THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 9199.1 (FNDC)

27 June 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed Subdivision at 660 Taupo Bay Road – Geoff Lodge

I am pleased to submit application on behalf of Geoff Lodge, for a proposed subdivision at Taupo Bay Road. The application is zoned Rural Production with a small portion of Outstanding Landscape to be within a 20ha lot. The application is a restricted discretionary activity.

The application fee of $6,650 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

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Background picture represents a New Zealand surveying trig station, used to beacon control survey marks

Te Kaunihera o Te Hiku o te Ika
Far North District Council

Office Use Only
Application Number:

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):

- ◯ **Land Use**
- ◯ **Fast Track Land Use***
- ✓ **Subdivision**
- ◯ **Consent under National Environmental Standard** (e.g. Assessing and Managing Contaminants in Soil)
- ◯ **Discharge**
- ◯ **Change of Consent Notice (s.221(3))**
- ◯ **Extension of time (s.125)**
- ◯ **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

5. Applicant Details

Name/s: Geoff Lodge

Email: [redacted]

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: Lynley Newport

Email: [redacted]

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: as per item 5 above

Property Address/ Location:

Postcode

8. Application Site Details

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

Name/s: as per item 5

Site Address/ Location: 660 Taupo Bay Road

Postcode

Legal Description: Lot 8 DP 457532 **Val Number:**

Certificate of title: 593336

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 prior to any 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 the Rural Production Zone, creating 12lots of 12ha or greater, with one lot in excess of 20ha, as a restricted discretionary activity.

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** Enter BC ref # here (if known)
- ◯ **Regional Council Consent (ref # if known)** Ref # here (if known)
- ◯ **National Environmental Standard consent** Consent here (if known)
- ◯ **Other (please specify)** Specify 'other' here

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.

Name/s: (please write in full) Geoff Lodge

Email: [redacted]

Phone number: [redacted]

Postal address:
(or alternative method of service under section 352 of the act) [redacted]

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.

Name: (please write in full) G. B. Lodge

Signature: [redacted]
(signature of bill payer) MANDATORY

Date 26/6/2025

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. 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) G&R Lodge

Signature: [redacted] Date 26/6/2025.

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

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.

Geoff Lodge

PROPOSED SUBDIVISION
PURSUANT TO
FNDC OPERATIVE DISTRICT PLAN

660 Taupo Bay Road

PLANNER'S REPORT &
ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 THE PROPOSAL

The applicant proposes to subdivide their land at Taupo Bay Road, zoned Rural Production, into 12 lots of minimum size 12ha rural blocks. There is a small area of Outstanding Landscape within the application site and the lot containing that area is over 20ha in area. The proposal will result in three separate crossings off Taupo Bay Road, one of which is existing, providing access to an existing residential dwelling within the overall site – proposed Lot 6.

Lot areas range from 12ha to 25ha – refer to scheme plan(s) attached in Appendix 1. This is consistent with the Operative District Plan's restricted discretionary activity minimum lot size

for the Rural Production Zone and meets the controlled activity minimum lot size for a lot containing Outstanding Landscape (Lot 10).

Internal to the site, rear lots will be accessed via ROW's constructed to the standard specified in the Site Suitability Report supporting the application – Refer to Appendix 5.

1.2 Scope of this Report

This assessment and report accompanies the Resource Consent Application made by the applicant, and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent for a restricted discretionary activity subdivision. The information provided in this assessment and report is considered commensurate with the scale and intensity of the activity for which consent is being sought. Applicant details are contained within the Application Form 9.

2.0 PROPERTY DETAILS

Location:	660 Taupo Bay Road - location map in Appendix 2
Legal descriptions & RT's:	Lot 8 DP 457532; 168.929ha in area.
Records of Title:	593336, copy attached in Appendix 3.

3.0 SITE DESCRIPTION

3.1 Site Characteristics

The site is situated on the southern side of Taupo Bay Road. The topography of the site is generally flat to gently sloping to the road, with elevations gradually decreasing towards low-lying areas. The site is currently pasture land, covered with rough grass and occasional vegetation.

The site is crossed by several shallow valleys and gullies that collect drainage into watercourses. There is an area of indigenous vegetation at the rear of the site (south western corner and highest point) protected by way of covenant/consent notice. This co-incides with the area identified as outstanding landscape and is entirely within proposed Lot 10.

Existing built structures are centrally located. There are existing farm gracks and culvert crossings present within the site.

The Site Suitability Report in Appendix 5 contains more details of the site's physical characteristics.

Looking across Lot 10's likely building platform towards rear property boundary (the treeline). Area of covenanted bush centre right in the gully.

Looking across top of Lot 2 towards Lot 3, with pine plantation on adjacent property showing property boundary.

Standing on approximate location of easement 'I', looking south across Lot 7 towards Lot 5 (the green pasture area at the rear).

The Operative District Plan (ODP) zones the site Rural Production with a small area of Outstanding Landscape in the south western corner, coinciding with the covenanted bush area. The land to the south, at higher elevations, is zoned Conservation.

The site is shown to contain an NZAA recorded Archaeological Site (P04/400) at its eastern end immediately adjacent to Taupo Bay Road. However, the site record form describes this as 'uphill of the Akatere-Taupo Bay Road' and given that the application site is all downhill from that road it is unlikely the site extends into the application land.

The portion of bush already subject to protective covenant is identified as a PNA on Far North Maps (small part of the contiguous forest area to the south known as "North Whangaroa PNA P04007). The land zoned Conservation on the site's southern boundary is DoC Public Conservation Land – Akatere Reserve (Source: Far North Maps). The site is mapped on the Far North Maps' Species Distribution layer as 'kiwi present', with the nearest 'high density' kiwi area 3.3km to the northwest.

The site exhibits LUC Class 4s3 on the northern half (more gently undulating slopes); LUC Class 4e3 through a central band; and then LUC Class 6e2 on the upper slopes in the south west.

The site, whilst containing several water courses and swamp areas, does not contain any biodiversity wetlands; Top 150 Wetlands, or Known Wetlands as mapped by the Northland Regional Council on their on-line maps.

The site is not mapped as containing any HAIL land or Selected Land Use Sites (Far North Maps and NRC online maps).

The Proposed District Plan (PDP) proposes a Rural Production zoning for the property and a small area mapped as Outstanding Natural Landscape (all within the area subject to bush protection).

The riparian margins of the water courses referred to earlier, are all mapped as being potentially subject to flood hazard. These areas closely follow the water courses and are narrow. They can be easily avoided.

The site is within a large area mapped on Far North Maps as a Treaty Settlement Area of Interest. There are no rules in either the ODP or PDP in regard to such land.

3.2 Legal Interests on Titles

The title is subject to a right of way marked D on DP 457532 specified in Easement Certificate D356948.3. This is to provide access across the grazing property to plantation forest at the rear on adjacent land. A short section of this existing easement will be utilised as part of shared access to proposed new lots, but not all (refer to Scheme Plan).

The site is subject to a right (in gross) to convey electricity over part marked G on DP 457532 in favour of Top Energy created by Easement Instrument 11487862.4. This is short section of easement alongside Taupo Bay Road to be within Lot 2.

The property is subject to a Council imposed Consent Notice 11487862.2. This was imposed in the subdivision resulting in DP 457532, with the application site being the large balance lot. All seven clauses in the Consent Notice apply to the application site and will automatically carry down onto every new title created.

Clause (i) relates to the requirement to obtain building consent and install a wastewater treatment and effluent disposal system as detailed in a report prepared by Haigh Workman in 2011. Whilst there might be an issue with the age of this report, the consent notice clause provides for an alternative report and design to be submitted for Council approval.

Clause (ii) advises lot owners that electricity supply was not a requirement of the subdivision and remains the responsibility of the lot owner, including for the operation of any on-site wastewater treatment or other device requiring electrical power to operate. This remains the case.

Clause (iii) advises of the Council's requirement for potable and fire fighting water supply and will carry down.

Clause (iv) requires the colour scheme for proposed buildings to be submitted at time of building consent, for Council's approval. Reflectance value is not to exceed 30%. This requirement will carry down onto all lots, albeit it seems odd to insist on this requirement where the lots are not zoned coastal and are not within an outstanding landscape.

Clause (v) requires a planting plan prepared by a suitably qualified and experienced landscape architect that identifies the means of mitigation of visual effects of built development located on or adjoining any ridgeline when viewed from Taupo Bay Road and earthworks associated with building works. This will carry over but is unlikely to be relevant for any proposed lot given they are all substantially below and away from the southern and eastern ridgelines.

Clause (vi) advises of the property being in a kiwi present zone and restricts the keeping of dogs to working dogs only, used specifically for stock management. It bans the keeping of cats and mustelids. This will carry down. All proposed lots are large enough to accommodate grazing stock.

Clause (vii) relates to the existing bush covenant area and will be relevant to Lot 10 only.

3.3 Consent History

The resource consent history of the property includes the following:

RC 2120169-RMASUB, issued in January 2012, for a five lot subdivision over two stages. This involved land now outside the application site.

RC 2120373-RMASUB, issued in July 2012, for a five lot subdivision where the large balance allotment would have been the application site for this current application.

Neither of the above were given effect to, and instead RC 2170033-RMASUB, issued in November 2016, was pursued. This created 10 lots in two stages (effectively same result as if the earlier two subdivisions were both given effect to), whereby Lot 8 of RC 2170033 became the application site for this current subdivision. A copy of RC 2170033-RMASUB is attached in Appendix 4.

RC 2300521-RMASUB was issued in May 2021 to split Lot 8 of RC 2170033 in half. It has not yet been given effect, and will not be once the current application is consented. A copy of RC 2300521 is attached as part of Appendix 4.

4.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

Clauses 2 & 3: Information required in all applications

(1) An application for a resource consent for an activity must include the following:	
(a) a description of the activity: .	Refer Sections 1 and 5 of this Planning Report.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this Planning Report.
(b) a description of the site at which the activity is to occur:	Refer to Section 3 of this Planning Report.
(c) the full name and address of each owner or occupier of the site:	This information is contained in the Form 9 attached to the application.
(d) a description of any other activities that are part of the proposal to which the application relates:	The application is for subdivision pursuant to the FNDC's ODP. As provided for in section 13.6.8, the application also includes consent for excavation/filling work required for subdivision site works, primarily construction of access roads.
(e) a description of any other resource consents required for the proposal to which the application relates:	No other consent under the ODP is required. The total area of exposed earth if all construction works is none at one time with no periodic re-vegetation or mulch cover, will exceed the Regional Plan's permitted area coverage. This consent, if required, will be pursued separately.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Section 7 of this Planning Report.
(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2): (*a) any relevant objectives, policies, or rules in a document; and* *(b) any relevant requirements, conditions, or permissions in any rules in a document; and*	Refer to Sections 5 and 7 of this Planning Report.

(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).	
(3) An application must also include any of the following that apply:	
(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):	Refer to section 5.
(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):	There is no existing resource consent. Not applicable.
(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).	The site is not within an area subject to a customary marine title group. Not applicable.
(4) An application for a subdivision consent must also include information that adequately defines the following:	
(a) the position of all new boundaries: *(b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:* *(c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips:* *(d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips:* *(e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A:* *(f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A):* *(g) the locations and areas of land to*	Refer to Scheme Plans in Appendix 1.

be set aside as new roads.	

Clause 6: Information required in assessment of environmental effects

(1) An assessment of the activity's effects on the environment must include the following information:	
(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:	Refer to Section 6 of this planning report. The activity will not result in any significant adverse effect on the environment.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this planning report.
(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	Not applicable as the application does not involve hazardous installations.
(d) if the activity includes the discharge of any contaminant, a description of— *(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and* *(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:*	The subdivision does not involve any discharge of contaminant.
(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:	Refer to Section 6 of this planning report.
(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:	Refer to Section 8 of this planning report. No affected persons have been identified.
g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:	No monitoring is required as the scale and significance of the effects do not warrant it.
(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or	No protected customary right is affected.

methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	

Clause 7: Matters that must be addressed by assessment of environmental effects (RMA)

(1) An assessment of the activity's effects on the environment must address the following matters:	
(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:	Refer to Sections 6 and 8 of this planning report and also to the assessment of objectives and policies in Section 7.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Section 6. The site has a small area of outstanding landscape, already subject to permanent protection and within a large lot of over 20ha in area.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 6. The subdivision will have no effect on ecosystems or habitat. A single area of bush within the site is already subject to protective covenant.
(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:	Refer to Section 6. The site has no aesthetic, recreational or scientific values that I am aware of, that will be adversely affected by the act of subdividing. The mapped archaeological site on the property (pit and terrace) is described as being uphill from Taupo Bay Road whereas the site is down hill from that road. In any event it is in an area that will not be developed.
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.
(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	The subdivision site is not subject to hazard. The proposal does not involve hazardous installations.

5.0 ACTIVITY STATUS

5.1 Operative District Plan

The site is zoned Rural Production, with a small portion of the site containing an Outstanding Landscape.

Table 13.7.2.1: Minimum Lot Sizes

(i) RURAL PRODUCTION ZONE

Controlled Activity Status (Refer also to 13.7.3)	Restricted Discretionary Activity Status (Refer also to 13.8)	Discretionary Activity Status (Refer also to 13.9)
The minimum lot size is 20ha.	1. The minimum lot size is 12ha; or 2. The minimum lot size is 12ha; or	1. The minimum lot size is 4ha; or 2. A maximum of 3 lots in any subdivision, provided ...

(xix) OUTSTANDING LANDSCAPE, OUTSTANDING LANDSCAPE FEATURES AND OUTSTANDING NATURAL FEATURES

Controlled Activity Status (Refer also to 13.7.3)	**Restricted Discretionary Activity Status (Refer also to 13.8)**	**Discretionary Activity Status (Refer also to 13.9)**
The minimum lot size is 20ha except in the General Coastal Zone.	The minimum lot size is 20ha in the General Coastal Zone.	1. For the Rural Production, General Coastal and Coastal Living Zones subdivision via a management plan as per Rule 13.9.2;

All lots are greater than 12ha in area and Lot 10 containing all of the Outstanding Landscape area is greater than 20ha. The subdivision is a **restricted discretionary** activity.

Other Rules:

In terms of zone rules (Rural Production) the only built development is within Lot 6 with the dwelling and its on-site services well internalised and some distance from proposed new boundaries. Similarly the assorted farm buildings to be in Lot 6 are well away from proposed boundaries.

In terms of District Wide rules, I have not identified any breaches resulting from the subdivision, nor for which any consent is required in advance of any development.

12.1 Landscape and Natural Features
Only a small portion of one of the lots is affected by an Outstanding Landscape notation. There is ample scope within that lot to build/development outside of the area identified and the subdivision does not require any subdivision site works within the area identified.

12.2 Indigenous Flora and Fauna
Subdivision site works does not require any clearance of indigenous vegetation.

12.3 Soils and Minerals
The volume threshold applying to the Rural Production Zone is 5,000m^3 . The total volume of earthworks required for internal roading and stormwater ponds, if all done at one time, is estimated at 9,384m^3 cut and 1,801m^3 fill. This exceeds the permitted threshold specified in Rule 12.3.6.1.1(a) and consent is required. It is within the zone's restricted discretionary threshold however. The average cut/fill face height will be complied with. The ODP provides for earthworks consent to be part of the subdivision consent – Rule 13.6.8 refers:

> ***SUBDIVISION CONSENT BEFORE WORK COMMENCES***
> *Except where prior consent has been obtained to excavate or fill land pursuant to rules under Section 12.3, or consent to vegetation clearance has been obtained pursuant to rules under Sections 12.1 or 12.2, and/or relevant consents have been obtained from the Regional Council,* ***no work, other than investigatory work, involving the disturbance of the land or clearance of vegetation shall be undertaken until a subdivision consent has been obtained. When the subdivision consent is granted, provided all the necessary calculations and assessment of effects is provided with the***

application, the subdivision consent application shall be deemed to include consent to excavate or fill land, and clear vegetation to the extent authorised by the consent and subject to any conditions in the consent. *Alternatively, an applicant may apply to add a land use consent application to the subdivision consent application, for any excavation/filling work and/or vegetation clearance. This does not exempt a consent holder from also obtaining any relevant resource consent or approvals from the Regional Council or the Heritage New Zealand Pouhere Taonga for earthworks, vegetation clearance or disturbance of an archaeological site.*

Supporting information in regard to effects of earthworks, can be found in the Site Suitability Report in Appendix 5. The earthworks volumes proposed are within the ODP's restricted discretionary activity threshold and including the earthworks consent in the subdivision consent does not change the category of activity, which remains restricted discretionary.

