent 63.65ha Rural Production zoned farming block is located off the north-eastern side of State Highway 10 (SH10), essentially over the road from the Whangaroa Golf Club, and is chiefly accessed at a point 200m northwest of the Salvation Road intersection, in the south-western outskirts of the Totara North district. An additional farm track access is offset 30m southeast of the main access.

SH10 borders much of the south-western & north-western boundaries of the property, whilst Salvation Road bounds the south-eastern boundary. The land beyond the north-eastern boundary is covered by similar farmland.

The property is depicted on our appended Site Plan (ref: 137961-G600) and in Figure 2 below.



*Figure 2: Screenshot aerial view of the subject site from the FNDC on-line GIS Property and Land Map. Property boundary is highlighted in cyan. 10m contours are overlaid.*

Topographically speaking, the property is set around a prominent hill at the north-eastern sector. The hill summit protrudes up to a height of approximately 120m New Zealand Vertical Datum (NZVD), with side flanks falling some 20m to 30m from the hilltop to the north-west, west, south and south-east. The flanks are generally moderate to steep, however they reduce to gentle inclinations towards the toe of the hill. A ephemeral watercourse environment, traversing south-east to north-west, meanders through the central area of the property before re-aligning along the western and north-western boundaries. To the south of the watercourse, the land rises again gently to SH10 and Salvation Road.

Built development on-site comprises of an existing residential dwelling at the south-western corner of the block, in proximity to the main driveway access, and two sheds to the south-east of there, next to the farm track.

The property is essentially covered in pasture, but with bush covering the northern boundary corner adjacent to SH10, and small pockets of trees scattered across the site.

At the time of preparing this report, we note the FNDC on-line GIS Water Services Map indicates that reticulated water, wastewater, and stormwater service connections are not available to the property.

#### 4 PROPOSAL

In reviewing the supplied Sketch Plan of the Subdivision, it is our understanding that the client intends to create a new 8ha allotment, titled Lot 1, across the northern end of the parent block. It is our understanding that a new access formation is to be constructed off the north-western side of Salvation Road and will ultimately trend parallel to the north-eastern boundary.

A 30m x 30m DBP has been proposed approximately centrally within the allotment, atop gently sloping ground, averaging less than 10°, that falls to the north towards the noted watercourse.

The balance area of 55.65ha will be contained within newly created proposed Lot 2 and will include the existing residential development and nearby sheds. No further assessments pertaining to this proposed Lot will be provided herein.



Figure 3: Screenshot aerial view from the FNDC on-line GIS Property and Land Map. Existing property boundary is highlighted in cyan. Yellow circle approximately depicts the proposed Lot 1 DBP. 10m contours are overlaid.

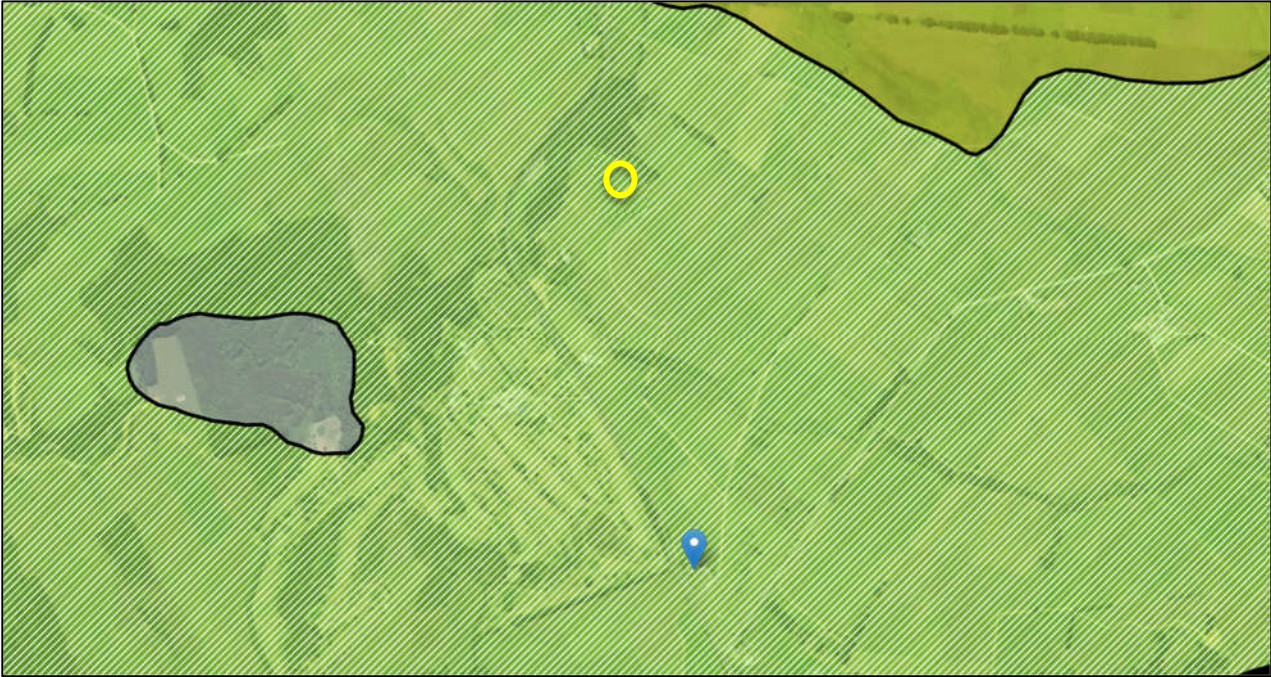


Figure 4: Site photograph of the proposed Lot 1 DBP (north direction). Orange cones outline the 30m x30m DBP.

## 5 DESKTOP STUDY

### 5.1 PUBLISHED GEOLOGY

Local geology across the property is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; **Undifferentiated Tangihua Complex in Northland Allochthon**. These deposits are approximately 29 to 108 million years in age and described as; “Mainly basalt pillow lava, with subvolcanic intrusives of basalt, dolerite, and gabbro; locally incorporating siliceous mudstone” (ref: GNS Science Website).



*Figure 5: Screenshot aerial view of the subject site and wider surrounding land from the New Zealand Geology Web Map. Blue marker depicts southern corner of the site. Yellow circle approximately depicts the proposed Lot 1 DBP.*

### 5.2 NORTHLAND REGIONAL COUNCIL RIVER FLOOD HAZARD ZONES

At the time of preparing this report, the Northland Regional Council (NRC) on-line GIS Hazard Map indicates that the northern watercourse, downslope of the proposed Lot 1 DBP, lies within 10, 50, and 100-year River Flood Hazard Zones (Regionwide Modelled).

The proposed Lot 1 DBP is located outside all such zonation's and contains a minimum freeboard of 2.0m above all mapped flooding extents. Therefore, potential flooding is expected to have no impact on the DBP.

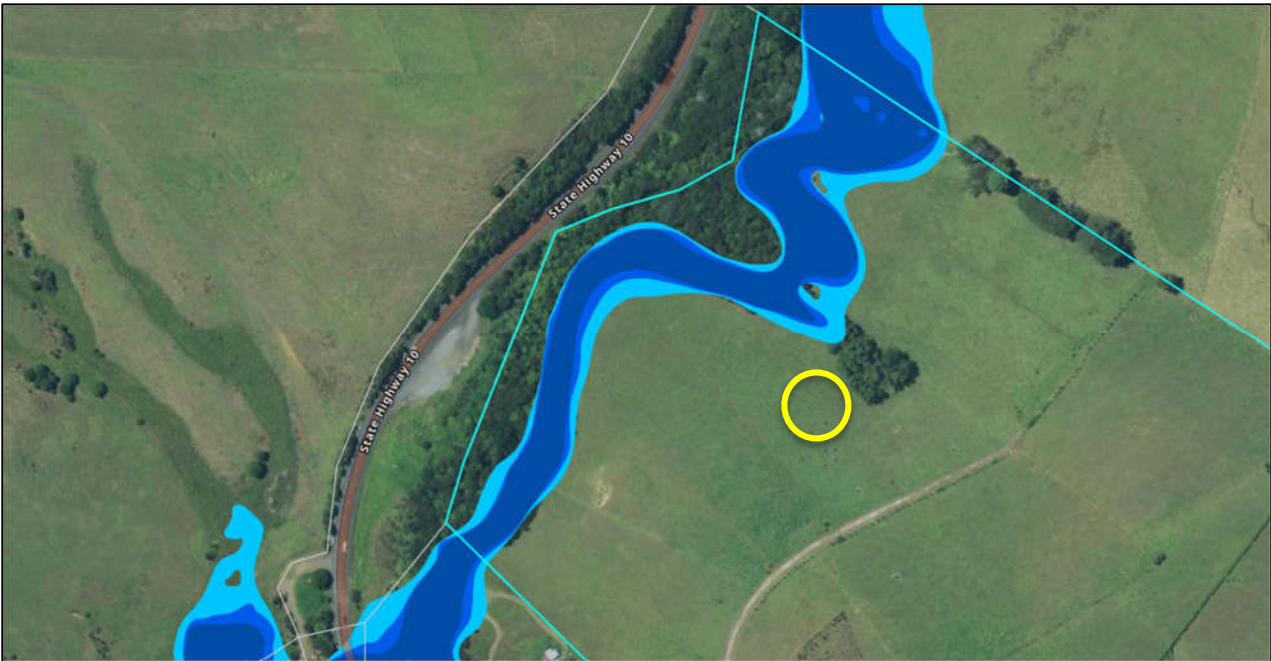


Figure 6: Screenshot aerial view from the NRC on-line GIS Hazard Map. Existing property boundary is highlighted in cyan. Yellow circle approximately depicts the proposed Lot 1 DBP. River flood hazard zone extents are overlaid in blue.

## 6 GEOTECHNICAL INVESTIGATION

WJL carried out a Geotechnical investigation of the proposed Lot 1 DBP on 18 December 2024, comprising of the following:

- Drilling three hand auger boreholes (HA01 to HA03 inclusive) of 50mm diameter, all to a depth of 5.0m below existing ground level (BEG),
- Dynamic Cone - Scala Penetrometer Tests (DCP) were extended through the invert of each HA, all to a depth of 6.9m BEGL, and
- The measurement of an electronic Zip Level cross-section A-A' (ref: 137961-G610).

The soil sample arisings from the HAs were logged in accordance with the "Field Description of Soil and Rock", NZGS, December 2005.

In-situ undrained Vane Shear Strengths were measured at intervals of depth and then adjusted in accordance with the New Zealand Geotechnical Society (NZGS); Guidelines for Handheld Shear Vane Testing, August 2001, with strengths classified in accordance with the NZGS Field Classification Guidelines; Table 2.10, December 2005. The materials identified are described in detail on the appended records, together with the results of the various tests undertaken, plus the groundwater conditions as determined during time on-site.

The HA's and cross-section are appended to this report and the locations are depicted on our appended Site Plan (ref: 137961-G600).

## 7 GEOTECHNICAL FINDINGS

The following is a summary of the ground conditions encountered in our investigation. Please refer to the appended logs for greater detail.

### 7.1 TOPSOIL

Surficial TOPSOIL layers of 0.25m thickness were overlying all three HA's.



## 7.2 NATURAL GROUND

The underlying natural deposits encountered on-site were consistent with our expectations of basalt derived, Undifferentiated Tangihua Complex in Northland Allochthon deposits, generally comprising of stiff to very stiff, Slightly Clayey SILT to depths of 2.0m to 3.0m BEGL, overlying stiff to very stiff, Clayey SILT until termination at a depth of 5.0m BEGL.

An isolated 0.50m thick layer of Gravelly SILT was encountered between depths of 0.60m and 1.1m BEGL in upslope HA01.

Measured in-situ, BS1377 adjusted peak shear strengths ranged between 64kPa, (at a depth of 4.0m BEGL in HA02), and greater than 196kPa, where soil strength was in excess of the shear vane capacity, or the vane was 'Unable to Penetrate' (UTP) into the soil.

Where able to be determined, the ratio of peak to remould Vane Shear Strengths ranged between 1.5 and 8.2, indicating the underlying subsoils are 'Insensitive, Normal' to 'Extra Sensitive' in accordance with the NZGS Guidelines. Such high levels of sensitivity are often associated with non-cohesive soils that are weakly cemented or fused until sheared.

At the invert of each HA, DCP's recorded blow counts per 0.10m of ground penetration initially ranging between 3 and 9, to depths of 6.4m to 6.8m BEGL, before increasing to blow counts exceeding 10 thereafter.



*Figure 7: Site photograph of the typical HA soil arising encountered (HA01: 0.0m to 5.0m).*

## 7.3 GROUNDWATER

Groundwater was only encountered in upslope HA01, at a depth of 4.5m BEGL, and remained at this level (standing) upon completion of our investigation.

Based on the above, together with the gentle topography of the DBP and surrounding influential land, the elevation above the downslope watercourse, and the geological stratum encountered, it is generally envisaged that groundwater levels will not be significantly elevated at the DBP, nor will they initially slope instability.