12.4 Natural Hazards

The ODP's natural hazards section only contains rule in regard to mapped coastal hazards, none of which affect the application site. The natural hazards section of the ODP also contains a rule in relation to maintaining a 20m minimum separation between residential units and areas of bush and shrubland. This is easily achievable on all lots.

12.5 Heritage

There are no heritage / cultural features that are mapped or scheduled in the ODP, within the application site. As such rules in Chapter 12.5 do not apply.

12.7 Lakes, Rivers, Wetlands and the Coastline

There are no lakes in excess of 8ha, nor rivers with an average width of 3m or more. The site does not adjoin the coastal marine area. In terms of setback from smaller rivers the required setback distance can be achieved. The rule exempts crossings (fords, bridges, stock crossings and culvert crossings). There are swampy areas within the property, some of which are grazed pasture, and some not, but most are less than 200m^2 in area and therefore not subject to Rule 12.7.6.1.3. There are a limited number of swamp/wetland areas that are bigger, within Lots 1, 2 and 4. There will be no works within any wetland in Lots 1 or 2 and the works proposed for Lot 4's culvert crossing is not within a wetland, with flowing water upstream and downstream.

The remainder of Chapter 12 is not relevant to the application.

Chapter 15.1 Traffic, Parking and Access

The traffic intensity rules apply to land uses proposed or existing on a "site". The rules are not applicable to a subdivision, albeit the likely increase in traffic movements and their impact on Council roading network is a relevant consideration in assessing the effects of a subdivision.

The parking requirements are also based on a "site" and a proposed or existing land use activity. It is not applicable to a subdivision where future land uses have not been determined. Notwithstanding this, with every lot in excess of 12ha in area, and access readily

achievable, I do not believe there to be any issues in regard to all lots being able to accommodate the required number of car park spaces (at time of building consent).

Relevant rules in 15.1.6C (Access) are assessed briefly below:

15.1.6C.1.1(a) requires private accessway to be undertaken in accordance with Appendix 3B-1. This will be done. Sight distances are achievable for the realistic operating speed of the road.
Part (c) of this same rules limits private accessway to serving a maximum of 8 household equivalents and part (d) requires any access serving 9 or more sites to be public road. No private access proposed in the subdivision will serve more than 8 household equivalents of sites.
All parts of 15.1.6C.1.1(e) can be complied with.
Passing bays will comply with 15.1.6C.1.3.
Crossings will be constructed in compliance with 15.1.6C.1.5.
All parts of 15.1.6C.1.7 can be complied with.
Similarly all parts of 15.1.6C.1.8 that are relevant can be complied with.

In summary I have not identified any rule breaches for which land use consent is required. The subdivision remains a restricted discretionary application.

5.2 Proposed District Plan (PDP)

The original consent was granted before the FNDC publicly notified its PDP on 27th July 2022. Whilst the majority of rules in the PDP will not have legal effect until such time as the FNDC publicly notifies its decisions on submissions, there are certain rules that have been identified in the PDP as having immediate legal effect and that may therefore need to be addressed in this application and may affect the category of activity under the Act. These include:

Rules HS-R2, R5, R6 and R9 in regard to hazardous substances on scheduled sites or areas of significance to Maori, significant natural areas or a scheduled heritage resource.

There are no scheduled sites or areas of significance to Maori, significant natural areas or any scheduled heritage resource on the site, therefore these rules are not relevant to the proposal.

Heritage Area Overlays – N/A as none apply to the application site.

Historic Heritage rules and Schedule 2 – N/A as the site does not have any identified (scheduled) historic heritage values.

Notable Trees – N/A – no notable trees on the site.

Sites and Areas of Significance to Maori – N/A – the site does not contain any site or area of significance to Maori.

Ecosystems and Indigenous Biodiversity – Rules IB-R1 to R5 inclusive.

No indigenous vegetation clearance is proposed.

Subdivision (specific parts) – only subdivision provisions relating to land containing Significant Natural Area or Heritage Resources have immediate legal effect. The site contains no scheduled or mapped Significant Natural Areas or Heritage Resources.

Activities on the surface of water – N/A as no such activities are proposed.

Earthworks – Only some rules and standards have legal effect. These are Rules EW-R12 and R13 and related standards EW-S3 and ES-S5 respectively. EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol if carrying out earthworks and artefacts are discovered. EW-R13 and associated EW-S5 refer to operating under appropriate Erosion and Sediment Control measures.

Compliance with both these aspects can be ensured by either Advice Notes (given that the ADP is required to be complied with by way of other legislation in any event) or conditions of consent.

Signs – N/A – signage does not form part of this application.

Orongo Bay Zone – N/A as the site is not in Oronga Bay Zone.

There are no zone rules in the PDP with immediate legal effect that affect the proposal's activity status.

5.3 Regional Plan for Northland

Rule C.8.3.1, Table 13 of the Proposed Regional Plan outlines a permitted activity as 5,000m^2 of exposed earth at any time for 'other areas'. Given the length of the proposed internal roading network, the Site Suitability report estimates a total area of 26,625m^2 of earthworks. Consent will be required from the Northland Regional Council for the subdivision earthworks if the works is carried out in such a way so as to leave more than 5,000m^2 of earth exposed at any one time. If required, consent will be applied for independently/concurrently.

6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

The assessment of environmental effects below includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment, as required by Clause 2(3)(c) of Schedule 4 of the Act.

A restricted discretionary activity is described in s87A of the Act, clause (3).

If an activity is described in this Act, regulations (including any national environmental standard), a plan, or a proposed plan as a restricted discretionary activity, a resource consent is required for the activity and—

*(a)**the consent authority's power to decline a consent, or to grant a consent and to impose conditions on the consent, is restricted to the matters over which discretion is restricted** (whether in its plan or proposed plan, a national environmental standard, or otherwise); and*

(b)if granted, the activity must comply with the requirements, conditions, and permissions, if any, specified in the Act, regulations, plan, or proposed plan.

It is also subject to s104C of the Act:

*(1) When considering an application for a resource consent for a restricted discretionary activity, a consent authority must consider **only** those matters over which-*
(a) A discretion is restricted in national environmental standards or other regulations;
(b) It has restricted the exercise of its discretion in its plan or proposed plan; …..
*(3) ……. if it grants the application, the consent authority may impose conditions under section 108 **only** for those matters over which –*
(a) A discretion is restricted in national environmental standards or other regulations;
(b) It has restricted the exercise of its discretion in its plan or proposed plan.

The subdivision meets the restricted discretionary number/size of lots specified in Table 13.7.2.1. Far North District Plan lays out in 13.8.1, the matters to which it restricts its discretion in determining whether to grant consent to a restricted discretionary activity, and then lays out the matters to which it will restrict its discretion when considering whether to impose conditions.

13.8.1 SUBDIVISION WITHIN THE RURAL PRODUCTION ZONE

*……. In considering **whether or not to grant consent** on applications for restricted discretionary subdivision activities, the Council will restrict the exercise of its discretion to the following matters:*

(i) for applications under 13.8.1(a):

- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment.*

(ii) for applications under 13.8.1(b) or (c):

- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment;*
- *effects of the subdivision under (b) and (c) above within 500m of land administered by the Department of Conservation upon the ability of the Department to manage and administer its land;*
- *effects on areas of significant indigenous flora and significant habitats of indigenous fauna;*
- *the mitigation of fire hazards for health and safety of residents.*

*In considering **whether or not to impose conditions** on applications for restricted discretionary subdivision activities the Council will restrict the exercise of its discretion to the following matters:*
(1) the matters listed in 13.7.3;
(2) the matters listed in (i) and (ii) above

In the case of this application, the application is lodged pursuant to 13.8.1(a), and therefore clause (i) applies:

- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment;*

The property is not within the coastal environment.

In summary, there are no grounds for the Council to refuse consent.

In determining conditions of consent, the following AEE is offered.

6.1 Allotment Sizes and Dimensions

The lots, at all over 12ha in area, can easily accommodate 30m x 30m square building envelopes.

6.2 Property Access

Refer to the Subdivision Site Suitability Report in Appendix 5. Two private accessways are proposed internal to the site (Lot 6 having existing access directly off Taupo Bay Road). These are presented as Roads 1, 2 & 3 on plans in the above referenced report – Road 1 to the west and servicing Lots 7-12 inclusive (6 lots); and Roads 2 & 3 (one access split into two portions) to the east, servicing Lots 1-5 inclusive (5 lots).

These access roads are proposed to be formed to the required standard as specified in the Report in Appendix 5 – refer to that report's Table 13 which specifies the standard for each Road at various chainage where the number of lots being served changes and therefore requires a different standard.

Easy terrain over which Road 1 is proposed to be formed

In total there is approximately 2km of road access required to be formed. The longitudinal gradients are limited to 17% maximum (approximately1:6). It is proposed to construct two lined swale drains along each of the proposed access roads with stormwater runoff directed to stormwater infrastructure at specific low points of the alignment. The Report suggests that specific engineering design and sizing of the check dams should be undertaken within the detailed design phase with accompanying construction drawings.

The crossing point locations for Roads 1 & 2 have been specifically selected to maximise sight line distance from the egress position at the crossings. The sight distances meet the requirements for an operating speed of 75kph, which is considered appropriate for this section of Taupo Bay Road.

6.3 Earthworks

Refer to the Subdivision Site Suitability Report in Appendix 5, specifically Section 8. This outlines the cut/fill earthworks required for internal roading, vehicle crossings and stormwater ponds associated with those. While the total volume exceeds the permitted activity threshold, it is within the restricted discretionary threshold. No cut/fill face height will exceed the permitted threshold.

The report contains general recommendations to ensure minimal adverse effects. Significant excavations are not anticipated. Temporary batters will be covered with polythene sheets and earthworks will be carried out in periods of fine weather.

Erosion and sediment control measures are required to control sediment runoff from areas of proposed earthworks and will be in general accordance with Auckland Council GD05 and with additional measures to specifically protect sensitive environmental receptors within proximity to the earthworks area. Erosion and sediment control measures are summarized in the report's section 8.3.

Table 15 of the above referenced report contains an assessment of the proposed works against the earthworks assessment criteria as contained in the ODP.

6.4 Natural and Other Hazards

Refer to the Subdivision Site Suitability Report in Appendix 5, specifically its Section 9. Ground testing shows that all lots have ground suitable for building. Any minor risk of erosion can be satisfactorily managed such that effects are less than minor. There are several watercourses traversing the property, generally from south to north. There is potential for flooding at proposed Road 3's (ROW H) at the current culvert crossing location. The risk of flooding can be managed safely but requires detailed design assessment.

The site is not subject to landslip, rockfall, alluvion, avulsion, unconsolidated fill, soil contamination, subsidence, fire hazard or sea level rise.

In summary there is no reason pursuant to s106 of the Act that precludes subdivision consent being granted.

6.5 Water Supply

Refer to the Subdivision Site Suitability Report in Appendix 5. The site is subject to an existing consent notice requiring suitable potable and fire fighting water supply to be provided at building consent stage. This consent notice will carry down onto each new lot.

6.6 Stormwater Disposal

Refer to the Subdivision Site Suitability Report in Appendix 5.

6.7 Sanitary Sewage Disposal

Refer to the Subdivision Site Suitability Report in Appendix 4. The site is subject to an existing consent notice that refers to a 2011 wastewater report. This is now largely superseded by way of the new report, however can remain on the titles because the consent notice also provides for an alternative report and design to be supplied at building consent stage for council approval.

The report in Appendix 5 is sufficient to show the Council that on-site wastewater treatment and disposal is feasible on all lots. Given the wording of the existing consent notice, I do not believe it necessary to add another consent notice in regard to on-site wastewater, but neither would it be completely contrary if an additional / supplementary consent notice clause referring to the new report is imposed.

Whilst the report in Appendix 5 models its assessment on secondary treatment for compliance, it may also be possible to meet permitted activity discharge standards with primary treatment. The original 2011 wastewater report says as much – "for all sites, traditional septic tank treatment and soakage trenches may also be feasible due to soil type and continuous ground slope available". This comment applied to 4 lots to the east of the application site, considerably smaller than the 12ha lots being proposed and on similar ground. The Geologix Report also discusses the possibility of primary treatment. The option of investigating either secondary or primary treatment should remain for future lot owners.

6.8 Energy Supply & Telecommunications

Power and phone is not a requirement for rural subdivision. There is an existing consent notice in regard to power not being a condition of subdivision.

6.9 Easements for any Purpose

Refer to scheme plan in Appendix 1. This shows both existing easements and a Memorandum of Easements. An existing easement exists to provide access from Taupo Bay Road to plantation forestry on adjacent land. This remains. So too does a small sliver of electricity easement on Lot 2's road frontage. New easements are proposed for access and services to all lots.

6.10 Preservation of heritage resources, vegetation, fauna and landscape, and land set aside for conservation purposes

The ODP states:

Where a proposed allotment contains any one or more of the following features, the continued preservation of that resource, area or feature shall be an ongoing condition for approval of the consent.
(a) a Notable Tree as listed in Appendix 1D;
(b) an Historic Site, Building or Object as listed in Appendix 1E;
(c) a Site of Cultural Significance to Maori as listed in Appendix 1F;
(d) an Outstanding Natural Feature as listed in Appendix 1A;
(e) an Outstanding Landscape Feature as listed in Appendix 1B;
(f) an archaeological site as listed in Appendix 1G;
(g) an area of significant indigenous vegetation or significant habitats of indigenous fauna, as defined in Method 12.2.5.6.

The site does not contain any of the above listed resources / features. Whilst there is a small portion of an area of "PNA" within the site boundaries, this has not been confirmed as having been defined in Method 12.2.5.6 of the ODP. The site contains an area mapped as outstanding landscape, however that is not listed above in (a)-(g). Notwithstanding this, the outstanding landscape within the site, specifically that part containing indigenous vegetation, is subject to an existing protective covenant. So even though there is no legal requirement to have an area protected through consent notice, there is in fact already protection in place as an ongoing condition of consent.

The site is within a kiwi present area and the application site is already subject to a consent notice as follows:

"*... dogs, cats and mustelids shall not be permitted on any of the lots, save for the following. Working dogs, being dogs used specifically for stock management purposes, may be kept on the lots where they are under control of the owner at all times, and housed in a kennel/run when not working. Where possible, any working dogs should have completed kiwi aversion training before being introduced onto the lots(s).*"

Heritage/Cultural

NZAA mapping indicates an archaeological site just inside the property boundary at the Taupo Bay road side. However, the Site Record says the pit/terrace is uphill from Taupo Bay Road whereas the application site is downhill from Taupo Bay Road. There are no sites of cultural significance to Maori mapped on the application site.

The adjacent land is zoned Conservation and is public reserve. It is typical of the majestic landscapes of Whangaroa/Totara North/Taupo Bay with bush clad lower slopes, leading up to bare rock faces. Akatere is a Scenic Reserve gazetted in 1985. The application only shares a short boundary with this Scenic Reserve, which is 534ha in area and stretches a considerable distance eastwards. Some of the reserve, on the application site's boundary is planted in pine trees. When last driving past the site I noticed active harvesting under way. There is an easement through the application site to the plantation area.

The land between the Scenic Reserve and the application site is a 42.7ha Historic Reserve, gazetted in 1987. This shares a boundary with Lot 10 only.

Neither area of reserve land is adversely affected by the proposal, with boundary fencing already in place and future built development within the lots able to be set well back and downslope of the tree line. Buildings are also subject to existing consent notice conditions in regard to colour/reflectivity and landscaping.

6.11 Access to reserves and waterways

There are no qualifying waterbodies to which access must be provided, and all lots are in excess of 12ha in any event.

6.12 Land use compatibility (reverse sensitivity)

The land is currently one large grazing lot. It does not support high intensity grazing because it cannot (in terms of productivity). Maize is grown seasonally on the flatter portions. Whilst additional residential development will undoubtedly occur as a result of the subdivision, the density proposed is low, with at least 12ha of land around each dwelling – well within the zone's permitted residential intensity ratio. Pastoral use may well continue. The planting of maize may also continue. With lots at over 12ha apiece, future lot owners can internalise their built environment and private open space within their property boundaries.

Whilst the proposal will introduce more residential use into a rural setting, I believe the level of density and size of lots will mitigate adequately against the risk of reverse sensitivity issues arising.

7.0 STATUTORY ASSESSMENT

7.1 Operative District Plan (ODP) Objectives and Policies

The relevant objectives and policies in the ODP are those relating to subdivision and to the Rural Production Zone.

<u>Subdivision Objectives & Policies</u>

Objectives

The subdivision is consistent with the purpose of the zone and promotes sustainable management of natural and physical resources 13.3.1. The proposed subdivision is consistent with the ODP and appropriate for the site. The subdivision can avoid, remedy or mitigate any potential adverse effects (13.3.2).

Objectives 13.3.3 and 13.3.4 refer to outstanding landscapes or natural features; and scheduled heritage resources; and to land in the coastal environment. The site contains a small area of outstanding landscape, already included within a protective bush covenant. The site does not contain any scheduled heritage resource and is not in the coastal environment.

The lots will be required to be self sufficient in terms of on-site water storage and appropriate stormwater management (13.3.5 & 13.4.8). The subdivision adjoins Council road (13.3.10).

The site itself does not contain any sites of cultural significance to Maori, or wahi tapu. It is acknowledged that the site is adjacent to an Historic Reserve, however, no works is proposed or necessary immediately adjacent to that reserve and any future built development on the one lot that adjoins the reserve, can be set well back from the boundary. The subdivision will not adversely affect water quality, proposing large lots enabling generous setback from water bodies within lots. I do not believe that the proposal adversely impacts on the ability of Maori to maintain their relationship with ancestral lands, water, sites, wahi tapu and other taonga (13.3.7 and 13.4.11).

In determining the layout, size and number of lots, the relevant values listed in Policy 13.4.1 have been had regard to.

Access has been designed to meet the necessary standards (13.4.2 and 13.4.5). The site is not identified as being subject to any hazard other than in the immediate vicinity of the flowpaths running south to north through the property. These narrowly defined areas are readily be avoided in terms of future development (13.4.3).

The site does not contain any heritage resources mapped or scheduled in the ODP. A single archaeological site located within Lot 2 appears to actually be outside the property. The site does contain one area of indigenous vegetation, coinciding with the Outstanding Landscape notation and this is already subject to bush protection consent notices. Restrictions on the keeping of dogs and cats were imposed as part of the previous consent (13.4.6).

S6 matters (National Importance) are addressed later in this report and any relevant matter listed in Policy 13.4.13 has been had regard to. The subdivision has had regard to the underlying zone's objectives and policies (13.4.14).

Rural Production Zone Objectives and Policies

Objectives:

8.6.3.1 To promote the sustainable management of natural and physical resources in the Rural Production Zone.

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.

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.

8.6.3.4 To promote the protection of significant natural values of the Rural Production Zone.

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.

8.6.3.7 To avoid remedy or mitigate the adverse effects of incompatible use or development on natural and physical resources.

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.

8.6.3.9 To enable rural production activities to be undertaken in the zone.

And policies

8.6.4.1 That a wide range of activities be allowed in the Rural Production Zone, subject to the need to ensure that any adverse effects on the environment, including any reverse sensitivity effects, on the environment resulting from these activities are avoided, remedied or mitigated and are not to the detriment of rural productivity.

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.

8.6.4.3 That land management practices that avoid, remedy or mitigate adverse effects on natural and physical resources be encouraged.

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.

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.

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.

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

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.

Objective 8.6.3.5 and Policy 8.6.4.6 are not considered relevant as they are solely related to Kerikeri Road.

The proposed subdivision promotes an efficient use and development of the land (Objective 8.6.3.2). Amenity values can be maintained noting the generous size of allotments and existing requirements in regard to the appearance of built environment and landscaping (8.6.3.3). Reverse sensitivity effects are not considered to be an issue, again because of the generous size of lots. The reserve land at the rear is unoccupied and I do not believe the creation of rural allotments on its boundaries to create any reverse sensitivity effects. The continued use of parts of the application site, and adjacent land for productive uses, is not threatened by the subdivision (Objectives 8.6.3.6-8.6.3.9 inclusive and Policies 8.6.4.8 and 8.6.4.9).

Policy 8.6.4.7 anticipates a wide range of activities that promote rural productivity, whilst avoiding the actual and potential adverse effects of conflicting land use activities. The proposed subdivision does not affect the continued ability of land to be used for grazing or cropping, with lots all being over 12ha in area. I am of the view that the subdivision does not create additional land use incompatibility effects of a more than minor nature.

The proposal provides for sustainable management of natural and physical resources (8.2.4.1). Off site effects can be avoided, remedied or mitigated (8.6.4.2 and 8.6.4.3). Amenity values can be maintained through the size of the lots (open space to built environment ratio) and existing consent notice requirements (8.6.4.4). The proposal enables the efficient use and development of natural and physical resources (8.6.4.5).

The proposal is considered consistent with the relevant Rural Production Zone's objectives and policies.

7.2 Proposed District Plan (PDP) Objectives and Policies

Relevant objectives and policies in the PDP include those pertaining to Subdivision and those pertaining to the Rural Production Zone.

Given the presence of an area of indigenous vegetation within the site, and areas potentially regarded as 'riparian margins' in the PDP there may also be objectives and policies relating to indigenous biodiversity and natural character values that are relevant. The PDP substantially reduces the area of outstanding landscape within the site, restricting it to about a third of the area already subject to covenant. The protective covenant effectively renders the land unusable and unable to support built development, which is consistent with the objectives and policies in the PDP relating to outstanding landscapes.

SUB-O1
Subdivision results in the efficient use of land, which:
a. achieves the objectives of each relevant zone, overlays and district wide provisions;
b. contributes to the local character and sense of place;
c. avoids reverse sensitivity issues that would prevent or adversely affect activities already established on land from continuing to operate;
d. avoids land use patterns which would prevent land from achieving the objectives and policies of the zone in which it is located;
e. does not increase risk from natural hazards or risks are mitigates and existing risks reduced; and
f. manages adverse effects on the environment.

SUB-O2
Subdivision provides for the:
a. Protection of highly productive land; and
b. Protection, restoration or enhancement of Outstanding Natural Features, Outstanding Natural Landscapes, Natural Character of the Coastal Environment, Areas of High Natural Character, Outstanding Natural Character, wetland, lake and river margins, Significant Natural Areas, Sites and Areas of Significance to Māori, and Historic Heritage.

SUB-O3 *Infrastructure is planned to service the proposed subdivision and development where:*
a. there is existing infrastructure connection, infrastructure should provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and
b.where no existing connection is available infrastructure should be planned and consideration be give n to connections with the wider infrastructure network.

SUB-O4
Subdivision is accessible, connected, and integrated with the surrounding environment and provides for:
a. public open spaces;
b. esplanade where land adjoins the coastal marine area; and
c. esplanade where land adjoins other qualifying water bodies

I consider the subdivision to represent an efficient use of the land, consistent with the objectives of the zone, overlays and district wide provisions, especially where the site does not contain any *highly productive land*. Local character will change given the number of lots being proposed, but not in a negative sense. The underlying title is subject to amenity based consent notice requirements. The lots are large and expansive and will retain their 'rural' character; the likelihood of reverse sensitivity issues arising will not unduly increase and the risk of such issues arising can be mitigated by size of lots and ability to build away from boundaries with any potentially incompatible existing land uses on adjacent properties, none of which exist presently; and lots can be developed whilst avoiding risk from natural hazards. Adverse effects on the environment are considered to be less than minor and not requiring mitigation (SUB-O1).

The site does not contain any land that meets the definition of 'highly productive land' as laid out in the National Policy Statement Highly Productive Land. The site is mapped as accommodating one very small area of Outstanding Natural Landscape and all of this area is already subject to protective covenant. The site is not in the Coastal Environment. The lots are large and development within the lots can readily avoid riparian margins. There are no Sites or Areas of Significance to Maori or any sites of Historic Heritage (as mapped or scheduled in the PDP) within the site, and no Significant Natural Areas as mapped or scheduled in the PDP. There is one area of indigenous vegetation and this is already protected (SUB-O2).

The site is rural and will never be serviced by a Council reticulated 3 waters system. The site is accessed off existing sealed Council road (SUB-O3). There is no qualifying waterbody and no lot of less than 4ha to which esplanade requirements might apply. There is no public access across the application site to any of the reserve land and none is proposed. The reserve land can be accessed elsewhere given its expanse and being contiguous with other reserve land (SUB-O4).

SUB-P1
Enable boundary adjustments that:
.....

Not relevant – application is not a boundary adjustment.

SUB-P2
Enable subdivision for the purpose of public works, infrastructure, reserves or access.

Not relevant.

SUB-P3
Provide for subdivision where it results in allotments that:

a. are consistent with the purpose, characteristics and qualities of the zone;
b. comply with the minimum allotment sizes for each zone;
c. have an adequate size and appropriate shape to contain a building platform; and
d. have legal and physical access.

The subdivision results in lots that are consistent with the purpose, characteristics and qualities of the zone; that readily meet the PDP's discretionary minimum lot sizes, especially noting the lack of highly productive land involved; that are of an adequate size and appropriate shape to contain building platforms, and that have legal and physical access.

SUB-P4
Manage subdivision of land as detailed in the district wide, natural environment values, historical and cultural values and hazard and risks sections of the plan

The subdivision has had regard to all the matters listed, where relevant.

SUB-P5
Manage subdivision design and layout in the General Residential, Mixed Use and Settlement zone....

N/A.

SUB-P6 *Require infrastructure to be provided in an integrated and comprehensive manner by:*
a. demonstrating that the subdivision will be appropriately serviced and integrated with existing and planned infrastructure if available; and
b. ensuring that the infrastructure is provided is in accordance the purpose, characteristics and qualities of the zone.

The subdivision is rural with no nearby Council administered or operated infrastructure except for the road.

SUB- P7
Require the vesting of esplanade reserves when subdividing land adjoining the coast or other qualifying water bodies.

No qualifying water body and no lot less than 4ha.

SUB-P8 *Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision:*
- *a. will protect a qualifying SNA in perpetuity and result in the SNA being added to the District Plan SNA schedule; and*
- *b. will not result in the loss of versatile soils for primary production activities.*

The subdivision is not rural lifestyle. The lots are all 12ha in area or more which is larger than the PDP's presumed 'rural lifestyle' minimum lot size. In addition there is no qualifying SNA and the subdivision will not result in the loss of versatile soils.

SUB-P9
Avoid subdivision [sic] rural lifestyle subdivision in the Rural Production zone and Rural residential subdivision inthe Rural Lifestyle zone unless the development achieves the environmental outcomes required in the management plan subdivision rule.

Refer to comment under SUB-P8. The subdivision is not a Management Plan subdivision.

SUB-P10
To protect amenity and character by avoiding the subdivision of minor residential units from

Principalresidential units where resultant allotments do not comply with minimum allotment size and resi dential density.

Not relevant.

SUB-P11
Manage subdivision to address the effects of the activity requiring resource consent including (but not limited to) consideration of the following matters where relevant to the application:
a.consistency with the scale, density, design and character of the environment and purpose of the zone;
b. the location, scale and design of buildings and structures;
c.the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity; or the capacity of the site to cater for on-site infrastructure associated with the proposed activity;
d. managing natural hazards;
e. Any adverse effects on areas with historic heritage and cultural values, natural features and landscapes, natural character or indigenous biodiversity values; and
f. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

No consent is required under the PDP so the above policy has little relevance. In summary I believe the proposed subdivision to be more consistent than not with the PDP's objectives and policies in regard to subdivision.

The site is zoned Rural Production in the Proposed District Plan.

Objectives

RPROZ-O1
The Rural Production zone is managed to ensure its availability for primary production activities and its long-term protection for current and future generations.

RPROZ-O2
The Rural Production zone is used for primary production activities, ancillary activities that support primary production and other compatible activities that have a functional need to be in a rural environment.

RPROZ-O3
Land use and subdivision in the Rural Production zone:
a.protects highly productive land from sterilisation and enables it to be used for more productive forms of primary production;
b.protects primary production activities from reverse sensitivity effects that may constrain their effective and efficient operation;
c.does not compromise the use of land for farming activities, particularly on highly productive land;
d.does not exacerbate any natural hazards; and
e. is able to be serviced by on-site infrastructure.

RPROZ-O4
The rural character and amenity associated with a rural working environment is maintained.

The subdivision creates rural allotments capable of ongoing primary production activity, most likely grazing. Existing consent notice clauses aimed at mitigating the visual impact of built

development will assist in maintaining amenity. The application site contains no highly productive land. I do not believe the subdivision will create a scenario where existing primary production activities on adjacent sites will be constrained. Development can occur on the lots without exacerbating natural hazards. The lots are able to be serviced by on-site infrastructure.

Policies

RPROZP2
Ensure the Rural Production zone provides for activities that require a rural location by:
a. enabling primary production activities as the predominant land use;
b. enabling a range of compatible activities that support primary production activities, including ancillary activities, rural produce manufacturing, rural produce retail, visitor accommodation and home businesses.

The application is not for a primary production activity. The lots are of a size that will continue to enable rural use and compatible support activities, such as a residential dwelling for the owners to reside in on-site.

RPROZP3
Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production Zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.

The proposal will not worsen / increase reverse sensitivity effects on existing primary production activities either on the site or on adjacent land. Lots are 12ha or larger with ample scope to internalise new residential activities within the site.

RPROZP4
Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes:
a. a predominance of primary production activities;
b. low density development with generally low site coverage of buildings or structures;
c. typical adverse effects such as odour, noise and dust associated with a rural working environment; and
d. a diverse range of rural environments, rural character and amenity values throughout the District.

The proposal maintains rural character and amenity. The subdivision is low density and future built development can easily comply with the zone's impermeable and building coverage permitted thresholds. New dwellings are subject to requirements by way of existing consent notice in terms of their reflectivity values and the need for landscaping. Reverse sensitivity effects, or lack thereof, are discussed earlier.

RPROZP5
Avoid land use that:
.....

Application is not a land use. N/A.

RPROZP6

Avoid subdivision that:

a. results in the loss of highly productive land for use by farming activities;

b. fragments land into parcel sizes that are no longer able to support farming activities,taking into account:

1. the type of farming proposed; and

2.whether smaller land parcels can support more productive forms of farming due to the presence of highly productive land.

c. provides for rural lifestyle living unless there is an environmental benefit.

The site does not contain any highly productive land. The lot sizes being proposed remain suitable for grazing use. The lots are not rural lifestyle, being of a size much larger than that considered in the PDP as 'rural lifestyle'.

RPROZP7

Manage land use and subdivision to address the effects of the activity ***requiring resource consent****, including (but not limited to) consideration of the following matters where relevant to the application:*

a. whether the proposal will increase production potential in the zone;

b. whether the activity relies on the productive nature of the soil;

c. consistency with the scale and character of the rural environment;

d. location, scale and design of buildings or structures;

e. for subdivision or non-primary production activities:

i. scale and compatibility with rural activities;

ii. potential reverse sensitivity effects on primary production activities and existing infrastructure;

iii. the potential for loss of highly productive land, land sterilisation or fragmentation

f. at zone interfaces:

i. any setbacks, fencing, screening or landscaping required to address potential conflicts;

ii.the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable;

g.the capacity of the site to cater for on-site infrastructure associated with the proposed activity, including whether the site has access to a water source such as an irrigation network supply, dam or aquifer;

h. the adequacy of roading infrastructure to service the proposed activity;

i.Any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity;

j.Any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

No consent is required under the PDP and the above policy is therefore of limited relevance.