## 7.4 SUMMARY TABLE

The following table summarises our inferred stratigraphic profiling:

Investigation Hole ID	Termination Depth (m)	Depth to Base of Surficial Topsoil (m)	Vane Shear Strength Range (kPa) within Natural Ground	Standing Groundwater Depth (m)
HA01	5.0	0.25	70 - 196+ / UTP	4.5
HA02	5.0	0.25	64 - 196+ / UTP	NE
HA03	5.0	0.25	70 - 196+ / UTP	NE

*Note: UTP = Unable to Penetrate, NE = Not Encountered*

## 8 GEOTECHNICAL ASSESSMENT

### 8.1 SITE STABILITY

Based on:

- No obvious evidence of instability within the DBP and surrounding influential land,
- The gently sloping nature of the DBP, averaging 6° to 10°, and surrounding influential land downslope, which reduces to grades of less than 5°,
- The stiff to very stiff, in-situ measured Vane Shear Strengths recorded during our investigation, and
- Lack of severely elevated groundwater evidence within our HA's,

we consider that the risk of deep-seated global slope instability impacting the DBP within proposed Lot 1 to be significantly low.

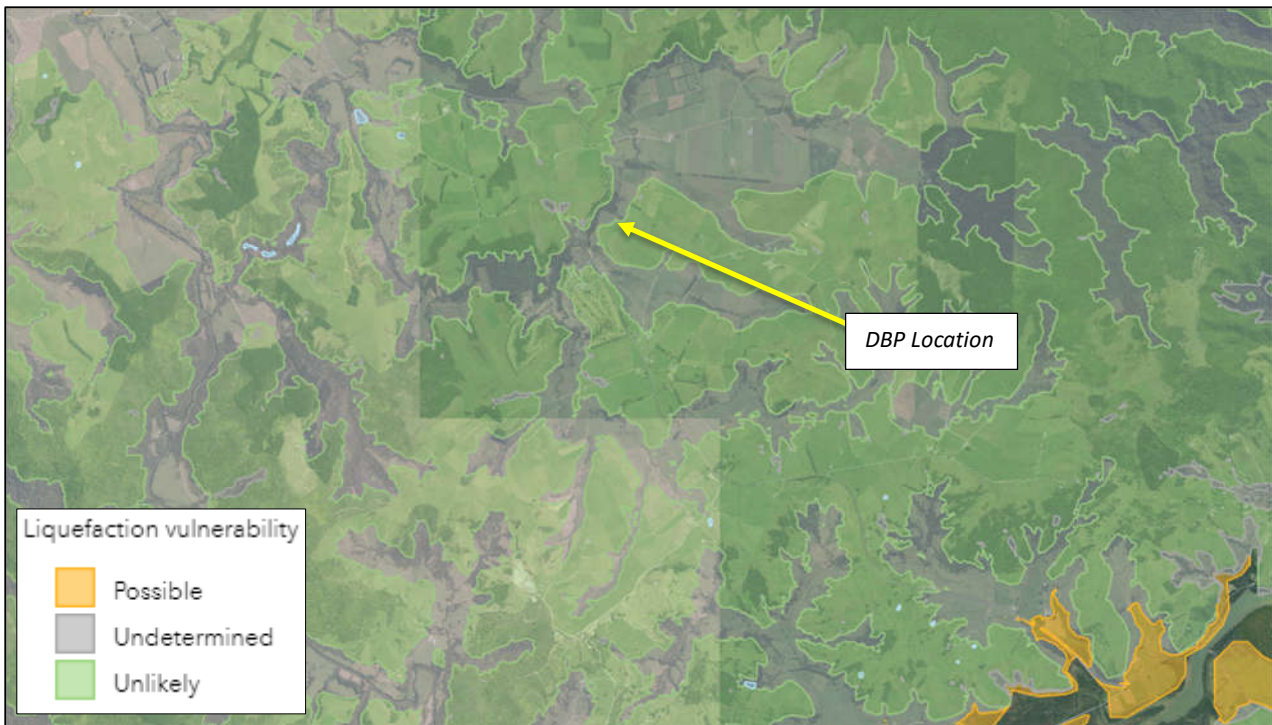
In the long-term, provided that all of the recommendations within this report, are adhered to, then we do not anticipate any significant risk of instability either within, or immediately beyond the DBP within proposed Lot 1.

### 8.2 LIQUEFACTION

Liquefaction is a natural phenomenon where a loss of strength of sand-like soils is experienced following cyclic induced stress, which is typically a result of prolonged seismic shaking and the resultant increase in pore water pressure of saturated soils. Recent examples of this were experienced in Christchurch and the greater Canterbury Region during the Canterbury Earthquake Sequence between 2010-2011.

Cyclic loading during prolonged seismic shaking induces an increase in pore water pressure, which in turn decreases the effective stress of a sand-like soil deposit. Excess pore water pressure (EPWP) can build to such an extent that the effective stress of the underlying soil is reduced to near zero, whereby the soils no longer carry shear strength and behave as a semi solid/fluid. In such a scenario, excess pore water pressures will follow the path of least resistance to eventual dissipation, which can lead to the migration of liquefied soils towards the surface, or laterally towards a free-face (edge of slope, riverbank, etc.) or layers that have not yet undergone liquefaction.

At the time of preparing this report, we note that the FNDC on-line GIS Liquefaction Vulnerability Map indicates that the DBP and surrounding land upslope lies within an 'Unlikely' zone. The land downslope of the DBP lies within an 'Undetermined' zone.



*Figure 8: Screenshot of the wider southern Doubtless Bay area from the FNDC on-line GIS Liquefaction Vulnerability Map. Black dot and cyan square depict property location.*

A screening procedure based on geological criteria was adopted to examine whether the proposed allotment may be susceptible to liquefaction, with observations as follows:

- There are no known active faults traversing through the DBP or wider surrounding land,
- There is no historical evidence of liquefaction near the DBP,
- The DBP is situated on an elevated location, set no less than approximately RL80m New Zealand Vertical Datum (NZVD), with good water-shedding characteristics down to the northern watercourse,
- Stiff to very stiff, in-situ measured Vane Shear Strengths were recorded during our investigation,
- There is a lack of significantly elevated groundwater evidence within our HA's,
- The underlying natural soil deposits comprise of stiff to very stiff, slightly cohesive soils that are not generally considered susceptible to liquefaction, and
- The subsoils beneath the DBP are underlain by Undifferentiated Tangihua Complex in Northland Allochthon deposits, being approximately 29 to 108 million years of age, allowing for adequate consolidation in comparison to Holocene age material (10,000 years).

Based on the above, we conclude that the subsoils across the proposed allotment have a negligible risk of liquefaction susceptibility and liquefaction damage is therefore considered to be unlikely.

## 9 CONCLUSIONS AND RECOMMENDATIONS

Based on our fieldwork investigation, subsoil testing results, walkover inspection and stability commentary as described above, we consider on reasonable grounds that this report can be submitted to the Territorial Authority in support of a Resource Consent application for subdividing the subject site, substantiating that in terms of section 106 of the Resource Management Act and its current amendments, either

- a) No land in respect of which the consent is sought, nor any structure on that land, is, nor is likely to be subject to material damage by erosion, falling debris, subsidence, or slippage from any source, or
- b) No subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to that land, other land, or structure, by erosion, falling debris, subsidence, or slippage from any source,

unless the Territorial Authority is satisfied that sufficient provision has been made or will be made in accordance with section 106(2).

Under section 106(2), the Territorial Authority may grant a subdivision consent if it is satisfied that the effects described above will be avoided, remedied, or mitigated by one or more of the following:

- (a) Rules in the district plan:
- (b) Conditions of a resource consent, either generally or pursuant to section 220(1)(d):
- (c) Other matters, including works.

And we are therefore satisfied that proposed Lot 1 should be generally suitable for future residential construction in terms of NZS3604:2011, subject to review of final development and foundations drawings. Such a review may also require further site-specific Geotechnical assessments depending on the intended foundations for use and proposed earthwork extents.

### 9.1 FOUNDATIONS

The natural surficial cohesive soils within the DBP are assessed as being expansive to differing degrees depending on their depth within the ground profile and therefore require specific assessment in accordance with NZBC B1 – Structure.

Due to the presence of expansive soils identified beneath the DBP, any proposed foundations are expected to require Specific Engineering Design (SED) as the soil conditions fall outside the NZS3604 definition of 'Good Ground'.

New residential dwellings should be able to utilise various foundation type options which may include, but not be limited to, the following:

- Timber Pile Type Foundations,
- Reinforced Concrete Stiffened Raft Type Floor System, or

Conventional Reinforced Concrete Slab, with Perimeter Reinforced Concrete Foundations on Ground / Masonry Block Foundation Walls but both designed for expansive soils, which may require undercutting a depth of expansive soils and replacing them with non-expansive compacted hardfill.

## 9.2 SHALLOW FOUNDATION BEARING CAPACITY

We consider that the available shallow foundation bearing capacity should be generally as follows and in keeping with the requirements of NZS3604:2011 type loadings provided founding is within the investigated DBP:

Geotechnical Ultimate Bearing Capacity	300 kPa
ULS Dependable Bearing Capacity ( $\Phi=0.5$ )	150 kPa

The above bearing capacity values are considered to be appropriate for the design of shallow foundations, that bear on or within competent engineered fill and/or natural ground, for which careful geo-professional inspections of the subgrade should be undertaken to check that underlying ground conditions are in keeping with our expectations.

## 9.3 SHALLOW FOUNDATION SOIL EXPANSIVITY

Based on the basalt derived geology, comprising of low plasticity deposits with high sensitivities, we recommend that for preliminary design purposes, Class M (Moderately) expansive soils as defined in clause 7.5.13.1.2, as introduced to NZS3604 by Amendment 19 of NZBC Structure B1/AS1, could be adopted:

- NZBC B1 Expansive Soil Class M
- Upper Limit of Characteristic surface movement ( $y_s$ ) 44mm

However, once proposed subgrade levels have been determined, site-specific soil expansivity testing should be carried out on soils from the zone of foundation influence, to confirm the appropriate classification.

At this stage, it is recommended for preliminary design purposes, allowance should be made for all strip, bored, and pad-type footings to be embedded a minimum of 0.60m below finished ground levels and 0.30m into competent natural ground.

## 9.4 NZS1170.5:2004 SITE SUBSOIL CLASSIFICATION

We consider the proposed allotment to be underlain with a Class C – Shallow Soil stratigraphy.

## 9.5 SITE EARTHWORKS

It is envisaged that cut and or engineered cut to fill earthwork operations may be required to form level building sites, but as no construction proposals have been provided at this stage, we have provided the following guidance and general recommendations, which should be included in any site-specific developments, but where possible, site-specific advice should be sought from an experienced Geotechnical Engineer.

All earthworks undertaken during site development should be inspected by an engineer familiar with the contents of this report to confirm that ground conditions are as anticipated.

All future earthworks should be undertaken in accordance with the following standards:

- NZS4431:2022 “Code of Practice for Earth Fill Residential Development”,
- Section 2 “Earthworks & Geotechnical Requirements” of NZS4404:2010 “Land Development and Subdivision Infrastructure”, and

Chapter 2 “Site Development Suitability (Geotechnical and Natural Hazards” of the Far North District Council Engineering Standards, (Version 0.6 issued May 2023).

## 9.6 SITE CLEARANCE AND PREPARATION

We recommend that earthworks only be undertaken during periods of fine weather. During times of inclement weather, clean water diversion channels should be formed around the top of the earthworks sites, and the earthworks areas should be shaped to assist water shedding, so as to avoid ponding of stormwater run-off, as saturating site soils could result in a reduction of bearing capacities.

Beneath, and to at least 1.0m beyond the proposed building footprints, we recommend the stripping of all vegetation as well as all topsoil, followed by careful geo-professional inspections of the stripped ground to confirm that the underlying natural subgrade conditions are in keeping with our expectations. The subgrade should not be exposed for any prolonged period, otherwise it may deteriorate due to saturation (softening) or extreme drying (shrinking cracking) which can have detrimental effects on future foundations. Once inspection of the natural subgrade has been approved, we recommend that the contractor promptly employs either appropriate temporary measures, or the placement of compacted final GAP40 hardfill on top of the stripped subgrade to protect from all detrimental effects of the elements.

Likewise, pile and pier inverts should be poured as soon as possible once inspected by a Geo-Professional or covered with a protective layer of site concrete. It is envisioned that once excavated, these foundation types must be poured within 48-hours. If subgrade degradation occurs by either: excessive drying out resulting in desiccation shrinkage cracking or, subgrade softening after a period of wet weather, it will be necessary to either re-hydrate the subgrade or allow it to dry out as appropriate or undercut the degraded material.

Drainage control measures are considered unlikely to be required while excavating ground during the construction of the proposed foundations. Finally, all exposed soils should be re-grassed and/or planted as soon as practicable to aid in stabilising the building site area.

## 9.7 TEMPORARY AND PERMANENT EARTHWORKS

It is important that all building sites within the DBP are contoured to assist in stormwater run-off. Any excavation left open should be protected and or left in a state so as to not pond water. Saturating site soils may result in a reduction of bearing capacities.

All cuts within the DBP should be limited to a height of 1.5m and should be battered back at a gradient of no greater than 1V:3H unless further investigated and/or specifically reviewed by a Chartered Professional Engineer.

All fills at client-care building sites should be limited to a height of 0.6m and should be battered back at a gradient no greater than 1V:3H unless further investigated and/or specifically reviewed by a Chartered Professional Engineer.