The Natural Features and Landscapes objectives and policies have some limited relevance noting the very small portion of Outstanding Landscape within the application site. NFL objectives seek to identify and manage outstanding natural landscapes to ensure their long term protection; to not compromise the characteristics and qualities of that landscape; and to recognise any ancestral Tangata Whenua relationship with that landscape or feature.

The policies build on these objectives, seeking the avoidance of significant adverse effects on outstanding landscapes outside the coastal environment, but providing for ongoing

farming activities where this is consistent, and does not compromise the characteristics and qualities of the landscape.

The entire area of Outstanding Landscape within the application is already subject to protective covenant such that no development can occur within it. Its value is primarily the vegetative cover and this is protected from clearance. The protected area is totally within the boundaries of a 25ha lot that has abundant area to establish built development well clear of the protected area. I believe this to be consistent with the objectives and policies in the PDP.

The Natural Character objectives and policies basically seek to protect the natural character of wetland, lake and river margins by avoiding significant adverse effects and avoiding remedying or mitigating other adverse effects. "Wetland, Lake and River Margins" are defined as the area within 30m of any wetland, lake or river. The site contains no lakes or rivers but does have overland flowpaths from which a 10m setback might apply. The lots are all sufficiently large to enable a future lot owner to develop the land in a manner consistent with the natural character objectives and policies.

In terms of subdivision works, internal access works will focus on utilising existing crossings and culverts and any necessary upgrades. These crossings have an existing functional need to be there and will continue to have that functional need. This is consistent with the objectives and policies in the PDP. Crossings are permitted activities under the PDP.

Indigenous Biodiversity objectives and policies are of limited relevance. The indigenous bush on the application site is already subject to protective covenant and the site is already subject to ongoing conditions restricting dogs, cats and mustelids. This is consistent with the PDP's objectives and policies.

7.3 Part 2 Matters

5 Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The proposal provides for peoples' social and economic well being, and for their health and safety, while sustaining the potential of natural and physical resources, safeguarding the life-supporting capacity of air, water, soil and the ecosystems; and avoiding, remedying or mitigating adverse effects on the environment.

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards.

I believe the application recognises and provides for the relevant s6 matters above.

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(e) [Repealed]

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change:

(j) the benefits to be derived from the use and development of renewable energy.

Regard has been had to any relevant parts of Section 7 of the RMA, "Other Matters".

8 Treaty of Waitangi

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

The principles of the Treaty of Waitangi have been considered and it is believed that this proposed subdivision does not offend any of those principles.

In summary, it is considered that all matters under s5-8 inclusive have been adequately taken into account.

7.4 National Policy Statements and National Environmental Standards

NES Freshwater

Internal access is being designed so as not to impact on watercourses. The potential upgrading of one existing culvert is over a stream (flowing water) as opposed to a natural inland wetland. As far as I can ascertain no works will be taking place within any wetland, but may occur near a wetland. Where this is the case the need for any consent pursuant to the NES Freshwater will be assessed.

NPS Highly Productive Land

There is no land within the site meeting the definition of "highly productive land".

NES Assessing and Management Contaminants in Soil to Protect Human Health

No HAIL activity has been identified within the application site, either historic or current.

NPS Indigenous Biodiversity

The proposal does not involve any clearance of indigenous vegetation. It includes the ongoing protection of one areas of indigenous vegetation. I consider the proposal to be consistent with the NPS IB.

7.5 Regional Policy Statement

The Regional Policy Statement for Northland (RPS) contains objectives and policies related to infrastructure and regional form and economic development. These are enabling in promoting sustainable management in a way that is attractive for business and investment. The proposal is consistent with these objectives and policies.

The RPS also contains objectives and policies protecting highly versatile soils such that productivity is not materially reduced, and ensuring that reverse sensitivity effects and potential sterilisation of such soils do not occur. For reasons outlined earlier in this report, I consider the proposal to be consistent with these objectives and policies.

The RPS contains objectives and policies aimed at protecting outstanding natural landscapes. The proposal includes the protection of an area of outstanding landscape.

8.0 s95A-E ASSESSMENT & CONSULTATION

8.1 S95A Public Notification Assessment

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. No such circumstances exist. Step 2 of s95A specifies the circumstances that preclude public notification. No such circumstances exist. Step 3 of s95A must therefore be considered. This specifies that public notification is required in certain circumstances, neither of which exists. The application is not subject to a rule or national environmental standard that requires public notification; and this report and AEE concludes that the activity will not have, nor is it likely to have, adverse effects on the environment that are more than minor. No special circumstances exist under which public notification may be warranted.

8.2 S95B Limited Notification Assessment

A consent authority must follow the steps set out in s95B to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified pursuant to s95A. Step 1 identifies certain affected groups and affected persons that must be notified. No such group or persons are identified in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstances exist and Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified, specifically:

(7) In the case of a boundary activity, determine in accordance with section 95E whether an owner of an allotment with an infringed boundary is an affected person.

(8) In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.

The application is not for a boundary activity. The s95E assessment below concludes that there are no affected persons to be notified. No special circumstances exist under which limited notification may be warranted.

8.3 S95D Level of Adverse Effects

The AEE in this report assesses effects on the environment and concludes that these will be no more than minor.

8.5 S95E Affected Persons

A person is an 'affected person' if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). A person is not an affected person if they have provided written approval for the proposed activity.

The activity is a restricted discretionary activity and the proposal is consistent with the objectives and policies of the Operative District Plan. The level of density that will result from the proposed subdivision is within the permitted residential intensity threshold (1 per 12ha). No adjacent properties have been identified as affected noting the size of the lots and setback from boundaries that can be achieved. There is no new internal access on or near the boundary of any adjacent site.

The site does not contain any mapped or scheduled heritage or cultural sites or values (ODP) and the area of indigenous vegetation within the site is already subject to protection. For this reason, and the fact that the Council's matters of discretion are limited, no pre lodgement consultation has been considered necessary with tangata whenua, Heritage NZ, or the Department of Conservation.

9.0 CONCLUSION

The site is considered suitable for the proposed subdivision. Effects on the wider environment are no more than minor. The proposal is not considered contrary to the relevant objectives and policies of the Operative and Proposed District Plans, and is considered to be consistent with relevant objectives and policies of National and Regional Policy Statements. Part 2 of the Resource Management Act has been had regard to.

There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No affected persons have been identified.

It is requested that the Council give favourable consideration to this application and grant consent.

Signed Dated 19th June 2025
Lynley Newport,
Senior Planner
Thomson Survey Ltd

10.0 LIST OF APPENDICES

Appendix 1 Scheme Plan(s)

Appendix 2 Location Plan

Appendix 3 Record of Title & Relevant Instruments

Appendix 4 Historic subdivision consents

Appendix 5 Subdivision Site Suitability Engineering Report

Appendix 1

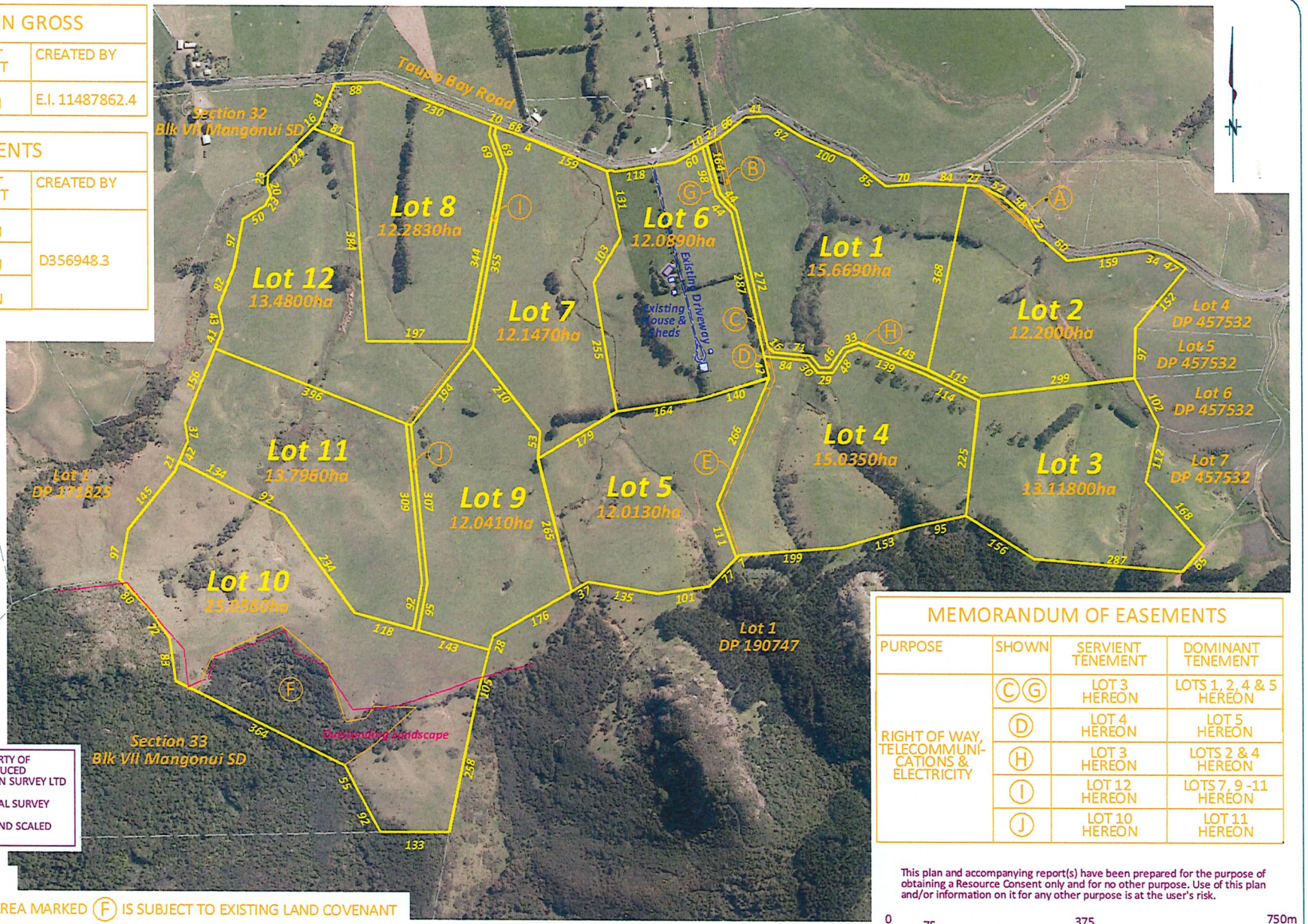
Scheme Plan(s)

EXISTING EASEMENT IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
CONVEY ELECTRICITY	(A)	LOT 2 HEREON	E.I. 11487862.4

EXISTING EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	(B)	LOT 1 HEREON	D356948.3
	(C)	LOT 3 HEREON	
	(D)(E)	LOT 4 HEREON	



MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNI-CATIONS & ELECTRICITY	(C)(G)	LOT 3 HEREON	LOTS 1, 2, 4 & 5 HEREON
	(D)	LOT 4 HEREON	LOT 5 HEREON
	(H)	LOT 3 HEREON	LOTS 2 & 4 HEREON
	(I)	LOT 12 HEREON	LOTS 7, 9 -11 HEREON
	(J)	LOT 10 HEREON	LOT 11 HEREON

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
Comprised in: 593336
Total Area: 168.9290ha
Zoning: Rural Production
Resource features: NIL

AREA MARKED (F) IS SUBJECT TO EXISTING LAND COVENANT CREATED BY COVENANT INSTRUMENT 11487862.6

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.

0 75 375 750m

Bar Scale 1:7500 @ A3

THOMSON SURVEY LIMITED
315 Kerikeri Rd
P.O. Box 372 Kerikeri
Email: kerikeri@tsurvey.co.nz
Ph: (09) 4077360
www.tsurvey.co.nz
Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF LOT 8 DP 457532

660 TAUPO BAY ROAD

PREPARED FOR: G. LODGE

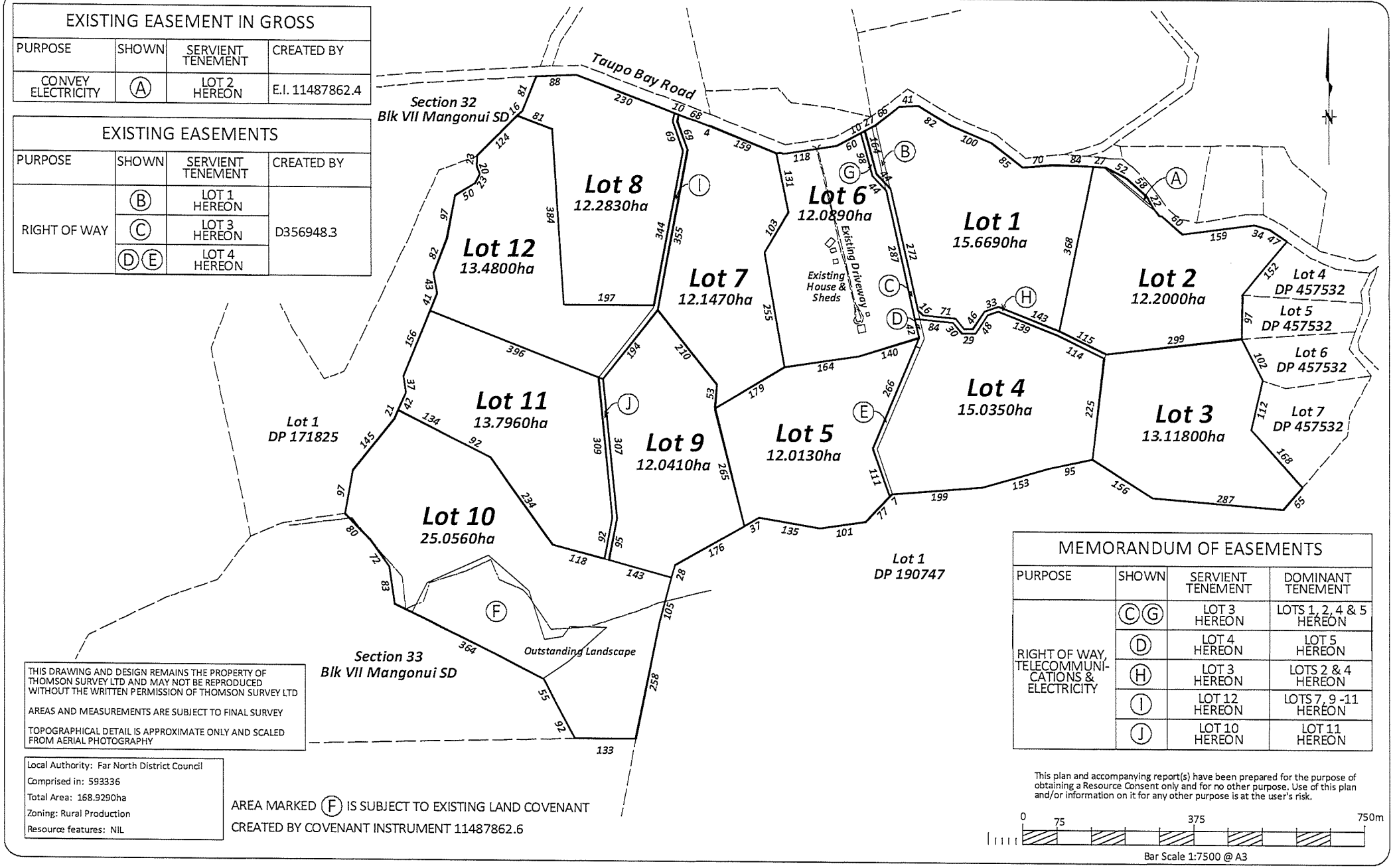
	Name	Date
Survey		
Design		
Drawn	KY	07.08.24
Approved		
Rev	KY	23.10.24

9199 Scheme 20241023

ORIGINAL
SCALE 1:7500
SHEET SIZE A3

Surveyors Ref. No: 9199

Sheet 1 of 1



EXISTING EASEMENT IN GROSS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
CONVEY ELECTRICITY	(A)	LOT 2 HEREON	E.I. 11487862.4

EXISTING EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	(B)	LOT 1 HEREON	D356948.3
	(C)	LOT 3 HEREON	
	(D)(E)	LOT 4 HEREON	

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNI-CATIONS & ELECTRICITY	(C)(G)	LOT 3 HEREON	LOTS 1, 2, 4 & 5 HEREON
	(D)	LOT 4 HEREON	LOT 5 HEREON
	(H)	LOT 3 HEREON	LOTS 2 & 4 HEREON
	(I)	LOT 12 HEREON	LOTS 7, 9 -11 HEREON
	(J)	LOT 10 HEREON	LOT 11 HEREON

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

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Comprised in: 593336
Total Area: 168.9290ha
Zoning: Rural Production
Resource features: NIL

AREA MARKED (F) IS SUBJECT TO EXISTING LAND COVENANT CREATED BY COVENANT INSTRUMENT 11487862.6

0 75 375 750m

Bar Scale 1:7500 @ A3

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PROPOSED SUBDIVISION OF LOT 8 DP 457532

660 TAUPO BAY ROAD

PREPARED FOR: G. LODGE

	Name	Date
Survey		
Design		
Drawn	KY	07.08.24
Approved		
Rev	KY	23.10.24

9199 Scheme 20241023

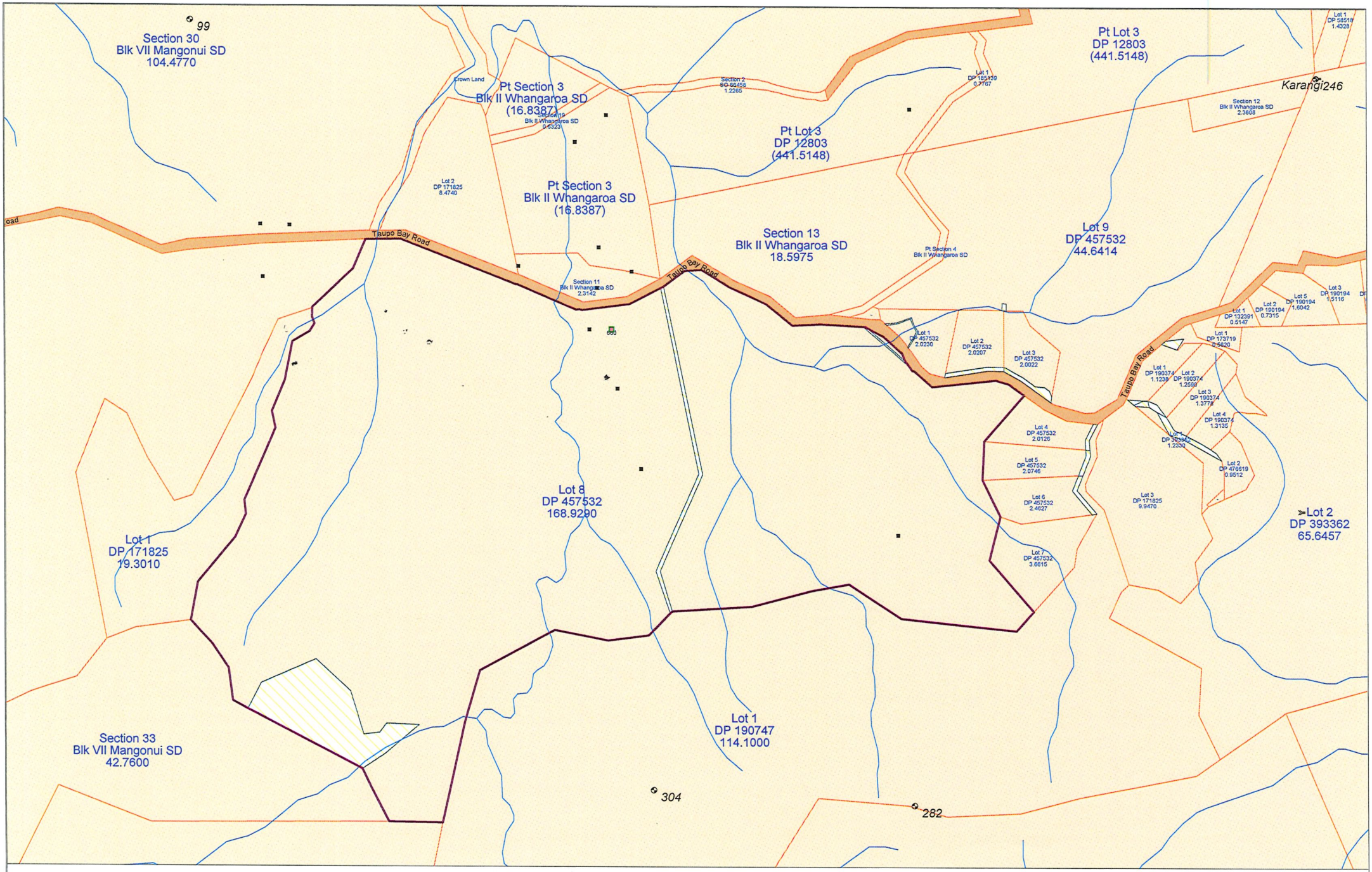
ORIGINAL
SCALE 1:7500
SHEET SIZE A3

Surveyors Ref. No: 9199

Sheet 1 of 1

Appendix 2

Location Plan



QuickMap
Custom Software Ltd

Any person wishing to rely on the information shown on this map must independently verify the information

Scale 1:12000 Topographical and Cadastral map derived from LINZ data. Printed: 08-Oct-2024 10:09.

Appendix 3

Record of Title & Relevant Instruments

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**593336**
Land Registration District	**North Auckland**
Date Issued	05 December 2023

Prior References
610396

Estate	Fee Simple
Area	168.9290 hectares more or less
Legal Description	Lot 8 Deposited Plan 457532

Registered Owners
Geoffrey Raymond Lodge and Andrea Sara Toft

Interests

Subject to a right of way over part marked D on DP 457532 specified in Easement Certificate D356948.3 - 10.2.1999 at 3.09 pm

The easements specified in Easement Certificate D356948.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to Section 120(9) Public Works Act 1981

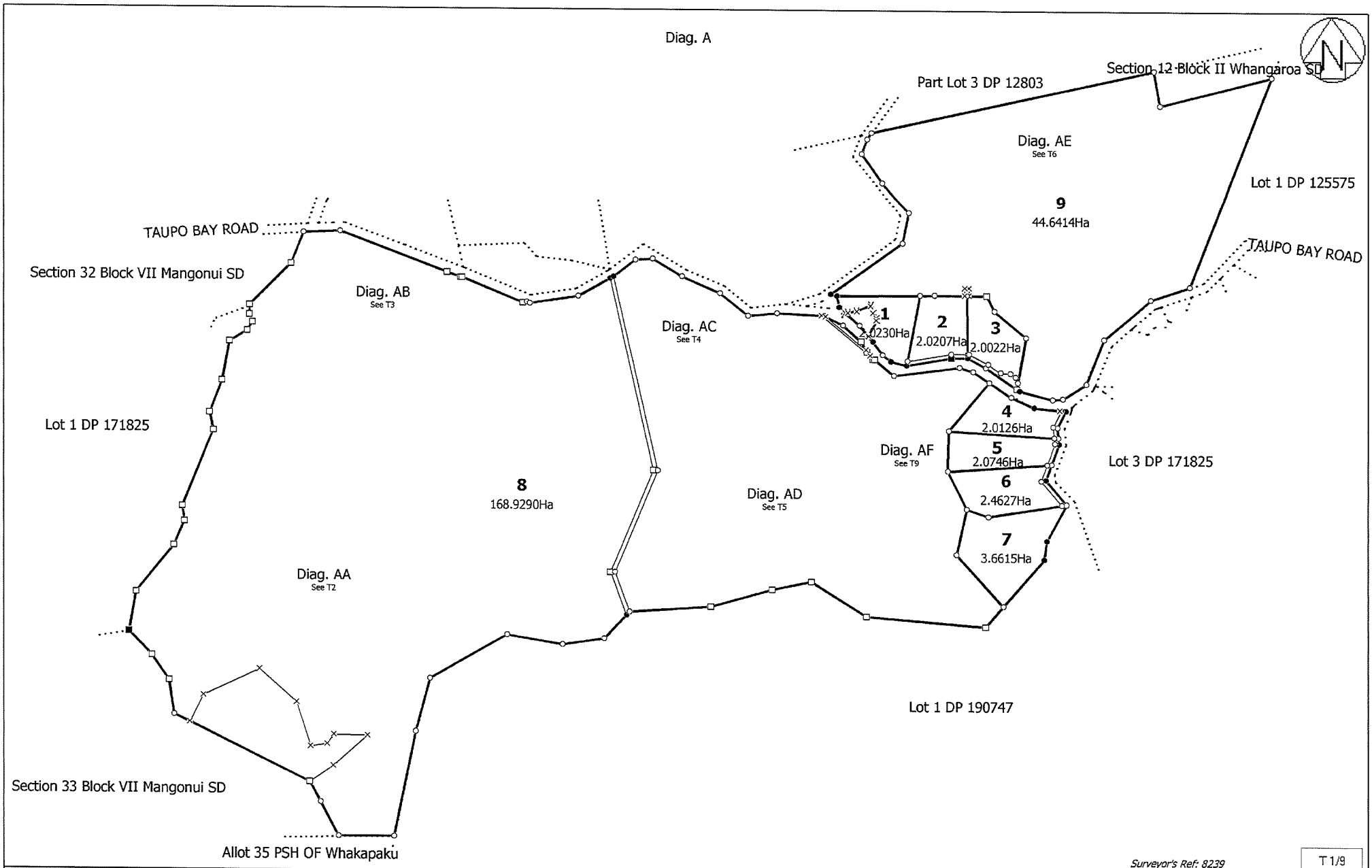
12435218.2 Mortgage to Heartland Bank Limited - 4.5.2022 at 1:32 pm

11487862.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 5.12.2023 at 3:33 pm

Subject to a right (in gross) to convey electricity over part marked G on DP 457532 in favour of Top Energy Limited created by Easement Instrument 11487862.4 - 5.12.2023 at 3:33 pm

The easements created by Easement Instrument 11487862.4 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Covenant Instrument 11487862.6 - 5.12.2023 at 3:33 pm



Surveyor's Ref: 8239

T 1/9

Land District: North Auckland

Digitally Generated Plan
Generated on: 12/09/2013 1:09pm Page 5 of 13

Lots 1 - 9 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018

Surveyor: Graeme William Kettle
Firm: Thomson Survey Limited

Title Plan
LT 457532
Approved on: 12/09/2013

D 3569483 EC

Registrar-General of Land Approval 98/6031EF A.D.L.S.

EASEMENT CERTIFICATE

(IMPORTANT: Registration of this certificate does not of itself create any of the easements specified herein).

~~I~~/We **ROGER JOHN DAVIS and NGAIRE ELIZABETH WEEDING**

being the registered proprietor(s) of the land described in the Schedule hereto hereby certify that the easements specified in that Schedule, the servient tenements in relation to which are shown on a plan of survey deposited in the Land Registry Office at **Auckland**
on the day of under No. **190747**
are the easements which it is intended shall be created by the operation of section 90A of the Land Transfer Act 1952.

SCHEDULE
DEPOSITED PLAN NO. **190747**

Nature of Easement (e.g., Right of Way, etc.)	Servient Tenement		Dominant Tenement Lot No.(s) or other Legal Description	Title Reference
	Lot No.(s) or other Legal Description	Colour, or Other Means of Identification, of Part Subject to Easement		
Right of Way	Lot 2	"A"	Lot 1	120C/541 & 120C/542

REF: 4050 /1

State whether any rights or powers set out here are in addition to or in substitution for those set out in the Seventh Schedule to the Land Transfer Act 1952.

1. Rights and powers:

Registrar-General of Land Approval 98/6031EF A.D.L.S.

2. Terms, conditions, covenants, or restrictions in respect of any of the above easements:

Dated this 7 day of Dec. 1998

Signed by the above-named
ROGER JOHN DAVIS
and NGAIRE ELIZABETH
WEEDING
in the presence of

Witness E. M. Whyte

Occupation Physiotherapist

Address Tampo Bay Rd R D1
Mangonui

Correct for the purposes of the Land Transfer Act 1952

(Solicitor for) the registered proprietor:

REF: 4050 /3

CERTIFICATE OF NON-REVOCATION OF POWER OF ATTORNEY

I, RONALD BRUCE LANDER of Auckland, Bank Manager Grade 1 in New Zealand, do hereby certify:

1 THAT by deed dated 20th day of August 1991 Primary Industry Bank of Australia Limited appointed me its attorney on the terms and subject to the conditions set out in the said deed.

2 THAT the power of attorney was deposited in the Land Transfer Office at:
Blenheim (Marlborough Registry) and there numbered 168171
Christchurch (Canterbury Registry) and there numbered 981419/1
Dunedin (Otago Registry) and there numbered 798684
Gisborne (Poverty Bay Registry) and there numbered G196099.1
Hamilton (South Auckland Registry) and there numbered B194461
Hokitika (Westland Registry) and there numbered 091290
Invercargill (Southland Registry) and there numbered 194542.1
Napier (Hawkes Bay Registry) and there numbered H589907
Nelson (Nelson Registry) and there numbered 328330.1
New Plymouth (Taranaki Registry) and there numbered 408628
Wellington (Wellington Registry) and there numbered B289417.1
Auckland (North Auckland Registry) and there numbered C596949.1F

3 THAT at the date hereof I have not received any notice or information of the revocation of that appointment by Primary Industry Bank of Australia Limited.

SIGNED at Auckland this 2 day of February 1998

R.B. Lander

Approved by Registrar-General
of Land under No. 1998/6031EF

Registrar-General of Land Approval 98/6031EF A.D.L.S.

EASEMENT CERTIFICATE

Land Transfer Act 1952

PRIMARY INDUSTRY BANK OF AUSTRALIA LIMITED as mortgagee under Mortgage C.115392.5 CONSENTS to the within Easement Certificate.

DATED this 2 day of FEBRUARY 1999

~~Signed by PRIMARY INDUSTRY BANK OF AUSTRALIA LIMITED by its~~ attorneys DAVID JOHN SMITH (SENIOR MANAGER)

and PETER ERSON SMITH (SENIOR MANAGER)

who respectively ~~state at the time of executing this instrument they have no notice of the revocation of the Power of Attorney registered number~~ ~~under the authority of which they have executed this instrument.~~

"Signed by the said PRIMARY INDUSTRY BANK OF AUSTRALIA LIMITED by its Attorney RONALD BRUCE LANDER"

WITNESS:

VAUGHAN JONES
LENDING OFFICER
AUCKLAND.

Law Firm Acting
THOMSON WILSON SOLICITORS, WHANGAREI.

Auckland District Law Society
REF: 4050 /4

PARTICULARS ENTERED IN REGISTER LAND REGISTRY NORTH AUCKLAND for Registrar-General of Land 10 FEB 1999

3.09 10.FEB99 D 356948.2

REGISTRAR-GENERAL OF LAND NEW ZEALAND

This page is for Land Registry Office use only
(except for "Law Firm Acting")

View Instrument Details

Instrument No.	11487862.4
Status	Registered
Date & Time Lodged	05 Dec 2023 15:33
Lodged By	Thompson, Emma Jane
Instrument Type	Easement Instrument

Affected Records of Title	Land District
593332	North Auckland
593333	North Auckland
593334	North Auckland
593336	North Auckland

Annexure Schedule Contains 7 Pages.