## 9.8 GENERAL SITE WORKS

We stress that any and all works should be undertaken in a careful and safe manner so that Health & Safety is not compromised, and that suitable Erosion & Sediment control measures should be put in place. Any stockpiles placed should be done so in an appropriate manner so that land stability and/or adjacent structures are not compromised.

Furthermore:

- All works must be undertaken in accordance with the Health and Safety at Work Act 2015,
- Any open excavations should be fenced off or covered, and/or access restricted as appropriate,
- **The location of all services should be verified at the site prior to the commencement of construction,**
- The Contractor is responsible at all times for ensuring that all necessary precautions are taken to protect all aspects of the works, as well as adjacent properties, buildings and services, and

Should the contractor require any site-specific assistance with safe construction methodologies, please contact WJL for further assistance.

## 9.9 LONG-TERM FOUNDATION CARE & MAINTENANCE

The recommendations given above to mitigate the risk of expansive soils do not necessarily remove the risk of external influences affecting the moisture in the subgrade supporting the foundations.

All owners should also be aware of the detrimental effects that significant trees can have on building foundation soils, viz:

- Their presence can induce differential consolidation settlements beneath foundations through localised soil water deprivation, or conversely, and
- Foundation construction too soon after their removal can result in soil swelling and raising foundations as the soil rehydrates.

To this end, care should be taken to avoid:

- Having significant trees positioned where their roots could migrate beneath the house foundations, and
- Constructing foundations on soils that have been differentially excessively desiccated by nearby trees, whether still existing, or recently removed.

We recommend that homeowners make themselves familiar with the appended Homeowners' Guide published by CSIRO, with particular emphasis on maintenance of drains, water pipes, gutters, and downpipes.

## 9.10 STORMWATER & SURFACE WATER CONTROL

Uncontrolled stormwater flows must not be allowed to run onto or over site slopes, or to saturate the ground, so as to adversely affect foundation conditions.

Overland flows and similar runoff such as from any higher ground should be intercepted by means of shallow surface drains and/or small bunds and be directed away from building footprints to protect the building platforms from both saturation and erosion.

Water collected in interceptor drains should be diverted away from building sites to an appropriate disposal point. All stormwater runoff from roofs and paved areas, should be collected in sealed pipes and be discharged in accordance with the above.

Under no circumstances should concentrated overflows from any source discharge into or onto the ground in an uncontrolled fashion.

## 10 UNDERGROUND SERVICES

Underground services, public or private, mapped, or unmapped, of any type could be present. It is recommended to stay on the side of caution during the commencement of any future works.

## 11 LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource Consent application.

This report has been commissioned solely for the benefit of our Client, **Kevin Coombridge**, in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions, and limitations, when issuing the subject consent.

Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred back to us for further evaluation. Copyright of Intellectual Property remains with WJL, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other geotechnical aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

The recommendations provided in this geotechnical report are in accordance with the findings from our shallow investigation. However, it is important to acknowledge that additional refinement of the investigation and analysis may be necessary to meet the specific requirements set by the Far North District Council.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

**WILTON JOUBERT LIMITED**



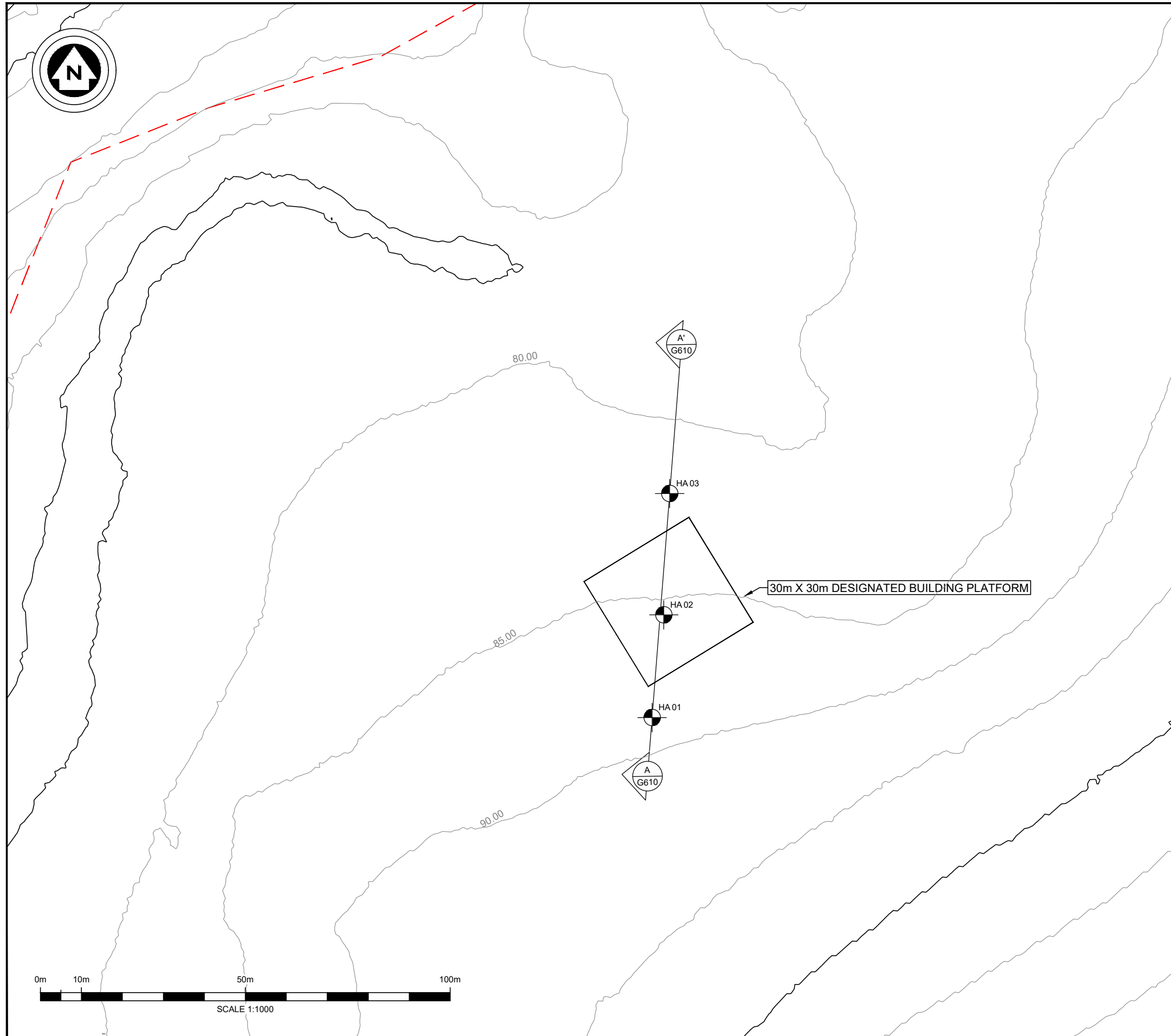
**Enclosures:**

- WJL Site Plan (1 sheet)
- Cross-section A-A' (1 sheet)
- Hand Auger Borehole Records (3 sheets)
- 'Foundation Maintenance & Footing Performance' sheet BTF18: A Homeowner's Guide, published by CSIRO (4 sheets)



**SITE LOCATION**

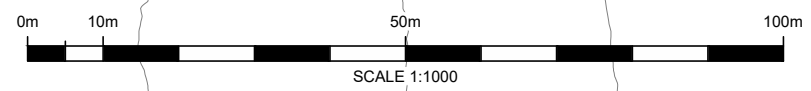
IMAGE SOURCE:  
FAR NORTH DISTRICT COUNCIL LOCAL MAPS



30m X 30m DESIGNATED BUILDING PLATFORM

SYMBOL KEY	
	HAND AUGER LOCATIONS
	CROSS SECTION LOCATION

- GENERAL NOTES**
- SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
  - BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
  - ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
  - ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.



**WILTON JOUBERT**  
Consulting Engineers

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Wanaka: 03 443 6209  
www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
A	JAN 2025	JWB	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY: JWB
DRAWN BY: JWB
CHECKED BY: SJP
SURVEYED BY: N/A

**SERVICES NOTE**  
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**RESOURCE CONSENT**

DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:  
**SITE PLAN**

PROJECT DESCRIPTION:  
**2-LOT SUBDIVISION**

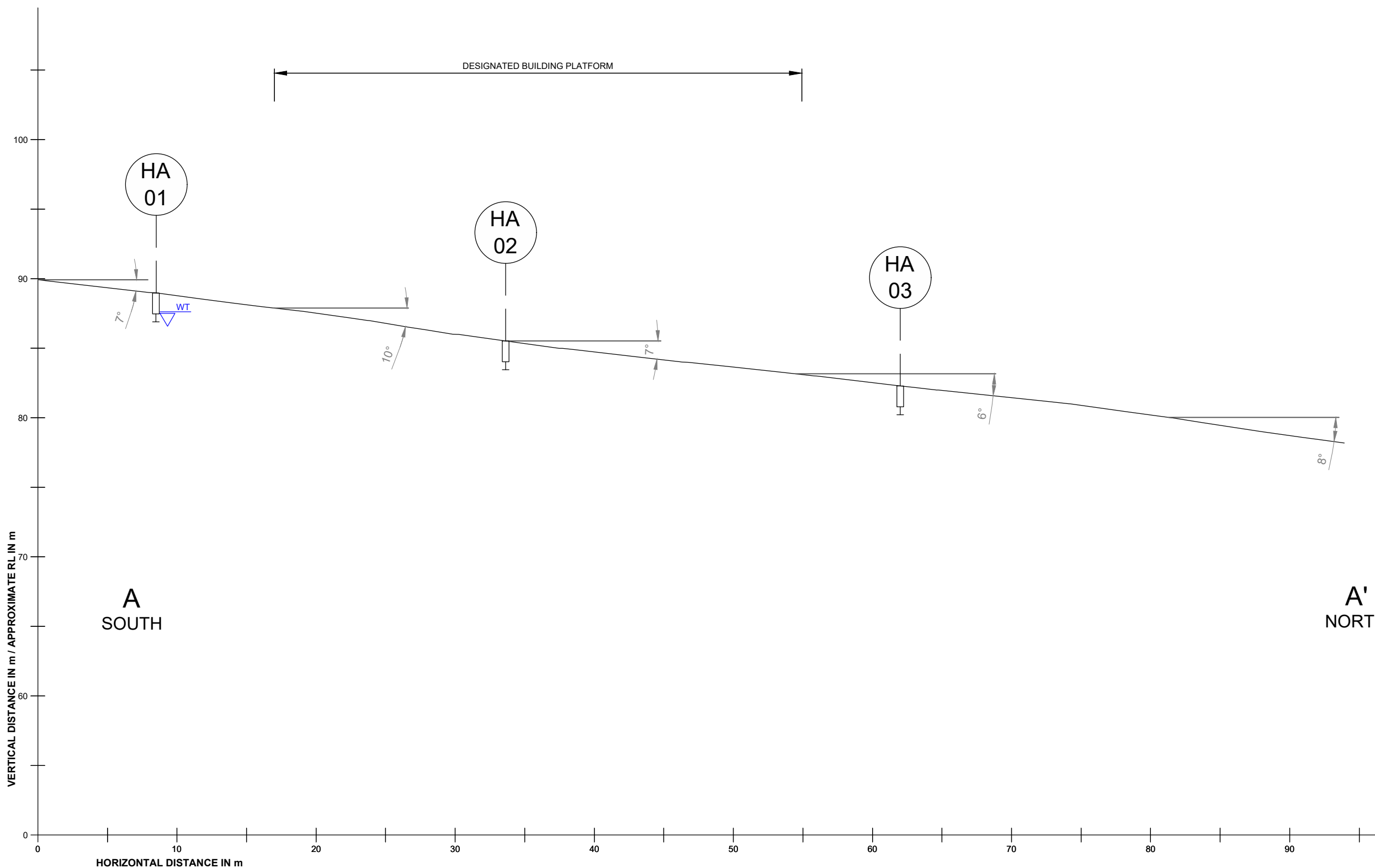
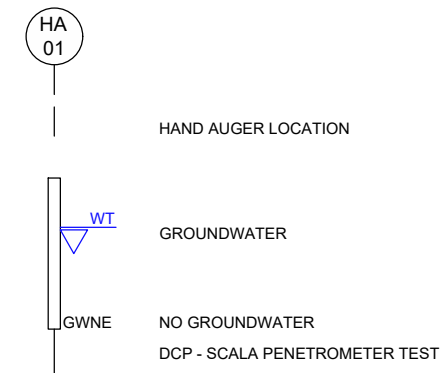
PROJECT TITLE:  
**LOT 2 DP 314590  
1698 STATE HIGHWAY 10  
TOTARA NORTH  
NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: <b>KERIKERI</b>
DRAWING SCALE: <b>1:1000</b>	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: <b>137961-G600</b>	ISSUE: <b>A</b>
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- ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
- ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.