Grantor Certifications

I certify that I have the authority to act for the Grantor and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

I certify that the Mortgagee under Mortgage 12435218.2 has consented to this transaction and I hold that consent ☑

Signature

Signed by Emma Jane Thompson as Grantor Representative on 11/01/2024 11:30 AM

Grantee Certifications

I certify that I have the authority to act for the Grantee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Graeme John Mathias as Grantee Representative on 11/01/2024 11:45 AM

***** End of Report *****

Easement instrument to grant easement or *profit à prendre*

(Section 109 Land Transfer Act 2017)

Grantor

GEOFFREY RAYMOND LODGE and ANDREA SARA TOFT

Grantee

TOP ENERGY LIMITED

Grant of Easement or *Profit à prendre*

The Grantor being the registered owner of the burdened land set out in Schedule A **grants to the Grantee** (and, if so stated, in gross) the easement(s) ~~*or profit(s) à prendre*~~ set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s)

Schedule A *Continue in additional Annexure*

Schedule, if required

Purpose (Nature and extent) of easement; *profit* or covenant	Shown (plan reference)	Burdened Land (Computer Register)	Benefited Land (Computer Register) or in gross
Right to convey electricity	Marked "A" on Deposited Plan 457532	Lot 4 DP 457532 RT 593332	In gross
	Marked "B" on Deposited Plan 457532	Lot 5 DP 457532 RT 593333	In gross
	Marked "C" on Deposited Plan 457532	Lot 6 DP 457532 RT 593334	In gross
	Marked "G" on Deposited Plan 457532	Lot 8 DP 457532 RT 593336	In gross

Easements or *profits à prendre* rights and powers (including terms, covenants and conditions)

Delete phrases in [ ] and insert memorandum number as required; continue in additional Annexure Schedule, if required

Unless otherwise provided below, the rights and powers implied in specified classes of easement are those prescribed by the Land Transfer Regulations 2018 and/or Schedule 5 of the Property Law Act 2007

The implied rights and powers are hereby ~~**[varied] [negatived] [**~~**added to**~~**]**~~ ~~or~~ ~~**[substituted]**~~ by:

~~[Memorandum number , registered under section 209 of the Land Transfer Act 2017]~~

[the provisions set out in Annexure Schedule B]

Annexure Schedule

Insert instrument type

Easement

Annexure Schedule B

1. Interpretation

1.1 In this instrument, unless the context otherwise requires:

(a) "Burdened Land" means the land owned by the Grantor and contained in Records of Title 593332, 593333, 593334 and 593336;

(b) "Easement Area" means that part of the Burdened Land marked on Deposited Plan 457532 with the letters "A", "B", "C" and "G";

(c) "Emergency Situation" means a situation in which there is a probable danger to life or property or immediate risk to the continuity or safety of supply or distribution of electricity by means of the Transmission Line;

(d) "Transmission Line" means wires or conductors of any other kind (including fibre optic or coaxial cables) used or intended to be used for the transmission of electricity and/or telecommunication signals, waves or impulses; and includes any insulators, foundations, casings, tubes, tunnels, minor fixtures and other items, equipment or material used or intended to be used for supporting, securing, enclosing, surrounding and protecting a Transmission Line; and also includes any fuses, fuse holders, pillars and transformers, automatic switches, voltage regulators, capacitors or other instruments, apparatus or devices used in association with a Transmission Line; and anything in replacement or substitution of any of the foregoing;

(e) words importing the singular include the plural and vice versa; and

(f) references to the Grantor and Grantee include their respective heirs, executors, transferees, administrators, successors and assigns.

2. Grant of electricity easement

2.1 The Grantor grants to the Grantee as an easement in gross forever the right to convey, reticulate, convert, transform, transmit, supply and use electrical energy and power and to convey, send, transmit and transport telecommunications signals, waves, or impulses, without interruption or impediment and in any quantity by means of the Transmission Line.

2.2 The Grantee together with the Grantee's agents, contractors and employees, and with any vehicles, equipment, tools and materials has the right to enter by a reasonable route and remain on the Easement Area and any other parts of the Burdened Land as are reasonably necessary to do the following work:

(a) to survey, investigate, lay, install and construct the Transmission Line under the Easement Area, at a depth and along a line determined by the Grantee;

Annexure Schedule

Insert instrument type

Easement

(b) to install such infrastructure both on or under the surface of the Burdened Land as is necessary for the effective transmission of electricity by means of the Transmission Line;

(c) to inspect, operate, use, maintain, repair, renew, upgrade, replace, change the size of and remove the Transmission Line;

(d) with the Grantee's agents, contractors and employees, and with any vehicles, equipment, tools and materials, to enter and remain for a reasonable time on the Burdened Land for any purposes necessary or convenient for the Grantee to exercise its rights under this instrument (including the right to extinguish fires);

(e) to construct on the Burdened Land whatever roads, tracks, access ways, fences, gates and other works are deemed necessary by the Grantee for it to exercise its rights under this instrument and which are approved by the Grantor (that approval not to be unreasonably withheld);

(f) to keep the Easement Area cleared of all buildings and structures by any means the Grantee considers necessary;

(g) to keep the Easement Area cleared of all fences, trees and vegetation by any means the Grantee considers necessary where such:

(i) breach any statutory or regulatory requirements or standards or codes of practice or otherwise breach generally accepted engineering standards as to the minimum clearance of the Transmission Line;

(ii) impede the exercise by the Grantee of its rights under this instrument or the Grantee's access over the Burdened Land or the Easement Area or to the Transmission Line; or

(iii) inhibit the safe and efficient operation of the Transmission Line.

2.3 The Grantee has no obligation to construct the Transmission Line or convey electricity through it continuously or at all.

3. Access

3.1 The Grantee must, before exercising the right of entry in clause 2.2:

(a) make reasonable efforts to identify the Grantor or the occupier of the Burdened Land;

(b) give reasonable notice, and in any event not less than three (3) days notice, to the Grantor or the occupier of the Burdened Land of the Grantee's intention to enter the Burdened Land, except in an Emergency Situation when prior notice is not required;

(c) identify the work it intends to carry out.

3.2 The Grantee is not required by reason of the obligations in this clause to delay entry onto the Burdened Land from the date notified.

Annexure Schedule

Insert instrument type

Easement

3.3 The Grantee, in entering the Land, will take reasonable steps to minimize inconvenience to the Grantor or the occupier of the Burdened Land, including;

(a) liaising with the Grantor to arrange a suitable time of entry to the Easement Area (unless this is not possible due to an Emergency Situation);

(b) leaving gates as they are found (if applicable);

(c) driving in a safe manner and taking reasonable steps not to disturb stock (if applicable); and

(d) Avoiding access through specific areas identified by the Grantor unless necessary to access the Transmission Line.

3.4 The Grantee is not required to delay entry onto the Burdened Land or to pay any money or other consideration to the Grantor or any occupier of the Burdened Land by reason of the obligations in this clause.

3.5 When accessing the Easement Area, the Grantee will:

(a) complete work on the Transmission Line as soon as possible with as little damage as possible to the Burdened Land and any vegetation, fences or improvements on it; and

(b) use all reasonable endeavours to repair and make good all damage caused to the Burdened Land by the Grantee or the Grantee's agents, contractors or employees as a result of carrying out work on the Transmission Line.

4. Ownership of the Transmission Line

The Transmission Line will at all times remain the property of the Grantee.

5. Grantor's Continued Use of Burdened Land

Subject to clause 6, the Grantor may use the Burdened Land as long as that use does not unreasonably interfere with the enjoyment of the Grantee's rights and interests granted under this instrument.

6. Restrictions on Grantor's use

6.1 The Grantor must not do or allow any act which may interfere with or affect the rights of the Grantee or the operation of the Transmission Line and, in particular, the Grantor must not, without the consent in writing of the Grantee:

(a) On the Easement Area, or within the minimum distance from the Transmission Line as advised by the Grantee (having regard to relevant statutory or regulatory requirements, codes of practice and engineering standards applicable from time to time), erect or permit the erection of any buildings or structures, or alter or allow to be altered the overall dimensions of existing buildings or structures, or carry out any earthworks or stockpiling, or construct or permit the construction of any roads, dams, walls or driveways, or allow any vegetation to become established, or remove or permit the removal of any soil, sand, gravel or other substance;

Annexure Schedule

Insert instrument type

Easement

(b) disturb the soil of the easement area below the depth of 0.3 metres;

(c) cause or knowingly permit flooding of the Easement Area;

(d) burn off crops, trees or undergrowth on the Burdened Land;

(e) operate or permit to be operated any machinery or equipment (including any cranes, drilling-rigs, pile-drivers and excavators) in close proximity to any part of the Transmission Line;

(f) disturb any survey pegs or markers placed on the Easement Area by the Grantee;

(g) impede the Grantee's access over the Burdened Land or the Easement Area or to the Transmission Line; or

(h) do anything on or in the Burdened Land which would or could damage or endanger the Transmission Line.

6.2 The consent of the Grantee required under clause 6.1 will not be unreasonably withheld, but may be given subject to conditions.

6.3 The Grantee may consent in writing to certain existing buildings, structures, fences or vegetation on the Easement Area at the date of this instrument remaining there, but such consent may be given subject to conditions.

6.4 If any act or item consented to under clause 6.2 or 6.3 subsequently results in a situation described in clause 2.2 (g)(i) – (iii), then such consent may be revoked by the Grantee without compensation.

6.5 Before exercising any right under this instrument to remove a fence, the Grantee must consult with the Grantor so the Grantor is given a reasonable opportunity to co-ordinate the erection of any necessary replacement fence. The cost of any replacement fence will be borne by the Grantor and the Grantor must comply with any reasonable directions of the Grantee as to the height, materials used and location of such replacement fence.

6.6 If the Grantor does not meet its obligations under this instrument within such reasonable timeframe as is specified in a notice from the Grantee requiring it to do so then the Grantee may meet those obligations (and enter the Burdened Land for that purpose) and the Grantor is liable to pay to the Grantee the costs incurred in doing so.

7. Indemnity against third party claims

Each party ("Indemnifying Party") must indemnify the other ("Indemnified Party") against all claims or demands from third parties for any loss, damage or liability in respect of, or arising out of, the use of the land by the Indemnifying Party (or any person authorised, whether expressly or impliedly by it) **EXCEPT THAT** it will not be liable to indemnify where such loss, damage or liability was caused by the Indemnified Party. Where the actions of the Indemnified Party contribute to that loss, damage or liability, the indemnity given by the Indemnifying Party will be reduced in proportion to that contribution.

Annexure Schedule

Insert instrument type

Easement

8. Licence and assignment

The Grantee may assign, licence or otherwise grant any right of all or any part of any estate or interest conferred by this instrument.

9. Perpetual easement

There is no power implied in this instrument for the Grantor to terminate the easement for any breach of this instrument or for any other reason. It is the intention of the parties that the easement created by this instrument will continue forever unless surrendered.

10. Arbitration

If any dispute arises between the parties in relation to this instrument or any matter arising under it and that dispute cannot be resolved by negotiation, then the parties must submit the dispute to arbitration in accordance with the Arbitration Act 1996 (and its amendments or any statute which replaces it). The arbitration will be commenced by either party giving written notice to the other of the details of the dispute and that party's desire to have the matter referred to arbitration. The arbitration will be by one arbitrator, if the parties can agree upon one, and, if not, then by two arbitrators, one to be appointed by each party, and their umpire to be appointed by the arbitrators before they begin to consider the dispute. The award in the arbitration will be final and binding on the parties.

View Instrument Details

Instrument No.	11487862.2
Status	Registered
Date & Time Lodged	05 Dec 2023 15:33
Lodged By	Thompson, Emma Jane
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Records of Title	Land District
593329	North Auckland
593330	North Auckland
593331	North Auckland
593332	North Auckland
593333	North Auckland
593334	North Auckland
593335	North Auckland
593336	North Auckland
593337	North Auckland

Annexure Schedule Contains 2 Pages.

Signature

Signed by Emma Jane Thompson as Territorial Authority Representative on 05/12/2023 03:28 PM

***** End of Report *****

Far North District Council
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THE RESOURCE MANAGEMENT ACT 1991

SECTION 221: CONSENT NOTICE

REGARDING **RC-2170033 – Stage 1**
Being the Subdivision of PT LOT 2 DP 190747, PT LOT 1 DP 204899 and SECS 1 & 2 SO 68018
North Auckland Registry

PURSUANT to Section 221 and for the purpose of Section 224 (c) (ii) of the Resource Management Act 1991, this Consent Notice is issued by the **FAR NORTH DISTRICT COUNCIL** to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and these are to be registered on the titles of the allotments specified below.

SCHEDULE

Stage 1 – Lots 1 - 9 DP 457532

(i) In conjunction with the construction of any building requiring a wastewater disposal system the lot owner shall obtain a Building Consent and install the wastewater treatment and effluent disposal system as detailed in the report prepared by Haigh Workman Civil and Structural Engineers dated November 2011 submitted with Resource Consent 2170033, and any additional report provided under Condition 3(e) above Resource Consent 2170033. The installation shall include an agreement with the system supplier or its authorised agent for the ongoing operation and maintenance of the wastewater treatment plant and the effluent disposal system.

The estimated cost of the installed system is $19,450.00 + GST. The costing is valid for a period of six months from the date of issue of the 224(c) certificate.

Following 12 months of operation of the wastewater treatment and effluent disposal system the lot owner shall provide certification to Council that the system is operating in accordance with its design criteria.

Where a wastewater treatment and effluent disposal system is proposed that differs from that detailed in the above-mentioned report, a new TP 58/Site and Soil Evaluation Report will be required to be submitted, and Council's approval of the new system must be obtained, prior to its installation.

(ii) Electricity supply is not a condition of this consent and power has not been reticulated to the boundary of the lots. The lot owner is responsible for the provision of a power supply to operate the on-site aerobic wastewater treatment plant and any other device which requires electrical power to operate.

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(iii) In conjunction with the construction of any dwelling, and in addition to a potable water supply, a water collection system with sufficient supply for firefighting purposes is to be provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509.

(iv) In conjunction with the lodgement of a building consent for any dwelling on Lots 1-9, the owner shall provide to the Council the colour scheme for the proposed building/s, such scheme to confirm that the proposed colours for the roof and external cladding, but excluding joinery, shall not exceed a reflectance value of 30%. The colours shall be subject to approval by the Councils duly authorised officer. On approval, the building is to be completed in the approved colours and maintained thereafter.

(v) In conjunction with the lodgement of a building consent on Lots 1-9, the owner shall prepare and lodge a planting plan prepared by a suitably qualified and experienced landscape architect that identifies the means of mitigation of visual effects of built development located on or adjoining any ridgeline when viewed from Taupo Bay Road and earthworks associated with building works. The plan shall be subject to approval by the Councils duly authorised officer. On approval, the works identified in the approved plan are to be carried out and completed within two years of the issuing date of the building consent, and all completed planting is to be maintained in perpetuity thereafter.

(vi) Lots 1-9 are identified as being within a kiwi habitat area. Dogs, cats and mustelids shall not be permitted on any of the lots, save for the following. Working dogs, being dogs used specifically for stock management purposes, may be kept on the lots where they are under control of the owner at all times, and housed in a kennel/run when not working. Where possible, any working dogs should have completed kiwi aversion training before being introduced onto the lot/s.

(vii) Covenant Area X is identified as an area of Outstanding Landscape. No earthworks, bush clearance or structures are to be located within this area. The only activities that may be provided for within this location are those that are defined as permitted activities within the relevant provisions of the Far North District Plan.

SIGNED: Mr Simeon Alistair McLean - Authorised Officer
By the FAR NORTH DISTRICT COUNCIL
Under delegated authority:
TEAM LEADER – RESOURCE CONSENTS

DATED at **KERIKERI** this 30th day of October 2023

Appendix 4

Historic subdivision consents

Far North District Council

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (SUBDIVISION)

Resource Consent Number: 2170033-RMASUB

Pursuant to sections 104, 104B and Section 220 of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Geoff Lodge

The activity to which this decision relates:

Proposed subdivision to create 8 additional allotments from two existing titles, being Pt Lot 1 DP204899, Pt Lot 2 DP190747 and Sections 1 and 2 SO68018, in two stages as follows:

- Stage 1 - Lots 1 – 8 and 11
- Stage 2 – Lots 9 and 10, being a subdivision of Lot 11 (Stage 1)

The proposal effectively provides for a re-approval of previously granted resource consents (FNDC references RC 2010373 and RC 2120169) which were given effect to by way of Section 223 approval (LT457532) on the 10th August 2016.

Subject Site Details

Address:	660 Taupo Bay Road, Mangonui
Legal Description:	Pt Lot 1 DP204899, Pt Lot 2 DP190747 and Sections 1 and 2 SO68018

Pursuant to Sections 108 and 220 of the Act, this consent is issued subject to the following conditions:

Stage 1 – Lots 1 – 8 and 11

1 The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Thomson Survey Limited, referenced 8897 Plan 2 of 5, dated 20 June 2016, and attached to this consent with the Council's "Approved Stamp" affixed to it.

2. The survey plan, submitted for approval pursuant to Section 223 of the Act shall show:

(a) All easements in the memorandum to be duly granted or reserved.

(b) Covenant Area Z on Lot 8 as being subject to a consent notice

(c) Easements F containing sufficient area to allow for passage of a heavy rigid vehicle as per District Plan Rule 15.1.6.1.2(j).

3. Prior to the issuing of a certificate pursuant to Section 224(c) of the Act, the consent holder shall:

(a) Upgrade the existing entranceways off Taupo Bay Road where they adjoin easements A and F to provide a double width entrance which complies with Section 3.3.17 and FNDC/S/6C of the Council's Engineering Standards, including sealing the entrance plus splays for a minimum distance of 5 metres from the existing seal edge.

(b) In conjunction with the entranceway formation required under Condition 3(a) above,, the consent holder shall erect a sign at the two entranceways, to be located on the property and not on road reserve, that is clearly visible to any people entering the site. The sign shall display, by either words or picture, that the property is located within a kiwi habitat area.

(c) Provide formed and metalled access on proposed right-of-way easements A – C and E – F to a 3 metre carriageway width with passing bays complying with Rule 15.1.6.1.2 of the District Plan. The formation shall consist of a minimum of 200mm of compacted hardfill plus a GAP 30 or 40 running course. It shall include water table drains and culverts as required to direct and control stormwater runoff.

(d) Provide written confirmation from a licensed cadastral surveyor, supported by suitable photographs, to confirm the following:

(i) The boundary of Covenant Area Z has been fenced to a standard equivalent to one of the specimen types of rural fence (excluding electric fences) as provided for in the Second Schedule of the Fencing Act 1978, in order to exclude stock. This does not require fencing along the common boundaries of the proposed lot where the bush area is contiguous to adjacent bush reserves.

(ii) That the margins of the existing wetland areas located on Lots 8 and 11 have been fenced to a standard equivalent to one of the specimen types of rural fence (excluding electric fences) as provided for in the Second Schedule of the Fencing Act 1978, in order to exclude stock.

(iii) That the access carriageways formed in accordance with Condition 3(b) above are fully contained within the easements provided for access.

(e) The consent holder shall provide to Council confirmation from a registered engineer that the assessment and findings regarding onsite wastewater management and disposal contained in the Haigh Workman Civil and Structural Engineers report dated November 2011 as it relates to Lots 1 – 3, 9, and 10 of this consent, are applicable to Lots 4-8 of this consent.

(f) The consent holder shall provide to Council a current cost estimate for the supply and installation of the wastewater treatment & effluent disposal system described in the Site & Soil Evaluation Report prepared by Haigh Workman Civil and Structural Engineers dated November 2011 and submitted with Resource Consent 2170033, and any additional report provided under Condition 3(e) above. The costing shall include all interconnecting pipe-work, fittings, distribution

chamber and electrical wiring where power is required for the system to operate. The costing shall be valid for a period of 6 months from the date of issue of the 224(c) certificate.
Note: the wastewater treatment and disposal system and its cost shall be conveyed to a prospective purchaser by Consent Notice. Where a treatment and/or disposal method and/or area is chosen which differs from that described in the above mentioned Site and Soil Evaluation Report, a new Site & Soil Evaluation Report will be required to be submitted for approval prior to the installation of the alternative system.

(g) Secure the condition below by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of the affected allotment. The costs of preparing, checking and executing the Notice shall be met by the Applicant.

(i) In conjunction with the construction of any building requiring a wastewater disposal system the lot owner shall obtain a Building Consent and install the wastewater treatment and effluent disposal system as detailed in the report prepared by Haigh Workman Civil and Structural Engineers dated November 2011 submitted with Resource Consent 2170033, and any additional report provided under Condition 3(e) above. The installation shall include an agreement with the system supplier or its authorised agent for the on going operation and maintenance of the wastewater treatment plant and the effluent disposal system.
The estimated cost of the installed system is $ *(to be specified)* + GST. The costing is valid for a period of 6 months from the date of issue of the 224(c) certificate.
Following 12 months of operation of the wastewater treatment and effluent disposal system the lot owner shall provide certification to Council that the system is operating in accordance with its design criteria.
Where a wastewater treatment and effluent disposal system is proposed that differs from that detailed in the above mentioned report, a new TP 58 / Site and Soil Evaluation Report will be required to be submitted, and Council's approval of the new system must be obtained, prior to its installation.

(ii) Electricity supply is not a condition of this consent and power has not been reticulated to the boundary of the lots. The lot owner is responsible for the provision of a power supply to operate the on-site aerobic wastewater treatment plant and any other device which requires electrical power to operate.

(iii) In conjunction with the construction of any dwelling, and in addition to a potable water supply, a water collection system with sufficient supply for fire fighting purposes is to be provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509.

(iv) In conjunction with the lodgement of a building consent for any dwelling on Lots 1 – 8 and 11, the owner shall provide to the Council the colour scheme for the proposed building/s, such scheme to confirm that the proposed colours for the roof and external cladding, but excluding joinery, shall not

exceed a reflectance value of 30%. The colours shall be subject to approval by the Councils duly authorised officer. On approval, the building is to be completed in the approved colours and maintained thereafter.

(v) In conjunction with the lodgement of a building consent on Lots 1 – 8 and 11, the owner shall prepare and lodge a planting plan prepared by a suitably qualified and experienced landscape architect that identifies the means of mitigating the visual effects of built development. The planting is to provide for mitigation of visual effects of built development located on or adjoining any ridgeline when viewed from Taupo Bay Road and earthworks associated with building works. The plan shall be subject to approval by the Councils duly authorised officer. On approval, the works identified in the approved plan are to be carried out and completed within 2 years of the issuing date of the building consent, and all completed planting is to be maintained in perpetuity thereafter.

(vi) Lots 1 – 8 and 11 are identified as being within a kiwi habitat area. Dogs, cats, and mustelids shall not be permitted on any of the lots, save for the following. Working dogs, being dogs used specifically for stock management purposes, may be kept on the lots where they are under control of the owner at all times, and housed in a kennel / run when not working. Where possible, any working dogs should have completed kiwi aversion training before being introduced onto the lot/s.

(vii) Covenant Area Z is identified as an area of Outstanding Landscape. No earthworks, bush clearance, or structures are to be located within this area. The only activities that may be provided for within this location are those that are defined as permitted activities within the relevant provisions of the Far North District Plan.

<u>Stage 2 – Lots 9 and 10 (subdivision of Lot 11 Stage 1)</u>

1. The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Thomson Survey Limited, referenced 8897 Plan 5 of 5, dated 20 June 2016, and attached to this consent with the Council's "Approved Stamp" affixed to it.

2. The survey plan, submitted for approval pursuant to Section 223 of the Act shall show:

   (a) All easements in the memorandum to be duly granted or reserved.

   (b) Easement X containing sufficient area to allow for passage of a heavy rigid vehicle as per District Plan Rule 15.1.6.1.2(j), and to allow for the construction and maintenance of any culverted crossing required along its length.

3. Prior to the issuing of a certificate pursuant to Section 224(c) of the Act, the consent holder shall:

   (a) Upgrade the entranceway off Taupo Bay Road where it adjoins easement X to provide a single width entrance which complies with Section 3.3.17 and FNDC/S/6B of the Council's Engineering Standards, including sealing the entrance plus splays for a minimum distance of 5 metres from the existing seal

edge. Where possible, the formation should tie in with the crossing to be provided to serve easements E and F.

(b) Provide formed and metalled access on proposed right-of-way easement X to a 3 metre carriageway width with passing bays complying with Rule 15.1.6.1.2 of the District Plan. The formation shall consist of a minimum of 200mm of compacted hardfill plus a GAP 30 or 40 running course. It shall include water table drains and culverts as required to direct and control stormwater runoff. Where culverting is required to cross any water course, the pipe size shall be determined by engineers calculations and installed with headwalls to protect the formation from scouring.

(c) Provide written confirmation from a licensed cadastral surveyor, supported by suitable photographs, to confirm the following:

(i) That the margins of the existing wetland areas located on Lot 9 have been fenced to a standard equivalent to one of the specimen types of rural fence (excluding electric fences) as provided for in the Second Schedule of the Fencing Act 1978, in order to exclude stock.

(ii) That the access carriageways and any culverts and/or headwalls formed in accordance with Condition 3(b) above are fully contained within the easement/s provided for access.

(d) The consent holder shall provide to Council a current cost estimate for the supply and installation of the wastewater treatment & effluent disposal system described in the Site & Soil Evaluation Report prepared by Haigh Workman Civil and Structural Engineers Ltd dated November 2011 and submitted with Resource Consent 2170033. The costing shall include all interconnecting pipe-work, fittings, distribution chamber and electrical wiring where power is required for the system to operate. The costing shall be valid for a period of 6 months from the date of issue of the 224(c) certificate.
Note: the wastewater treatment and disposal system and its cost shall be conveyed to a prospective purchaser by Consent Notice. Where a treatment and/or disposal method and/or area is chosen which differs from that described in the above mentioned Site and Soil Evaluation Report, a new Site & Soil Evaluation Report will be required to be submitted for approval prior to the installation of the alternative system.

(e) Secure the condition below by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of the affected allotment. The costs of preparing, checking and executing the Notice shall be met by the Applicant.

(i) In conjunction with the construction of any building requiring a wastewater disposal system on Lots 9 and 10 the lot owner shall obtain a Building Consent and install the wastewater treatment and effluent disposal system as detailed in the report prepared by Haigh Workman Civil and Structural Engineers and submitted with Resource Consent 2170033. The installation shall include an agreement with the system supplier or its authorised agent for the on-going operation and maintenance of the wastewater treatment plant and the effluent disposal system.

The estimated cost of the installed system is $ (to be specified) + GST. The costing is valid for a period of 6 months from the date of issue of the 224(c) certificate.
Following 12 months of operation of the wastewater treatment and effluent disposal system the lot owner shall provide certification to Council that the system is operating in accordance with its design criteria.
Where a wastewater treatment and effluent disposal system is proposed that differs from that detailed in the above mentioned report, a new TP 58 / Site and Soil Evaluation Report will be required to be submitted, and Council's approval of the new system must be obtained, prior to its installation.

(ii) Electricity supply is not a condition of this consent and power has not been reticulated to the boundary of Lots 9 and 10. The lot owner is responsible for the provision of a power supply to operate the on-site aerobic wastewater treatment plant and any other device which requires electrical power to operate.

(iii) In conjunction with the construction of any dwelling on Lots 9 and 10, and in addition to a potable water supply, a water collection system with sufficient supply for fire fighting purposes is to be provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509.

(iv) In conjunction with the lodgement of a building consent for any dwelling on Lots 9 and 10, the owner shall provide to the Council the colour scheme for the proposed building/s, such scheme to confirm that the proposed colours for the roof and external cladding, but excluding joinery, shall not exceed a reflectance value of 30%. The colours shall be subject to approval by the Councils duly authorised officer.

(v) In conjunction with the lodgement of a building consent on Lots 9 and 10, the owner shall prepare and lodge a planting plan prepared by a suitably qualified and experienced landscape architect that identifies the means of mitigating the visual effects of built development. The planting is to provide for mitigation of visual effects of built development located on or adjoining any ridgeline when viewed from Taupo Bay Road and earthworks associated with building works. The plan shall be subject to approval by the Councils duly authorised officer. On approval, the works identified in the approved plan are to be carried out and completed within 2 years of the issuing date of the building consent, and all completed planting is to be maintained in perpetuity thereafter.

(vi) Lots 9 and 10 are identified as being within a kiwi habitat area. Dogs, cats, and mustelids shall not be permitted on any of the lots, save for the following. Working dogs, being dogs used specifically for stock management purposes, may be kept on the lots where they are under control of the owner at all times, and housed in a kennel / run when not working. Where possible, any working dogs should have completed kiwi aversion training before being introduced onto the lot/s.

(vii) Where the owners of Lots 9 and/or 10 utilise access via the adjoining access strip Part Section 4 Block II Whangaroa SD (Crown Land), the responsibility for any maintenance of that access shall fall to the landowner. The Council will not accept responsibility for any maintenance requirements unless it decides to maintain that access of its own volition.

Advice Note

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.

Reasons for the Decision

1. The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are no more than minor and that there are no affected persons or affected customary rights group or customary marine title group.

2. In assessing the adverse effects of the proposal, due consideration has been given to the two current subdivision consents that are considered to form part of the existing environment. In addition, the conditions offered by the applicant in the Section 92 response received on the 3rd November 2016, as they relate to mitigation of visual effects associated with built development, and protection of kiwi, have been incorporated. On this basis, the effects are found to be less than minor and therefore acceptable within the existing environment.

3. The application includes an assessment of objectives and policies under Chapters 8.6, 12.2, and 12.7. No assessment has been provided in the application of the relevant provisions under Chapter 13 Subdivision. Objectives 13.3.1, 13.3.2, and 13.3.3 are relevant in ensuring that the features of the site, particularly those matters informed by Part 2 such as outstanding landscapes, kiwi habitat, and wetlands, are recognised and provided for. This has been achieved through conditions of consent. Objective 13.3.5 and 13.3.8 address servicing requirements. No concerns have been raised in this respect. Objective 13.3.7 reflects the requirements of Section 6(e) of the Act in terms of recognising the relationship between Maori and their cultural values. There has been evidence of consultation with various iwi groups, noting specific concerns raised which have largely been addressed through conditions of consent. Other matters that have been raised, such as recognition of a Treaty of Waitangi claim, cannot be readily addressed through the resource consent process.

   The various policies in Chapter 13 that underpin the objectives identified above are considered to be met by the proposal. In particular, Policies 13.4.1, 13.4.6, and 13.4.13 support the need for specific provisions to address matters such as effects of built development on landscape, protection of wetlands, and protection of kiwi habitat.

4. On the basis of the above consideration, the proposed activity is considered to have adequately taken into account, and be consistent with the objectives and policies from the Operative Far North District Plan.

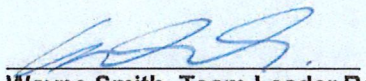
5. The site does contain a portion of Outstanding Landscape Area as defined under the Regional Policy Statement. Formal protection of that area (defined as covenant area Z in the application) forms part of the decision, and therefore Objective 3.14(b) of the Regional Policy Statement is met.

6. There are no other matters considered relevant in making this decision

7. Part 2 Matters
The application includes an assessment of relevant Part 2 matters, and concludes that the proposal is consistent with Part 2. This conclusion is accepted and adopted for the purpose of this report.