**KEY:**



**WILTON JOUBERT**  
Consulting Engineers

Northland: 09 945 4188  
Auckland: 09 527 0196  
Christchurch: 021 824 063  
Wanaka: 03 443 6209  
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ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
A	JAN 2025	BGS	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY:	SJP
DRAWN BY:	BGS
CHECKED BY:	SJP
SURVEYED BY:	N/A

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**RESOURCE CONSENT**  
DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:  
**CROSS SECTION A - A'**

PROJECT DESCRIPTION:  
**2-LOT SUBDIVISION**

PROJECT TITLE:  
**LOT 2 DP 314590  
1698 STATE HIGHWAY 10  
TOTARA NORTH  
NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: KERIKERI
DRAWING SCALE: ?	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: <b>137961-G610</b>	ISSUE: <b>A</b>
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# HAND AUGER : HA01

JOB NO.: 137691 SHEET: 1 OF 1

START DATE: 18/12/2024

NORTHING:

GRID:

DIAMETER: 50mm

EASTING:

SV DIAL: 1994

ELEVATION: Ground

FACTOR: 1.4

DATUM:

CLIENT: Kevin Coombridge  
PROJECT: Geotechnical investigation for 2-Lot subdivision

SITE LOCATION: 1698 State Highway 10, Totara North

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE				COMMENTS, SAMPLES, OTHER TESTS
					PEAK STRENGTH (kPa)	REMOULD STRENGTH (kPa)	SENSITIVITY	DCP - SCALA (Blows / 100mm)	
Topsoil	TOPSOIL, dark brown, dry.		0.2						
	NATURAL: Slightly Clayey SILT, brown, very stiff, dry, low plasticity.		0.4						
	Gravelly SILT, trace clay, orangey brown, very stiff, dry, no plasticity, friable.		0.6		UTP	-	-		
	Slightly Clayey SILT, orangey brown, very stiff, dry to moist, no to low plasticity, frequent weakly and strongly cemented clast inclusions.		0.8						
			1.0		196+	-	-		
			1.2		137	53	2.6		
			1.4						
			1.6						
	1.7m: Occasional weakly and strongly cemented clast inclusions.		1.8		196+	-	-		
			2.0						
	Clayey SILT, orangey brown with red and grey mottles, stiff, moist to wet, medium plasticity, occasional weakly and strongly cemented clast inclusions.		2.2		98	34	2.9		
			2.4						
			2.6		70	28	2.5		
			2.8						
	2.8m: Becoming very stiff.		3.0						
	2.9m: Becoming wet.		3.2						
	3.0m: Frequent weakly and strongly cemented clast inclusions.		3.4						
			3.6						
			3.8						
			4.0						
	4.0m: Becoming stiff.		4.2						
			4.4						
	4.4m: Becoming very stiff.		4.6		146	39	3.7		
			4.8						
			5.0		157	42	3.7		
	EOH: 5.00m - Target Depth.		5.2						4
			5.4						5
			5.6						6
			5.8						8
			6.0						9
			6.2						5
			6.4						5
			6.6						5
			6.8						6
									6
									6
									6
									6
									6
									6
									8
									8
									10
									12

**REMARKS**

End of borehole @ 5.00m (Target Depth: 5.00m)  
Groundwater encountered @ 4.50m during drilling.

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

▼ Standing groundwater level

CHECKED BY: SJP

▽ GW while drilling



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# HAND AUGER : HA02

JOB NO.: 137691 SHEET: 1 OF 1

START DATE: 18/12/2024 NORTHING: GRID:

DIAMETER: 50mm EASTING:

SV DIAL: 1994 ELEVATION: Ground

FACTOR: 1.4 DATUM:

CLIENT: Kevin Coombridge  
PROJECT: Geotechnical investigation for 2-Lot subdivision

SITE LOCATION: 1698 State Highway 10, Totara North

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE			DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
					PEAK STRENGTH (kPa)	REMOULD STRENGTH (kPa)	SENSITIVITY		
Topsoil	TOPSOIL, dark brown, dry.		0.2						
Undifferentiated Tangihua Complex in Northland Allocthon	NATURAL: Slightly Clayey SILT, brown, very stiff, dry, low plasticity.		0.4						
			0.6		196+	-	-		
	0.8m: Becoming orangey brown.		0.8						
	1.0m: Becoming moist.		1.0		196+	-	-		
			1.2		148	62	2.4		
			1.4						
			1.6		129	50	2.6		
			1.8						
			2.0		143	-	-		
			2.2						
	2.5m: Becoming orangey brown with red and grey mottles.		2.4		196+	-	-		
			2.6						
			2.8		196+	56	3.5		
	Clayey SILT, orangey brown with red and grey mottles, stiff, wet, medium plasticly, occasional weakly and strongly cemented clast inclusions.		3.0						
			3.2		98	56	1.8		
			3.4						
			3.6		76	48	1.6		
			3.8						
		4.0		64	42	1.5			
		4.2							
		4.4		84	53	1.6			
		4.6							
		4.8		78	53	1.5			
		5.0					3		
		5.2					3		
		5.4					3		
		5.6					4		
		5.8					4		
		6.0					4		
		6.2					4		
		6.4					4		
		6.6					4		
		6.8					4		
							5		
							6		
							7		
							7		
							8		
							10		
							14		
							14		
							15		
							16		

EOH: 5.00m - Target Depth.

Groundwater Not Encountered

## REMARKS

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

▼ Standing groundwater level

CHECKED BY: SJP

▽ GW while drilling



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# HAND AUGER : HA03

JOB NO.: 137691 SHEET: 1 OF 1

START DATE: 18/12/2024 NORTHING: GRID:

DIAMETER: 50mm EASTING:

SV DIAL: 1994 ELEVATION: Ground

FACTOR: 1.4 DATUM:

CLIENT: Kevin Coombridge

PROJECT: Geotechnical investigation for 2-Lot subdivision

SITE LOCATION: 1698 State Highway 10, Totara North

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE				COMMENTS, SAMPLES, OTHER TESTS
					PEAK STRENGTH (kPa)	REMOULD STRENGTH (kPa)	SENSITIVITY	DCP - SCALA (Blows / 100mm)	
Topsoil	TOPSOIL, dark brown, dry.		0.2						
	NATURAL: Slightly Clayey SILT, brown, very stiff, dry, low plasticity, trace weakly and strongly cemented clast inclusions.		0.4						
			0.6		UTP	-	-		
	0.7m: Becoming orangey brown.		0.8						
			1.0		196+	-	-		
			1.2						
			1.4		137	53	2.6		
	1.5m: Becoming moist.		1.6						
			1.8		196+	-	-		
	2.0m: Becoming stiff.		2.0						
			2.2		98	34	2.9		
	Clayey SILT, orangey brown with red and grey mottles, stiff, wet, medium plasticity, trace weakly and strongly cemented clast inclusions.		2.4						
			2.6		70	28	2.5		
	2.8m: Becoming very stiff.		2.8						
			3.0		165	20	8.2		
			3.2						
			3.4		106	17	6.2		
			3.6						
			3.8		151	31	4.9		
	4.0m: Becoming stiff.		4.0						
			4.2		73	22	3.3		
	4.4m: Becoming very stiff.		4.4						
			4.6		146	39	3.7		
			4.8						
			5.0		137	39	3.5		
	EOH: 5.00m - Target Depth.		5.2						3
			5.4						3
			5.6						3
			5.8						4
			6.0						5
			6.2						5
			6.4						6
			6.6						7
			6.8						7
									8
									10

**REMARKS**

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

▼ Standing groundwater level

CHECKED BY: SJP

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# Foundation Maintenance and Footing Performance: A Homeowner's Guide



PUBLISHING  
**BTF 18-2011**  
 replaces  
**Information**  
**Sheet 10/91**

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

## Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870-2011, the Residential Slab and Footing Code.

## Causes of Movement

### Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

### Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

### Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

### Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

### Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

## GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

### Notes

1. Where controlled fill has been used, the site may be classified A to E according to the type of fill used.
2. Filled sites. Class P is used for sites which include soft fills, such as clay or silt or loose sands; landslide; mine subsidence; collapsing soils; soil subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.
3. Where deep-seated moisture changes exist on sites at depths of 3 m or greater, further classification is needed for Classes M to E (M-D, H1-D, H2-D and E-D).

### Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

### Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

### Effects of Uneven Soil Movement on Structures

#### Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpend).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

#### Seasonal swelling/shrinkage in clay

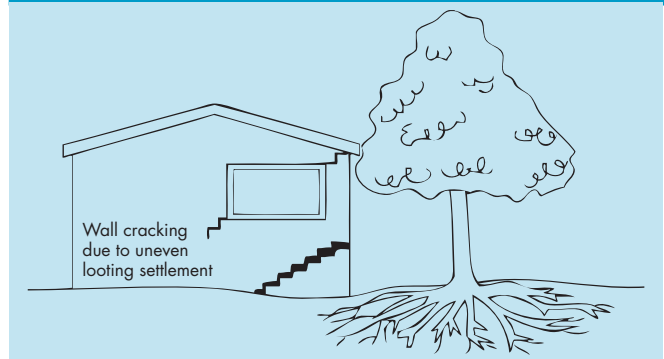
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the

### Trees can cause shrinkage and damage



external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

#### Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

#### Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

#### Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.



The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

**Effects on framed structures**

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

**Effects on brick veneer structures**

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

**Water Service and Drainage**

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

**Seriousness of Cracking**

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

**Prevention/Cure**

**Plumbing**

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

**Ground drainage**

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

**Protection of the building perimeter**

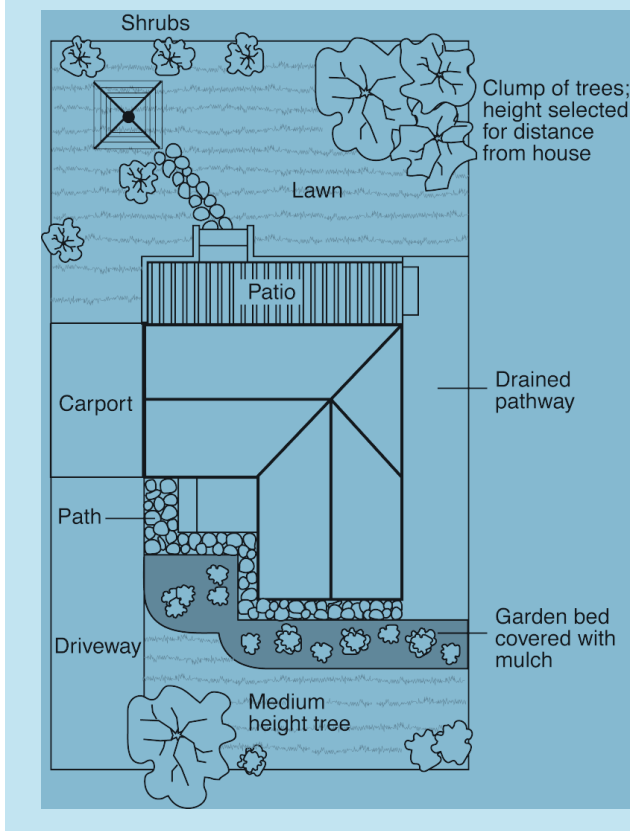
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should

**CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS**

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4

## Gardens for a reactive site



extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

### Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

**Warning:** Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

### The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

### Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

### Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

### Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

### Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

**This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.**

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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<b>SITE</b>	<b>1698 State Highway 10, Totara North</b>
<b>LEGAL DESCRIPTION</b>	<b>Lot 2 DP 314590</b>
<b>PROJECT</b>	<b>2-Lot Subdivision</b>
<b>CLIENT</b>	<b>Kevin Coombridge</b>
<b>REFERENCE NO.</b>	<b>137962</b>
<b>DOCUMENT</b>	<b>Civil Site Suitability Report</b>
<b>STATUS/REVISION NO.</b>	<b>01 – Resource Consent</b>
<b>DATE OF ISSUE</b>	<b>29 January 2025</b>

Report Prepared For	Email
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## 1 EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

<b>Legal Description:</b>	Lot 2 DP 314590		
<b>Lot Sizes:</b>	Proposed Lot 1 – ~8ha (TBC) Proposed Lot 2 – ~55.65ha (TBC)		
<b>Development Type:</b>	2-Lot Subdivision		
<b>Scope:</b>	Civil Site Suitability Investigation: <ul style="list-style-type: none"> <li>- Flood Assessment (Lot 1)</li> <li>- Wastewater Assessment (Lot 1)</li> <li>- Stormwater Assessment (Lot 1)</li> <li>- Potable Water (Lot 1)</li> <li>- Access Assessment (Lot 1)</li> </ul>		
<b>Development Proposals Supplied:</b>	Concept Markup Supplied		
<b>Associated Documents:</b>	WJL Geotechnical Site Suitability Report Ref. 137961		
<b>Minimum Freeboard Requirements:</b>	Non-Habitable Buildings	=	300mm
	Habitable Buildings	=	500mm
<b>Recommended Minimum Finished Floor Level:</b>	Non-Habitable Structures	=	79.77m (NZVD2016)
	Habitable Structures	=	79.97m (NZVD2016)
<b>District Plan Zone:</b>	Rural Production Zone		
<b>Wastewater:</b>	<p>The following is an indicative PCDI wastewater design for a 4-bedroom dwelling – given the subsoils encountered we recommend Secondary Level Treatment or higher:</p> <p><b>Daily Wastewater Production:</b> 1,080L/day  <b>Daily Application Rate:</b> 4mm/day  <b>Disposal Area:</b> 270m<sup>2</sup>  <b>Reserve Area:</b> 135m<sup>2</sup> (50%)</p> <p>Recommendations for wastewater are provided in Section 7.</p>		
<b>Stormwater Management – District Plan Rules:</b>	<p><b>Permitted Activity:</b> 8.6.5.1.3 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 15%.</p> <p><b>Controlled Activity:</b> 8.6.5.2.1 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 20%.</p>		

To comply with the parameters of the Permitted Activity Rule (8.6.5.1.3), Lot 1 must not exceed an impermeable area of 15%. The maximum permitted impermeable area for Lot 1 is ~12,000m<sup>2</sup>.

**Stormwater  
Management:**

Given the above, it is expected that any residential future development of Lot 1 would comfortably comply with Permitted Activity Rule (8.6.5.1.3). As such, it is not expected that a stormwater attenuation report will be required for any future residential development of Lot 1.

Stormwater management recommendations are provided in Section 8.

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**Access:**

- New vehicle crossing / access point required for Lot 1,
- Access point should be compliant with FNDC's Sight Distance requirements,
- Passing bays required on new accessway every 100m or at points where visibility is obscured.

Further access recommendations provided in Section 10.

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## 2 INTRODUCTION

### 2.1 SCOPE OF WORK

Wilton Joubert Ltd (WJL) was engaged by the client to undertake a civil site suitability assessment (flooding, wastewater, stormwater, potable water & access assessment) of proposed Lot 1 to support a 1-into-2 lot subdivision of Lot 2 DP 314590.

At the time of report writing, the following concept markup of the proposed subdivision has been supplied to WJL by the client (refer Figure 1). No development plans for future development of Lot 1 have been supplied to WJL.



Figure 1: Markup of Proposed Subdivision.

A Geotechnical Site Suitability Report (WJL Ref. 137961) has been prepared by WJL for the subject site which should be read in conjunction with this report.

Any revision of the supplied drawings and/or development proposals with flooding, wastewater, stormwater and/or access implications should be referred back to us for review. This report is not intended to support Building Consent applications for the future proposed lots, and any revision of supplied drawings and/or development proposals including those for Building Consent, which might rely on flooding, wastewater, stormwater, potable water and/or access assessments herein, should be referred to us for review.

### 3 SITE DESCRIPTION

The parent 63.65ha Rural Production zoned farming block is located off the north-eastern side of State Highway 10 (SH10), essentially over the road from the Whangaroa Golf Club, and is chiefly accessed at a point 200m northwest of the Salvation Road intersection, in the south-western outskirts of the Totara North district. An additional farm track access is offset 30m southeast of the main access.

SH10 borders much of the south-western & north-western boundaries of the property, whilst Salvation Road bounds the south-eastern boundary. The land beyond the north-eastern boundary is covered by similar farmland.



*Figure 2: Snip from FNDC GIS Maps Showing Parent Lot's Boundaries (cyan) & 10m Contours (yellow & red).*

Topographically speaking, the property is set around a prominent hill at the north-eastern sector. The hill summit protrudes up to a height of approximately 120m New Zealand Vertical Datum (NZVD), with side flanks falling some 20m to 30m from the hilltop to the north-west, west, south and south-east. The flanks are generally moderate to steep, however they reduce to gentle inclinations towards the toe of the hill. An ephemeral watercourse environment, traversing south-east to north-west, meanders through the central area of the property before re-aligning along the western and north-western boundaries. To the south of the watercourse, the land rises again gently to SH10 and Salvation Road.

Built development on-site comprises of an existing residential dwelling at the south-western corner of the block, in proximity to the main driveway access, and two sheds to the southeast, next to the farm track.

The site is covered in pasture, with bush covering the northern boundary corner adjacent to SH10, and small pockets of trees scattered across the site.

At the time of preparing this report, we note the FNDC on-line GIS Water Services Map indicates that reticulated water, wastewater, and stormwater service connections are not available to the property.

#### 4 PROPOSAL

In reviewing the supplied Sketch Plan of the Subdivision, it is our understanding that the client intends to create a new 8ha allotment, titled Lot 1, across the northern end of the existing block. A new access formation is to be constructed off the north-western side of Salvation Road and will ultimately trend parallel to the north-eastern boundary.

A 30m x 30m Designated Building Platform (DBP) has been identified approximately centrally within the allotment, atop gently sloping ground, averaging less than 10°, that falls to the north towards the noted watercourse.

The balance area of 55.65ha will be contained within newly created proposed Lot 2 and will include the existing residential development and nearby sheds. No further assessments pertaining to this proposed Lot will be provided herein.



*Figure 3: Snip from FNDC GIS Maps Showing Parent Lot's Boundaries (cyan), 10m Contours (yellow & red) & Indicative Designated Building Platform (yellow circle).*





Figure 4: Site Photo of the Proposed Lot 1 DBP (north direction). Orange Cones outline 30m x 30m DBP.

## 5 PUBLISHED GEOLOGY

Local geology across the property and surrounding influential land is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; **Undifferentiated Tangihua Complex in Northland Allochthon**, described as; “Mainly basalt pillow lava, with subvolcanic intrusives of basalt, dolerite and gabbro; locally incorporating siliceous mudstone.” (ref: GNS Science Website).



Figure 5: Screenshot from New Zealand Geology Web Map hosted by GNS Science.

In addition to the above, geotechnical testing was conducted by WJL within the subject site.

In general terms, the subsoils encountered consisted predominantly of Clayey SILT. Approximately 250mm of TOPSOIL was overlying the investigated area. Refer to the appended ‘BH Logs’. Given the above, the site’s soils have been classified as **Category 5** in accordance with the TP58 design manual.

## 6 FLOODING

The Northland Regional Council Natural Hazards Map indicates that Lot 1 is partially located within the River Flood Hazard Zone – Regionwide Models 10-year, 50-year and 100-year CC Extents. Specific flood levels at four locations across Lot 1 were supplied by Northland Regional Council.



Figure 6: Aerial View of the Subject Site with 10-year, 50-year and 100-year CC Extents Regionwide Models River Flood Hazard Overlays.



Figure 7: Snip of Specific Flood Level Locations.

**Table 1:** Regionwide Models River Flood Levels at Locations Given in Figure 7, Supplied by NRC

Location	10-year (NZVD2016)	50-year (NZVD2016)	100-year + CC (NZVD2016)
1	80.22m	80.60m	81.19m
2	78.61m	78.81m	79.47m
3	75.46m	75.86m	76.59m
4	74.98m	75.42m	76.01m

## 6.1 FLOOD HAZARD ASSESSMENT CRITERIA

As the site is within a natural hazard zone it is subject to an assessment in terms of Sections 71 and 72 of the New Zealand Building Act:2004. The requirements are as follows:

### **“71 Building on land subject to natural hazards**

- (1) *A building consent authority must refuse to grant a building consent for construction of a building, or major alterations to a building, if—*
  - a. *the land on which the building work is to be carried out is subject or is likely to be subject to 1 or more natural hazards; or*
  - b. *the building work is likely to accelerate, worsen, or result in a natural hazard on that land or any other property.*
- (2) *Subsection (1) does not apply if the building consent authority is satisfied that adequate provision has been or will be made to—*
  - a. *protect the land, building work, or other property referred to in that subsection from the natural hazard or hazards; or*
  - b. *restore any damage to that land or other property as a result of the building work.*
- (3) *In this section and sections 72 to 74, natural hazard means any of the following:*
  - a. *erosion (including coastal erosion, bank erosion, and sheet erosion):*
  - b. *falling debris (including soil, rock, snow, and ice):*
  - c. *subsidence:*
  - d. *inundation (including flooding, overland flow, storm surge, tidal effects, and ponding):*
  - e. *slippage*

### **72 Building consent for building on land subject to natural hazards must be granted in certain cases**

*Despite section 71, a building consent authority that is a territorial authority must grant a building consent if the building consent authority considers that—*

- a. *the building work to which an application for a building consent relates will not accelerate, worsen, or result in a natural hazard on the land on which the building work is to be carried out or any other property; and*
- b. *the land is subject or is likely to be subject to 1 or more natural hazards; and*
- c. *it is reasonable to grant a waiver or modification of the building code in respect of the natural hazard concerned.”*

Further to the above, the assessment has been based on The Regional Policy Statement for Northland. This development falls under Section 7.1.2 of this document:

***“7.1.2 Policy – New subdivision and land use within 10-year and 100- year flood hazard areas***

*New subdivision, built development (including wastewater treatment and disposal systems), and land use change may be appropriate within 10-year and 100-year flood hazard areas provided all of the following are met:*

- a. Hazardous substances will not be inundated during a 100-year flood event.*
- b. Earthworks (other than earthworks associated with flood control works) do not divert flood flow onto neighbouring properties, and within 10-year flood hazard areas do not deplete flood plain storage capacity;*
- c. A minimum freeboard above a 100-year flood event of at least 500mm is provided for residential buildings.*
- d. Commercial and industrial buildings are constructed so as to not be subject to material damage in a 100 year flood event.*
- e. New subdivision plans are able to identify that building platforms will not be subject to inundation and / or material damage (including erosion) in a 100-year flood event;*
- f. Within 10-year flood hazard areas, land use or built development is of a type that will not be subject to material damage in a 100-year flood event; and*
- g. Flood hazard risk to vehicular access routes for proposed new lots is assessed.*

The Far North District Council Engineering Standards (May 2023) states the following in ‘Section 4.3.10.7 Freeboard Requirements’:

***“4.3.10.7 Freeboard Requirements***

*Freeboard above the secondary flow level is required to cater for inaccuracies in flow estimation and practicable blockage/failure of the primary system.*

*The minimum freeboard above the calculated 1% AEP storm shall be:*

- a. 0.5m for habitable building floors, and,*
- b. 0.3m for commercial and industrial buildings,*

*Unless specific assessment demonstrates that a different freeboard is appropriate.*

*Minimum floor levels shall be identified for all lots within the area of the site where flood risks are for 1% AEP or lesser event. This assessment shall consider flooding caused by different sources including:*

- c. Rivers,*
- d. Tides,*
- e. Elevated groundwater, and*
- f. Surface water ponding.*

*Minimum floor levels in tidal areas shall be set by taking into consideration current information on natural hazards including storm surge, wave run-up tsunami, and sea level rise.*

*Development proposals shall demonstrate Safety in Design principles and may be required to provide for Escape routes from the flood hazardous areas/ properties within the development. The appropriate information shall be included in the engineering drawings.*

*The NRC Regional Policy Statement for Northland states that within the coastal environment:*

- Any new habitable dwelling has a minimum floor level of 3.3 m above One Tree Point datum on the east coast and 4.3 m above One Tree Point Datum on the west coast.*
- New non-habitable buildings will have a minimum floor level of 3.1 m above One Tree Point datum on the east coast and 4.1 m on the west coast.*

*However, specific assessment shall be carried out for all sites to determine the floor levels dependant on local conditions. Development proposals should include reference to the NRC Regional Policy Statement for Northland and NRC Coastal Flood Hazard Assessment for Northland Region Report."*

## 6.2 ASSESSMENT

### Minimum Finished Floor Level Requirements

In accordance with the freeboard requirements, the minimum finished floor levels for future proposed structures are as follows:

Habitable Structures	=	79.97m (NZVD2016)
Non-Habitable Structures	=	79.77m (NZVD2016)

The levels given are based on the supplied data by NRC and the DBP indicated by the client. If the DBP location is significantly altered then a review of the minimum FFL recommendations will be required. Final floor levels for future proposed dwellings should be confirmed by a registered surveyor to ensure compliance with the standards as outlined above.

### Wastewater Disposal Areas

Wastewater disposal areas are to be situated outside the 5% AEP Flood Extent, as is required under Table 9 of the Proposed Regional Plan for Northland.

## 6.3 FLOODING CONCLUSIONS

The indicatively proposed building, accessway and wastewater disposal areas are well clear and elevated from any mapped flood areas and levels. As such, it is expected that flooding will not negatively impact future development of the proposed Lot 1.

In terms of the Section 71/72 of the Building Act:

Based on our assessment of the current flood projections the site will be subject to some river flooding and overland flows; however, based on our current understanding of the development and recommendations, flood levels are expected to be well away from the proposed development and below the proposed floor level. The building work combined with the recommendations will not accelerate, worsen or result in flooding on the site or neighbouring properties.

We therefore conclude that the works can be done to comply with Section 71 of the Building Act and a Section 72 is not required.

## 7 WASTEWATER

No existing wastewater management system is present within proposed Lot 1. As such, a new site-specific design in accordance with the ASNZS: 1547 / TP58 design manual will be required by FNDC for any future development within the proposed lot. This should be conditioned as part of the Resource Consent process.

### 7.1 DESIGN PARAMETERS

The following table is intended to be a concise summary of the design parameters, which must be read in conjunction with the relevant report sections as referenced herein.

As no development proposals are available at this stage for the eventual residential development within Lot 1, our recommendations have been based on a moderate size dwelling containing 4 bedrooms.

Given the subsoils encountered during WJL's fieldwork investigation, we recommend secondary treatment or higher for any new wastewater treatment system within the proposed lot; however, a primary treatment system may also be feasible subject to specific design per the relevant standards.

### 7.1.1 Summary of Preliminary Design Parameters for a PCDI Secondary Treatment System

Development Type:	Residential Dwellings
Effluent Treatment Level:	Secondary (<BOD5 20 mg/L, TSS 30 mg/L)
Fill Encountered in Disposal Areas:	No
Water Source:	Rainwater Collection Tanks
Site Soil Category (TP58):	Category 5– Clayey SILT –Moderate Drainage
Estimate House Occupancy:	6 Persons
Loading Rate:	PCDI System – 4mm/day
Estimated Total Daily Wastewater Production:	1,080L
Typical Wastewater Design Flow Per Person:	180L/pp/pd (Estimated – introduction of water conservation devices may enable lower design flows)
Application Method:	Surface Laid PCDI Lines
Loading Method:	Dosed
Minimum Tank size:	>1,080L
Emergency Storage:	24 hours
Estimated Min. Disposal Area Requirement:	270m <sup>2</sup>
Required Min. Reserve Area:	50%
Buffer Zone:	Not anticipated to be required
Cut-off Drain:	Recommended – refer to Site Plan (137962-C001)

## 7.2 REQUIRED SETBACK DISTANCES

The disposal and reserve areas must be situated outside the relevant exclusion areas and setbacks described within Table 9 of the PRPN: Exclusion areas and setback distances for on-site domestic wastewater systems:

Feature	Primary treated domestic type wastewater	Secondary and tertiary treated domestic type wastewater	Greywater
<i>Exclusion areas</i>			
Floodplain	5 percent annual exceedance probability	5 percent annual exceedance probability	5 percent annual exceedance probability
<i>Horizontal setback distances</i>			
Identified <b>stormwater</b> flow path (including a formed road with kerb and channel, and water-table drain) that is down-slope of the disposal area	5 metres	5 metres	5 metres
River, lake, stream, pond, <b>dam</b> or <b>natural wetland</b>	20 metres	15 metres	15 metres
Coastal marine area	20 metres	15 metres	15 metres
Existing water supply <b>bore</b>	20 metres	20 metres	20 metres
<b>Property</b> boundary	1.5 metres	1.5 metres	1.5 metres
<i>Vertical setback distances</i>			
Winter groundwater table	1.2 metres	0.6 metres	0.6 metres

Figure 8: Table 9 of the PRPN (Proposed Regional Plan for Northland).

## 7.3 NORTHLAND REGIONAL PLAN ASSESSMENT

Any future wastewater disposal system should meet the compliance points below, stipulated within Section C.6.1.3 of the Proposed Regional Plan for Northland:

C.6.1.3 Other on-site treated domestic wastewater discharge– permitted activity	
The discharge of domestic type wastewater into or onto land from an on-site system and the associated discharge of odour into air from the on-site system are permitted activities, provided:	
#	Rule
1	The on-site system is designed and constructed in accordance with the Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012), and
2	The volume of wastewater discharged does not exceed two cubic metres per day, and
3	The discharge is not via a spray irrigation system or deep soakage system, and

4	The slope of the disposal area is not greater than 25 degrees, and
5	The wastewater has received secondary or tertiary treatment and is discharged via a trench or bed in soil categories 3 to 5 that is designed in accordance with Appendix L of Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012); or is via an irrigation line system that is:
	<ul style="list-style-type: none"> <li>a) dose loaded, and</li> <li>b) covered by a minimum of 50 millimetres of topsoil, mulch, or bark, and</li> </ul>
6	For the discharge of wastewater onto the surface of slopes greater than 10 degrees:
	<ul style="list-style-type: none"> <li>a) the wastewater, excluding greywater, has received at least secondary treatment, and</li> <li>b) the irrigation lines are firmly attached to the disposal area, and</li> <li>c) where there is an up-slope catchment that generates stormwater runoff, a diversion system is installed and maintained to divert surface water runoff from the up-slope catchment away from the disposal area, and</li> <li>d) a minimum 10 metre buffer area down-slope of the lowest irrigation line is included as part of the disposal area, and</li> <li>e) the disposal area is located within existing established vegetation that has at least 80 percent canopy cover, or</li> <li>f) the irrigation lines are covered by a minimum of 100 millimetres of topsoil, mulch, or bark, and</li> </ul>
	the disposal area and reserve disposal area are situated outside the relevant exclusion areas and setbacks in Table 9: Exclusion areas and setback distances for on-site domestic wastewater systems, and
	for septic tank treatment systems, a filter that retains solids greater than 3.5 millimetres in size is fitted on the outlet, and
	the following reserve disposal areas are available at all times:
	<ul style="list-style-type: none"> <li>a) 100 percent of the existing effluent disposal area where the wastewater has received primary treatment or is only comprised of greywater, or</li> <li>b) 30 percent of the existing effluent disposal area where the wastewater has received secondary treatment or tertiary treatment, and</li> </ul>
10	the on-site system is maintained so that it operates effectively at all times and maintenance is undertaken in accordance with the manufacturer's specifications, and
11	the discharge does not contaminate any groundwater water supply or surface water, and
12	there is no surface runoff or ponding of wastewater, and
13	there is no offensive or objectionable odour beyond the property boundary.

We envision that there will be no issue meeting the Permitted Activity Status requirements as outlined above.

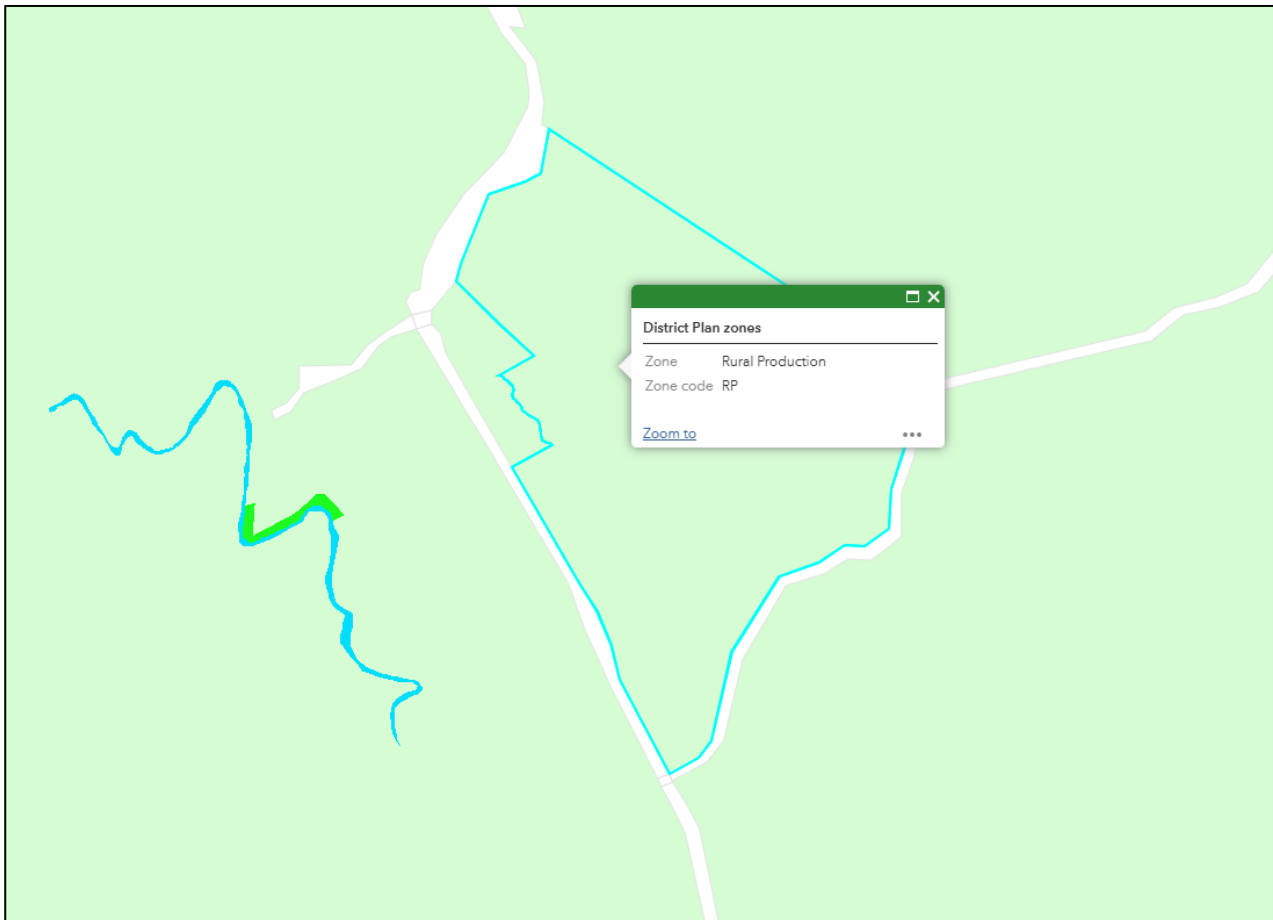


## 8 STORMWATER MANAGEMENT

### 8.1 ASSESSMENT CRITERIA

The site lies within the Far North District. The stormwater assessment has been completed in accordance with the recommendations and requirements contained within the Far North District Engineering Standards and the Far North District Council District Plan.

As below, the site resides in a Rural Production Zone.



*Figure 9: Snip of FNDC Maps Showing Site in Rural Production Zone.*

The following Stormwater Management Rules Apply:

**Permitted Activity:** 8.6.5.1.3 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 15%.

**Controlled Activity:** 8.6.5.2.1 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 20%.

To comply with the parameters of the Permitted Activity Rule (8.6.5.1.3), Lot 1 must not exceed an impermeable area of 15%. The maximum permitted impermeable area for Lot 1 is ~12,000m<sup>2</sup>.

Given the above, it is expected that any residential future development of Lot 1 would comfortably comply with Permitted Activity Rule (8.6.5.1.3). As such, it is not expected that a stormwater attenuation report will be required for any future residential development of Lot 1.

To appropriately mitigate stormwater runoff from the existing and future proposed impermeable areas, we recommend utilising Low Impact Design Methods as a means of stormwater management. Design guidance should be taken from 'The Countryside Living Toolbox' design document, and where necessary, 'Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual' Auckland Regional Council (2003).

Stormwater management recommendations for Lot 1 are provided below.

## 8.2 PRIMARY STORMWATER

### 8.2.1 Stormwater Runoff from Roof Areas

Stormwater runoff from the roof of the future buildings must be captured by a gutter system and conveyed to potable water tanks.

Discharge and overflow from the potable water tanks should be directed to a dispersal device within proposed Lot 1 unless the discharge is directed to an open channel, where an appropriate riprap outlet is required for erosion control. The dispersal device or discharge point should be positioned on/in stable ground downslope of any buildings and effluent fields, with setback distances as per the relevant standards.

### 8.2.2 Stormwater Runoff from Hardstand Areas

It is recommended to shape future proposed hardstand areas to shed runoff to large, vegetated areas and / or to stormwater catchpits for runoff conveyance to the lot's stormwater dispersal device / discharge outlet.

Long driveways or Right of Ways should be shaped to shed runoff to lower-lying grassed areas, well clear of any structures and effluent disposal trenches / fields. This stormwater runoff should sheet flow and must not be concentrated to avoid scour and erosion. Runoff passed through grassed areas will be naturally filtered of entrained pollutants and will act to mitigate runoff by way of ground recharge and evapotranspiration.

Where even sheet flow is not practicable, concentrated flows must be managed with swales directed to a safe outlet location without causing erosion. These should be sized to manage and provide capacity for secondary flows and mitigate flow velocity where appropriate.

Due to water quality concerns, runoff resulting from hardstand areas should not be allowed to drain to the potable water tanks.

## 8.3 SECONDARY STORMWATER

Where required, overland flows and similar runoff from higher ground should be intercepted by means of shallow surface drains or small bunds near structures to protect these from both saturation and erosion.

## 8.4 DISTRICT PLAN ASSESSMENT

This section has been prepared to demonstrate the likely effects of the activity on stormwater runoff and the means of mitigating runoff.

In assessing an application under this provision, the Council will exercise discretion to review the following matters below, (a) through (r). In respect of matters (a) through (r), we provide the following comments:

### 13.10.4 – Stormwater Disposal

<i>(a) Whether the application complies with any regional rules relating to any water or discharge permits required under the Act, and with any resource consent issued to the District Council in relation to any urban drainage area stormwater management plan or similar plan.</i>	No discharge permits are required. No resource consent issued documents stipulating specific requirements are known for the subject site or are anticipated to exist.
<i>(b) Whether the application complies with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009 (to be used in conjunction with NZS 4404:2004).</i>	The application is deemed compliant with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009

<p><i>(c) Whether the application complies with the Far North District Council Strategic Plan - Drainage.</i></p>	<p>The application is deemed compliant with the Far North District Council Strategic Plan - Drainage</p>
<p><i>(d) The degree to which Low Impact Design principles have been used to reduce site impermeability and to retain natural permeable areas.</i></p>	<p>Stormwater management should be provided for the subject lot by utilising Low Impact Design Methods. Guidance for design should be taken from 'The Countryside Living Toolbox' design document, and where necessary, "Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual" Auckland Regional Council (2003). All roof runoff will be collected by rainwater tanks for conveyance to a safe outlet point. Hardstand areas should either be shaped to shed to lower-lying lawn areas as passive mitigation, or to swales for runoff conveyance to a safe outlet location.</p>
<p><i>(e) The adequacy of the proposed means of disposing of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces.</i></p>	<p>As above. Runoff from new roof areas will be collected, directed to rainwater tanks and discharged in a controlled manner to a discharge outlet, reducing scour and erosion. Hardstand areas should either be shaped to shed to lower-lying lawn areas as passive mitigation, or to swales for runoff conveyance to a safe outlet location.</p>
<p><i>(f) The adequacy of any proposed means for screening out litter, the capture of chemical spillages, the containment of contamination from roads and paved areas, and of siltation.</i></p>	<p>Runoff from roof areas is free of litter, chemical spillages, or contaminants from roads. Future proposed hardstand areas are best shaped to shed to large pasture areas via sheet flow to ensure that runoff does not concentrate. Large downslope pasture areas act as bio-filter strips to filter out entrained pollutants.</p>
<p><i>(g) The practicality of retaining open natural waterway systems for stormwater disposal in preference to piped or canal systems and adverse effects on existing waterways.</i></p>	<p>No alteration to waterways is proposed.</p>
<p><i>(h) Whether there is sufficient capacity available in the Council's outfall stormwater system to cater for increased run-off from the proposed allotments.</i></p>	<p>No applicable.</p>
<p><i>(i) Where an existing outfall is not capable of accepting increased run-off, the adequacy of proposals and solutions for disposing of run-off.</i></p>	<p>Not applicable.</p>
<p><i>(j) The necessity to provide on-site retention basins to contain surface run-off where the capacity of the outfall is incapable of accepting flows, and where the outfall has limited capacity, any need to restrict the rate of discharge from the subdivision to the same rate of discharge that existed on the land before the subdivision takes place.</i></p>	<p>Not applicable.</p>

<i>(k) Any adverse effects of the proposed subdivision on drainage to, or from, adjoining properties and mitigation measures proposed to control any adverse effects.</i>	Outlet locations are to be determined during detailed design and are to be located such that there are no adverse effects on adjacent properties.
<i>(l) In accordance with sustainable management practices, the importance of disposing of stormwater by way of gravity pipe lines. However, where topography dictates that this is not possible, the adequacy of proposed pumping stations put forward as a satisfactory alternative.</i>	Not applicable.
<i>(m) The extent to which it is proposed to fill contrary to the natural fall of the country to obtain gravity outfall; the practicality of obtaining easements through adjoining owners' land to other outfall systems; and whether filling or pumping may constitute a satisfactory alternative.</i>	Not applicable.
<i>(n) For stormwater pipes and open waterway systems, the provision of appropriate easements in favour of either the registered user or in the case of the Council, easements in gross, to be shown on the survey plan for the subdivision, including private connections passing over other land protected by easements in favour of the user.</i>	Not applicable.
<i>(o) Where an easement is defined as a line, being the centre line of a pipe already laid, the effect of any alteration of its size and the need to create a new easement.</i>	Not applicable.
<i>(p) For any stormwater outfall pipeline through a reserve, the prior consent of the Council, and the need for an appropriate easement.</i>	Not applicable.
<i>(q) The need for and extent of any financial contributions to achieve the above matters.</i>	Not applicable.
<i>(r) The need for a local purpose reserve to be set aside and vested in the Council as a site for any public utility required to be provided.</i>	Not applicable.

## 9 POTABLE WATER SUPPLY

For future development at the proposed lots, potable rainwater tanks should be provided in accordance with the Countryside Living Toolbox requirements. It is recommended to provide at least 2 x 25,000L tanks for potable water usage. The type of tank and volume is for the client to confirm.

## 10 ACCESS AND VEHICLE CROSSING

### 10.1 GENERAL

It is proposed to construct a new vehicle crossing directly off Salvation Road to service Lot 1.

New vehicle crossings and accessways are to be designed and constructed in accordance with Council's Engineering Standards and Guidelines.



Figure 10: Lot 1 Proposed Access Point.



Figure 11: Lot 1 Proposed Access Point - Streetview.

## 10.2 VEHICLE CROSSINGS

It is recommended to construct the new vehicle crossing to service Lot 1 to be in compliance with the Far North District Council Engineering Standards (2009) Sheet FNDC / S / 6B.

The crossing shall not obstruct any drainage facilities within the berm. Where the drain is shallow and only carries low rain flow, the crossing must pass through the drain. Where the drain is an unstable shape or carries significant rain flow the drain shall be piped under the crossing. Pipes and end treatments shall be sized appropriately for the catchment intercepted but shall be a minimum 300mmØ.

## 10.3 VEHICLE ACCESS

The Far North District Plan Section 15.1.6C.1.5 notes that *“All bends and corners on the private accessway are to be constructed to allow for the passage of a Heavy Rigid Vehicle” and “Runoff from impermeable surfaces shall, wherever practicable, be directed to grass swales and/or shall be managed in such a way as will reduce the volume and rate of stormwater runoff and contaminant loads.”.*

Any future accessway is recommended to be constructed in accordance with the Far North District Council Engineering Standards (2009).

## 10.4 PASSING BAYS

Passing bays are to be constructed on the accessway in accordance with the requirements of the Far North District Plan Section 15.1.6C.1.3, which states the following:

### ***“15.1.6C.1.3 PASSING BAYS ON PRIVATE ACCESSWAYS ALL ZONES***

- (a) Where required, passing bays on private accessways are to be at least 15m long and provide a minimum usable access width of 5.5m.*
- (b) Passing bays are required:
  - i. In rural and coastal areas at spacings not exceeding 100m;*
  - ii. On all blind corners in all zones at locations where the horizontal and vertical alignment of the private accessway restricts the visibility.**
- (c) All accesses servicing 2 or more sites shall provide passing bays and vehicle queuing space at the vehicle crossing to the legal road.”*

## 10.5 SIGHT DISTANCES

Salvation Road has a general operating speed of 100km/hr (NZTA National Speed Limits Register). The Far North District Council Engineering Standards (2009) – Sheet FNDC / S / 6 notes that the minimum required sight distance is 170m.

In compliance with the above sight distance requirements, the proposed access point to service Lot 3 allows for >170m of sight distance to the northeast and southwest.



Figure 12: Indicative Sight Distance from Proposed Access Point on Salvation Road Facing Northeast, >170m Sight Distance Available.



Figure 13: Indicative Sight Distance from Proposed Access Point on Salvation Road Facing Southwest, >170m Sight Distance Available.

## 11 LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource Consent application.

This report has been commissioned solely for the benefit of our client, **Kevin Coombridge**, in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions, and limitations, when issuing the subject consent.

Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred back to us for further evaluation. Copyright of Intellectual Property remains with Wilton Joubert Limited, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other civil aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

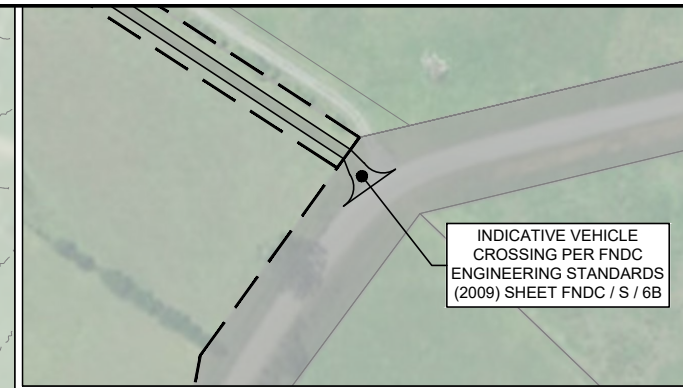
Yours faithfully,

**WILTON JOUBERT LIMITED**

### Enclosures:

- Site Plan – C001 (1 sheet)
- Hand Auger Borehole Records (3 sheets)
- NRC Flood Level Report (6 sheets)





- NOTES:**
1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
  2. ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION.
  3. CONTOURS & LOCAL SERVICES ARE SHOWN INDICATIVELY ONLY.

**WILTON JOUBERT**  
Consulting Engineers

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Christchurch: 021 824 063  
Wanaka: 03 443 6209  
www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
01	JAN '25	GMB	CIVIL SITE SUITABILITY REPORT

DESIGNED BY:  
GMB

DRAWN BY:  
GMB

CHECKED BY:  
BGS

SURVEYED BY:  
N/A

**SERVICES NOTE**  
WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

**RESOURCE CONSENT**  
DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:  
**SITE PLAN**

PROJECT DESCRIPTION:  
**STORMWATER MITIGATION REPORT**

PROJECT TITLE:  
**PROPOSED SUBDIVISION OF LOT 2 DP 314590 1698 STATE HIGHWAY 10 TOTARA NORTH NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: OREWA
DRAWING SCALE: 1:2000	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 137962-C001	ISSUE: 01
COPYRIGHT - WILTON JOUBERT LIMITED	





# HAND AUGER : HA03

JOB NO.: 137691 SHEET: 1 OF 1

START DATE: 18/12/2024 NORTHING: GRID:

DIAMETER: 50mm EASTING:

SV DIAL: 1994 ELEVATION: Ground

FACTOR: 1.4 DATUM:

CLIENT: Kevin Coombridge  
PROJECT: Geotechnical investigation for 2-Lot subdivision

SITE LOCATION: 1698 State Highway 10, Totara North

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE				COMMENTS, SAMPLES, OTHER TESTS
					PEAK STRENGTH (kPa)	REMOULD STRENGTH (kPa)	SENSITIVITY	DCP - SCALA (Blows / 100mm)	
Topsoil	TOPSOIL, dark brown, dry.		0.2						
Undifferentiated Tangihua Complex in Northland Allocthon	NATURAL: Slightly Clayey SILT, brown, very stiff, dry, low plasticity, trace weakly and strongly cemented clast inclusions.		0.4						
			0.6		UTP	-	-		
	0.7m: Becoming orangey brown.		0.8						
			1.0		196+	-	-		
			1.2						
			1.4		137	53	2.6		
	1.5m: Becoming moist.		1.6						
			1.8		196+	-	-		
			2.0						
	2.0m: Becoming stiff.		2.2		98	34	2.9		
	Clayey SILT, orangey brown with red and grey mottles, stiff, wet, medium plasticity, trace weakly and strongly cemented clast inclusions.		2.4						
			2.6		70	28	2.5		
			2.8						
	2.8m: Becoming very stiff.		3.0		165	20	8.2		
			3.2						
			3.4		106	17	6.2		
			3.6						
			3.8		151	31	4.9		
		4.0							
4.0m: Becoming stiff.		4.2		73	22	3.3			
		4.4							
4.4m: Becoming very stiff.		4.6		146	39	3.7			
		4.8							
		5.0		137	39	3.5			
		5.2					3		
		5.4					3		
		5.6					3		
		5.8					4		
		6.0					5		
		6.2					5		
		6.4					6		
		6.6					7		
		6.8					8		
							10		

EOH: 5.00m - Target Depth.

**REMARKS**

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

▼ Standing groundwater level

CHECKED BY: SJP

▽ GW while drilling



185 Waipapa Road, Kerikeri 0295  
Phone: 09-945 4188  
Email: jobs@wjl.co.nz  
Website: www.wiltonjoubert.co.nz

# Flood Level Report



**Parcel ID: 6625150**

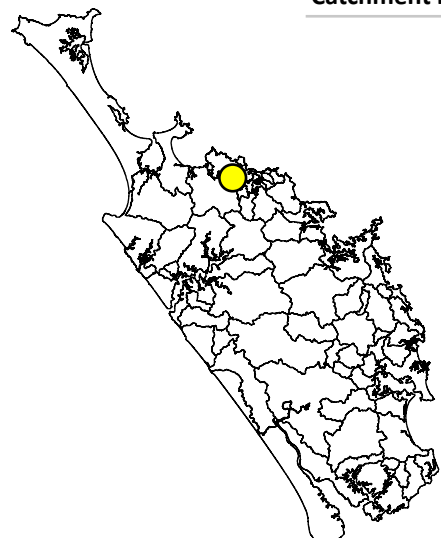
Title: 57741

Appellation: Lot 2 DP 314590

Survey Area: 636,500 m<sup>2</sup>

**Catchment Name(s)**

Oruru





## Useful Flood Information Definitions

**Annual Exceedance Probability (AEP)** - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

**1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.

**2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.

**5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.

**10% AEP** - A flood of this size or larger has a 1 in 10 chance or a 10% probability of occurring in any year.

**NZVD2016 - New Zealand Vertical Datum** - The reference level used in our flood models to define ground level.

**Flood Levels** - Flood levels are used from our modelled flood level rasters. The flood levels are calculated above NZVD 2016 Datum.

**Climate Change (CC)** - NZCPS (2010) requires that the identification of coastal hazards includes consideration of sea level rise over at least a 100-year planning period. Climate change impacts, such as increased rain intensity, have been included in the flood scenarios. You can read more about the Climate Change forecasts included in each flood model in the technical reports on the NRC website.

**Mean high water spring (MHWS)** - describes the highest level that spring tides reach, on average.

## Coastal Flood Hazard Zones (CFHZ)

Coastal flood hazard zones are derived using a range of data including tide gauge analysis, wind and wave data and models, and use empirical calculations to estimate extreme water levels around the coastline. The calculations include projected sea level rise scenarios based on the latest Ministry for the Environment guidance.

**CFHZ 0** Coastal Flood Hazard Zone 0 - area currently susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event

**CFHZ 1** Coastal Flood Hazard Zone 1 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-50 year storm event, taking into account a projected sea-level rise of 0.6m over the next 50 years

**CFHZ 2** Coastal Flood Hazard Zone 2 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event, taking into account a projected sea-level rise of 1.2m over the next 100 years

**CFHZ 3** Coastal Flood Hazard Zone 3 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-100 year storm event, taking into account a projected sea-level rise of 1.5m over the next 100 years (rapid sea level rise scenario)

---

## REGIONWIDE and PRIORITY - RIVER FLOOD HAZARD ZONES (RFHZ)

River flood hazard zones are created to raise awareness of where flood hazard areas are identified, inform decision-making and to support the minimisation of the impacts of flooding in our region. The river flood hazard zones have been created using an assessment of best current available information, engaging national and international experts in the field, using national standards and guidelines and has been peer reviewed. This will provide a good indication of the areas at potential risk of flooding from a regional perspective. However, flood mapping is a complex process which involves some approximation of the natural features and processes associated with flooding.

**River Flood Hazard Zone 1** – 10% AEP flood extent: an area with a 10% chance of flooding annually

**River Flood Hazard Zone 2** – 2% AEP flood extent: an area with a 2% chance of flooding annually

**River Flood Hazard Zone 3** – 1% AEP flood extent: an area with a 1% chance of flooding annually with the inclusion of potential Climate Change (CC) impact



Maximum	Minimum
89.17 m	74.08 m

Max Min flood levels are for the raster extent shown on the map

### 10 Year

m NZVD

- 74.08 - 75.588
- 75.589 - 77.098
- 77.099 - 78.607
- 78.608 - 80.116
- 80.117 - 81.625
- 81.626 - 83.135
- 83.136 - 84.644
- 84.645 - 86.153
- 86.154 - 87.663
- 87.664 - 89.172

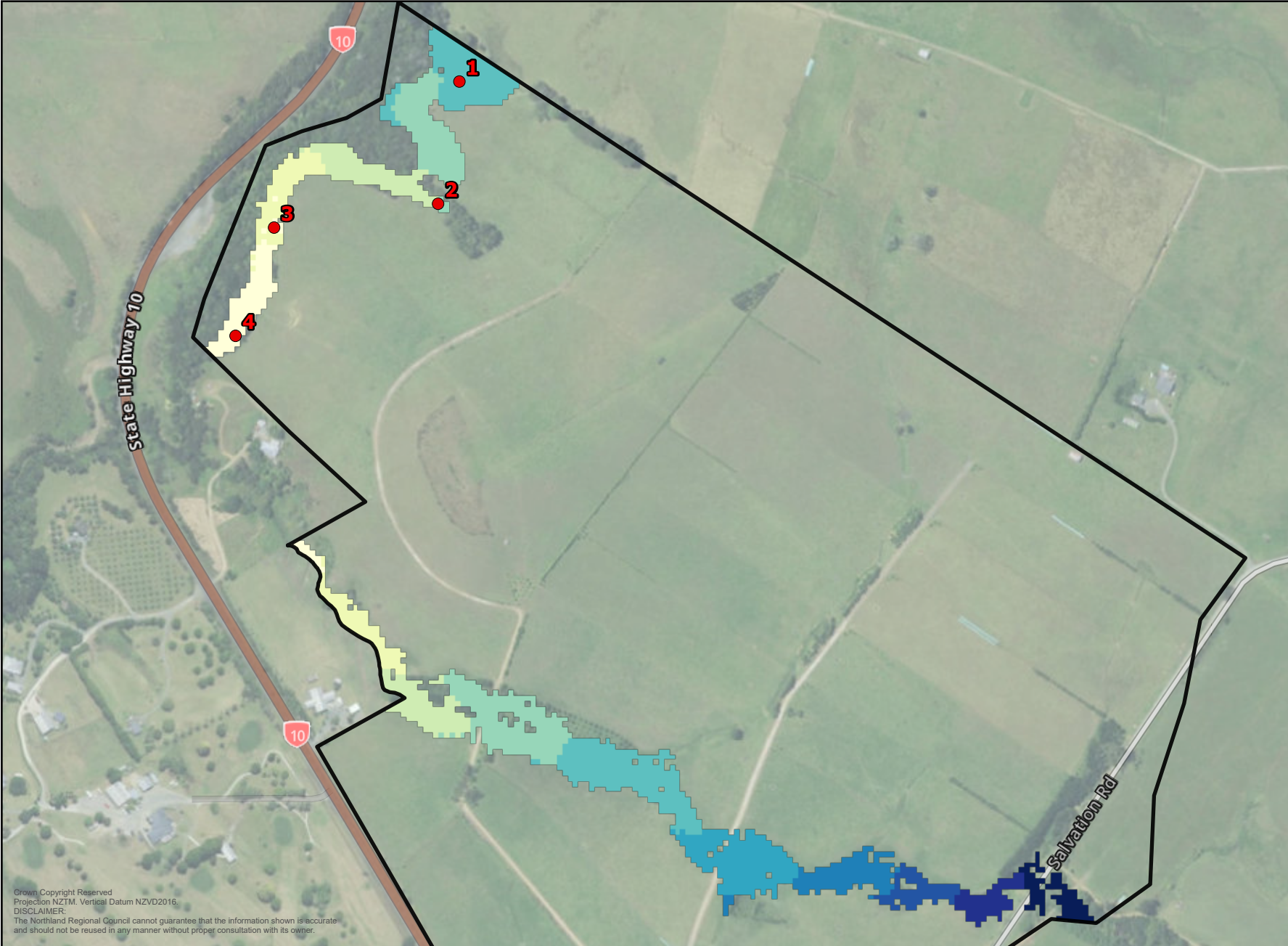
Parcel

● Flood Level Point

Label	Level
1	80.22 m
2	78.61 m
3	75.46 m
4	74.98 m

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Projection NZTM, Vertical Datum NZVD2016.  
DISCLAIMER:  
The Northland Regional Council cannot guarantee that the information shown is accurate  
and should not be reused in any manner without proper consultation with its owner.





Maximum	Minimum
89.29 m	74.38 m

Max Min flood levels are for raster extent shown on the map

### 50 Year

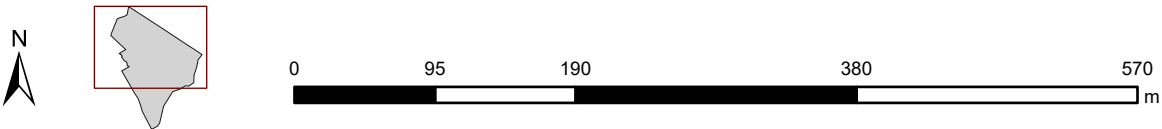
m NZVD

- 74.383 - 75.873
- 75.874 - 77.363
- 77.364 - 78.854
- 78.855 - 80.345
- 80.346 - 81.836
- 81.837 - 83.326
- 83.327 - 84.817
- 84.818 - 86.308
- 86.309 - 87.798
- 87.799 - 89.289

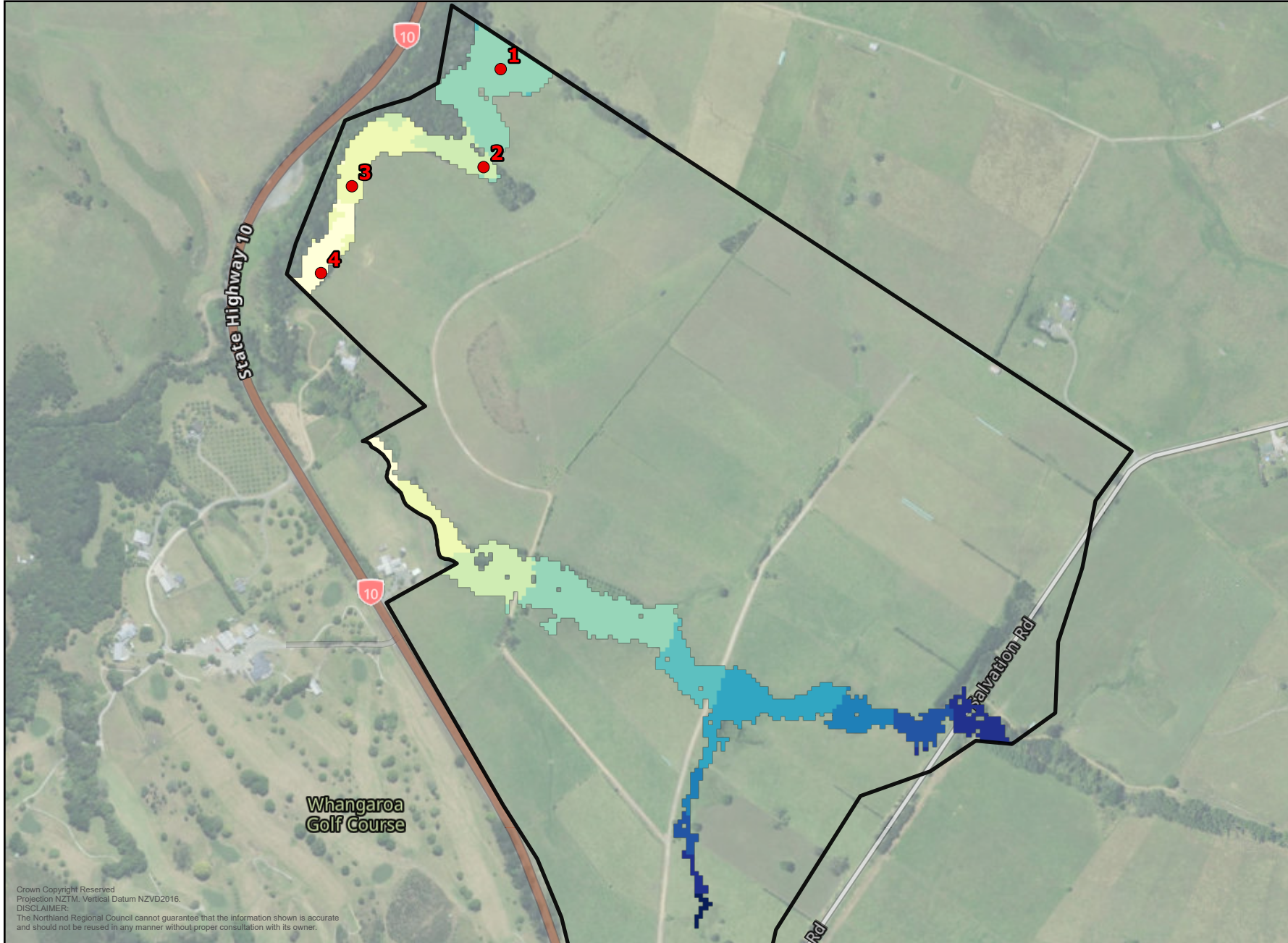
- Parcel
- Flood Level Point

Label	Level
1	80.6 m
2	78.81 m
3	75.86 m
4	75.42 m

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Maximum	Minimum
91.13 m	74.82 m

Max Min flood levels are for raster extent shown on the map

### 100 Year + CC

m NZVD

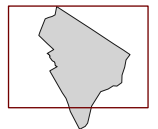
- 74.821 - 76.451
- 76.452 - 78.082
- 78.083 - 79.713
- 79.714 - 81.344
- 81.345 - 82.974
- 82.975 - 84.605
- 84.606 - 86.236
- 86.237 - 87.867
- 87.868 - 89.498
- 89.499 - 91.129

Parcel

● Flood Level Point

Label	Level
1	81.19 m
2	79.47 m
3	76.59 m
4	76.01 m

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# Disclaimers

Our modelling disclaimers are linked below:

<https://www.nrc.govt.nz/media/ko2dkgxn/coastal-hazard-maps-disclaimer-june-2017.pdf>

<https://www.nrc.govt.nz/media/cqnnw12y/flood-map-disclaimer-2021.pdf>

Our regionwide modelling reports are linked below:

<https://www.nrc.govt.nz/environment/river-flooding-and-coastal-hazards/river-flooding/river-flood-hazard-maps/regionwide-river-catchments-analysis-technical-reports>

## ARE YOU FLOOD READY?



01

### Know your risk

Check what potential flood risks and other hazards that may impact your property.

The Natural Hazards Portal is a great place to start. It's a 'one-stop-shop' of information related to natural hazards within our region:

[www.nrc.govt.nz/environment/natural-hazards-portal](http://www.nrc.govt.nz/environment/natural-hazards-portal)

The Environmental Data Hub provides river level and flow data, as well as warning levels, rainfall data, water quality, and more:

[www.nrc.govt.nz/environment/environmental-data/environmental-data-hub](http://www.nrc.govt.nz/environment/environmental-data/environmental-data-hub)

02

### Have a plan

Make sure you have an evacuation plan, emergency kit and important phone numbers ready. Check out: <https://getready.govt.nz/en/prepared/> for tips on how to get ready.

03

### Stay up to date

In a civil defence emergency situation, follow the updates on the Northland CDEM Group's Facebook page:

[www.facebook.com/civildefencenorthland](http://www.facebook.com/civildefencenorthland)

Or follow updates from the embedded feed on the regional council website: [www.nrc.govt.nz/civildefence](http://www.nrc.govt.nz/civildefence)

04

### In an emergency

Remember, if life is threatened dial 111 to contact emergency services.