8. In summary it is considered that the activity is consistent with the sustainable management purpose of the RMA.

Approval
This resource consent has been prepared by A Hartstone, Consultant Planner, and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:



Wayne Smith, Team Leader Resource Consents

17th November 2016

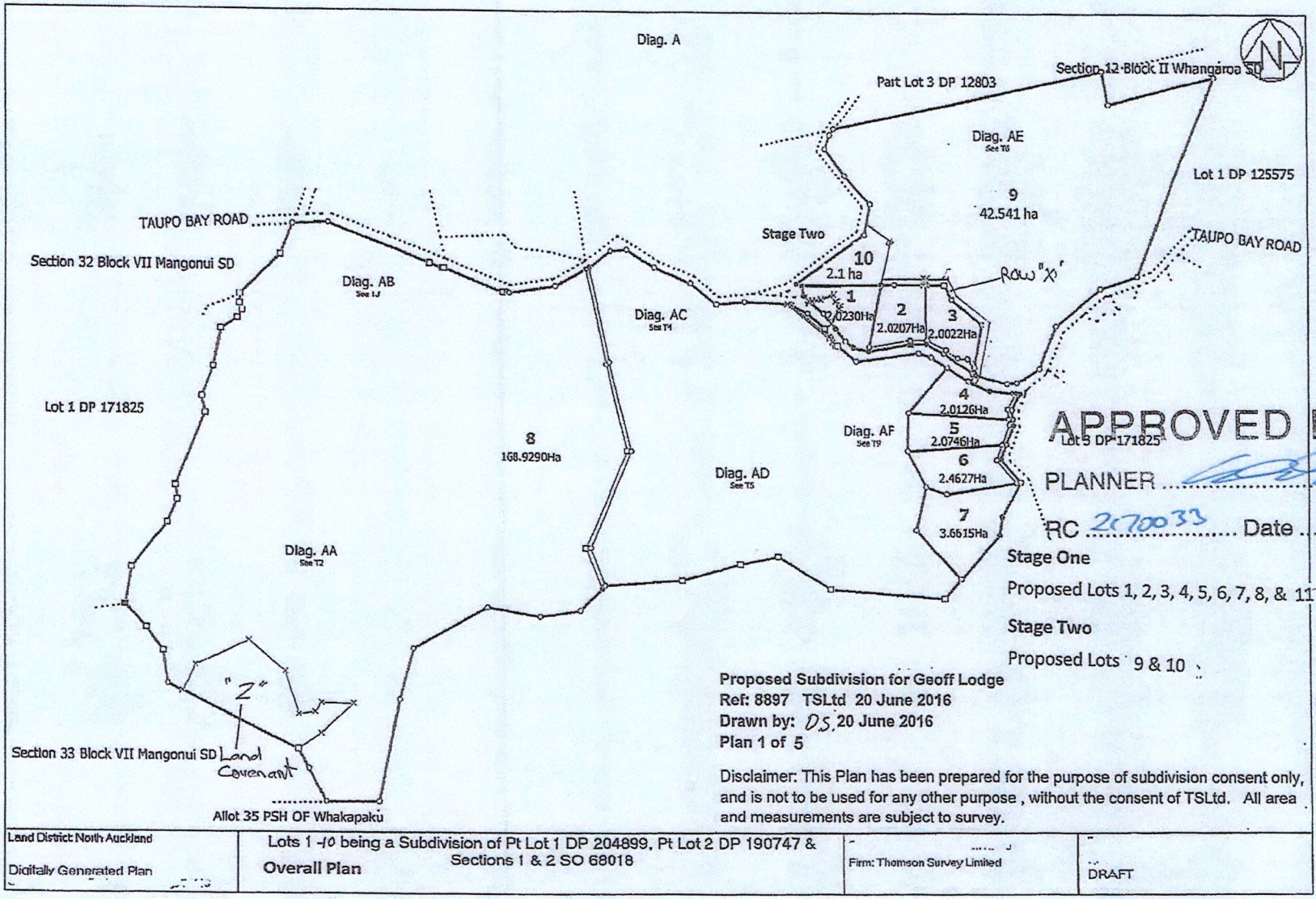
Date

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing Of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

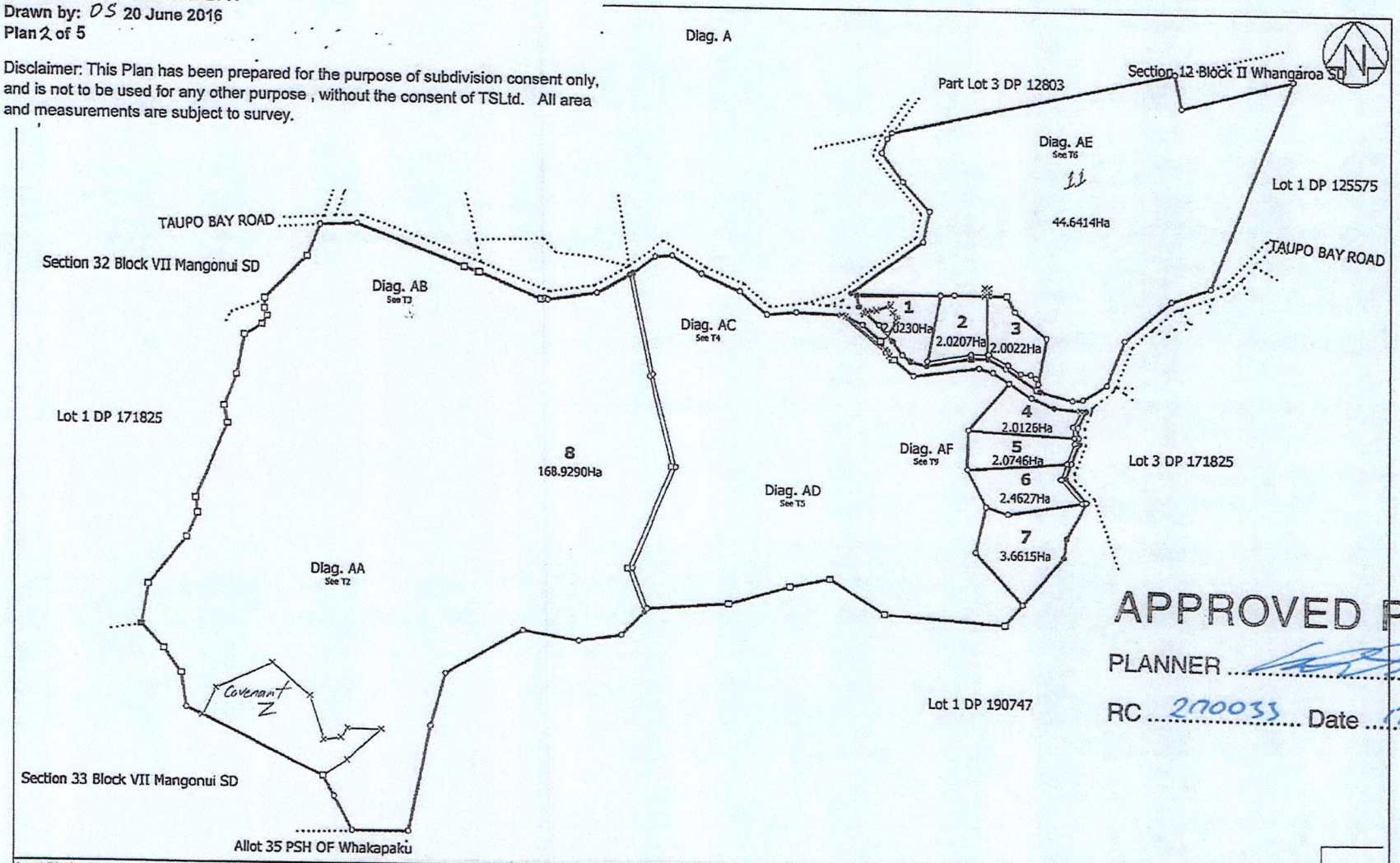
The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.


Diag. A
Part Lot 3 DP 12803
Section 12 Block II Whangaroa SD
Diag. AE
See T6
Lot 1 DP 125575
9
42.541 ha
TAUPO BAY ROAD
Stage Two
10
2.1 ha
Row "X"
TAUPO BAY ROAD
Section 32 Block VII Mangonui SD
Diag. AB
See T3
Diag. AC
See T4
1
2.0230Ha
2
2.0207Ha
3
2.0022Ha
4
2.0126Ha
5
2.0746Ha
6
2.4627Ha
7
3.6615Ha
Lot 1 DP 171825
8
168.9290Ha
Diag. AF
See T9
Lot 3 DP 171825
Diag. AD
See T5
Diag. AA
See T2
"Z"
Section 33 Block VII Mangonui SD
Land Covenant
Allot 35 PSH OF Whakapaku
APPROVED PLAN
PLANNER
RC 2170033 Date 7/11/16
Stage One
Proposed Lots 1, 2, 3, 4, 5, 6, 7, 8, & 11
Stage Two
Proposed Lots 9 & 10
Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: DS 20 June 2016
Plan 1 of 5
Disclaimer: This Plan has been prepared for the purpose of subdivision consent only, and is not to be used for any other purpose , without the consent of TSLtd. All area and measurements are subject to survey.
Land District North Auckland
Digitally Generated Plan
Lots 1 -10 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018
Overall Plan
Firm: Thomson Survey Limited
DRAFT

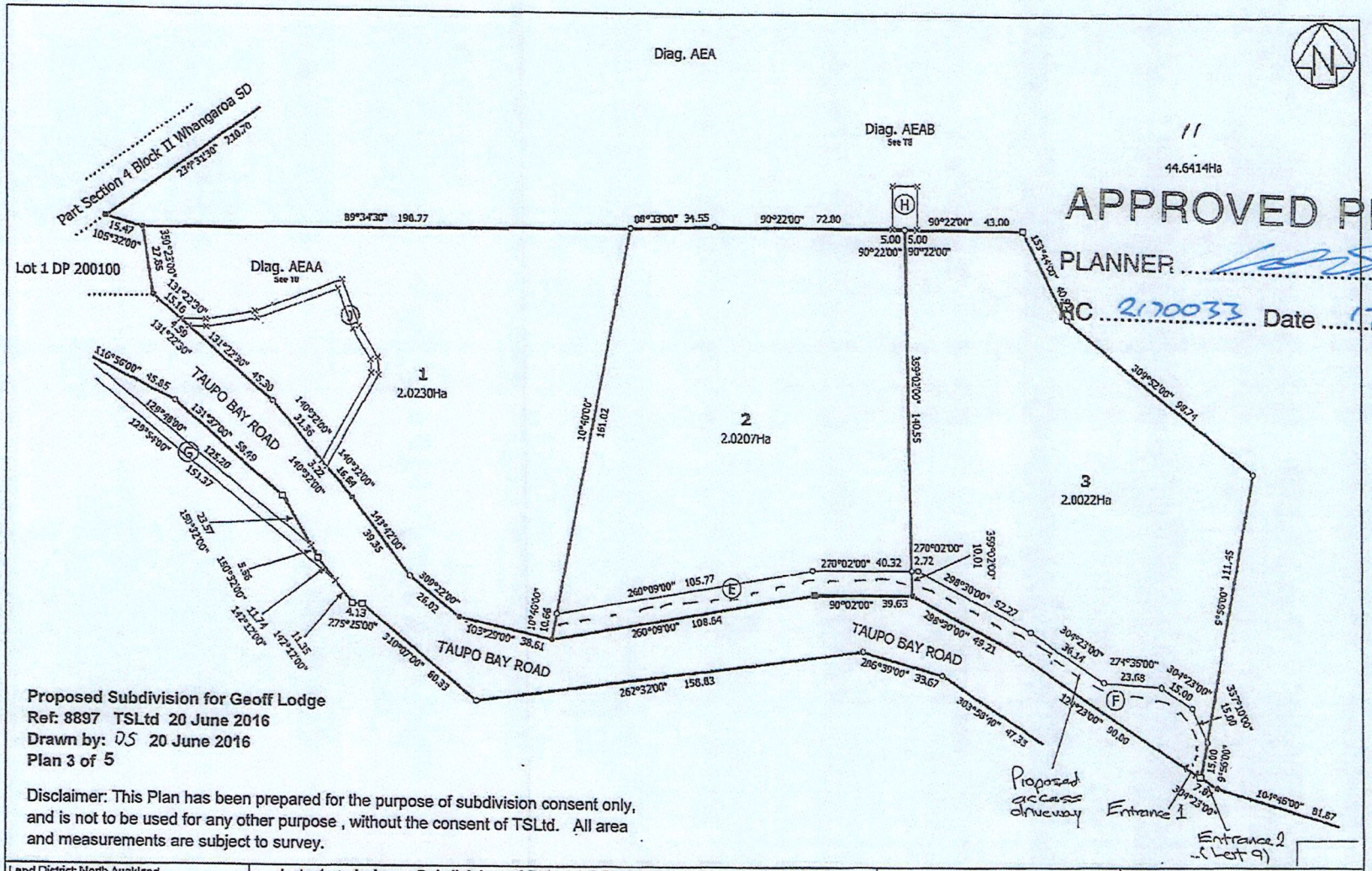
Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: DS 20 June 2016
Plan 2 of 5

Disclaimer: This Plan has been prepared for the purpose of subdivision consent only, and is not to be used for any other purpose , without the consent of TSLtd. All area and measurements are subject to survey.



APPROVED PLAN
PLANNER .....
RC 270033 Date 17/11/16

Land District North Auckland Digitally Generated Plan	Lots 1 - 10 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018 STAGE 1	Firm: Thomson Survey Limited	DRAFT



APPROVED PLAN

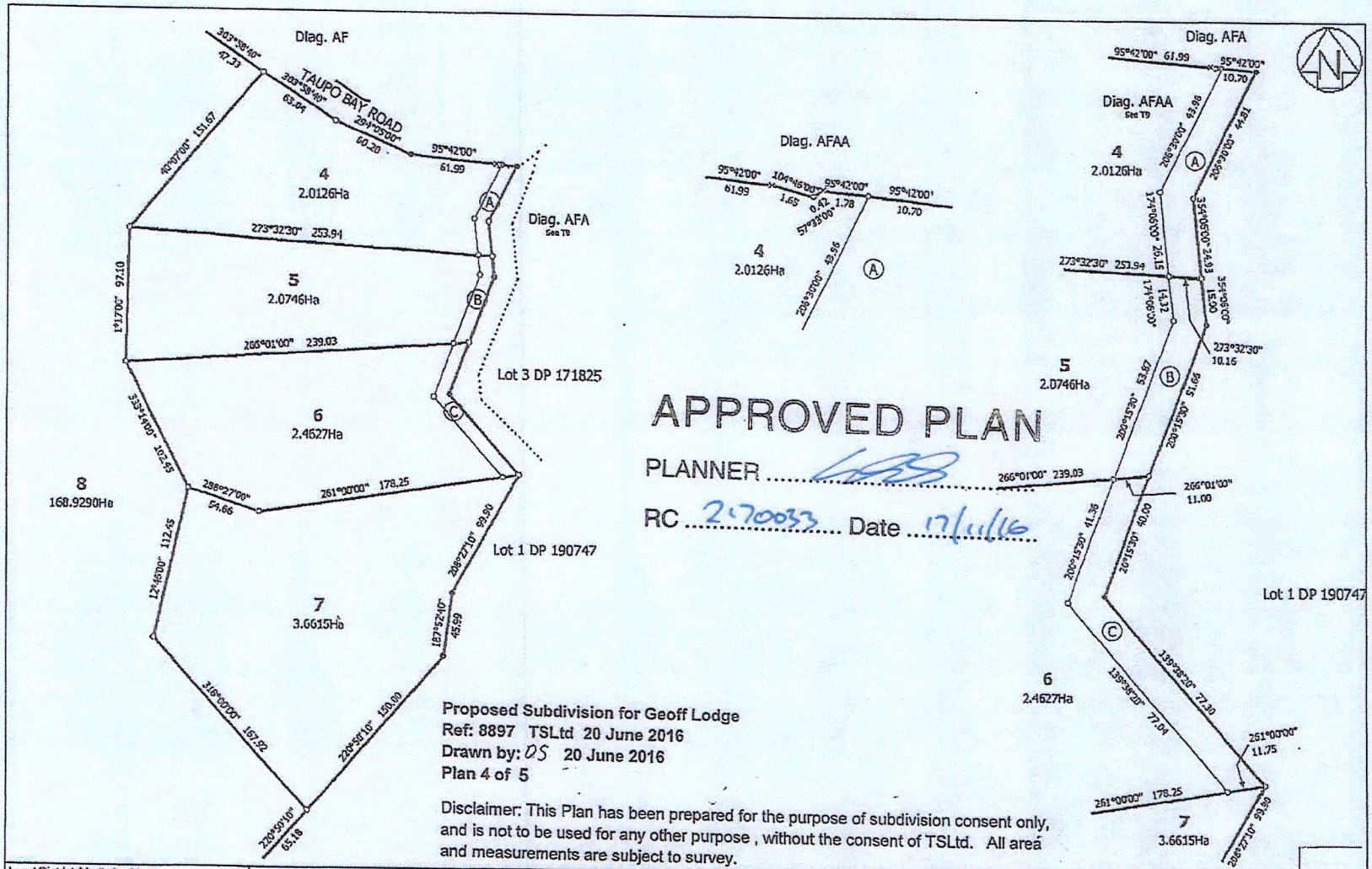
PLANNER .....

RC 2170033 Date 17/11/16

Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: DS 20 June 2016
Plan 3 of 5

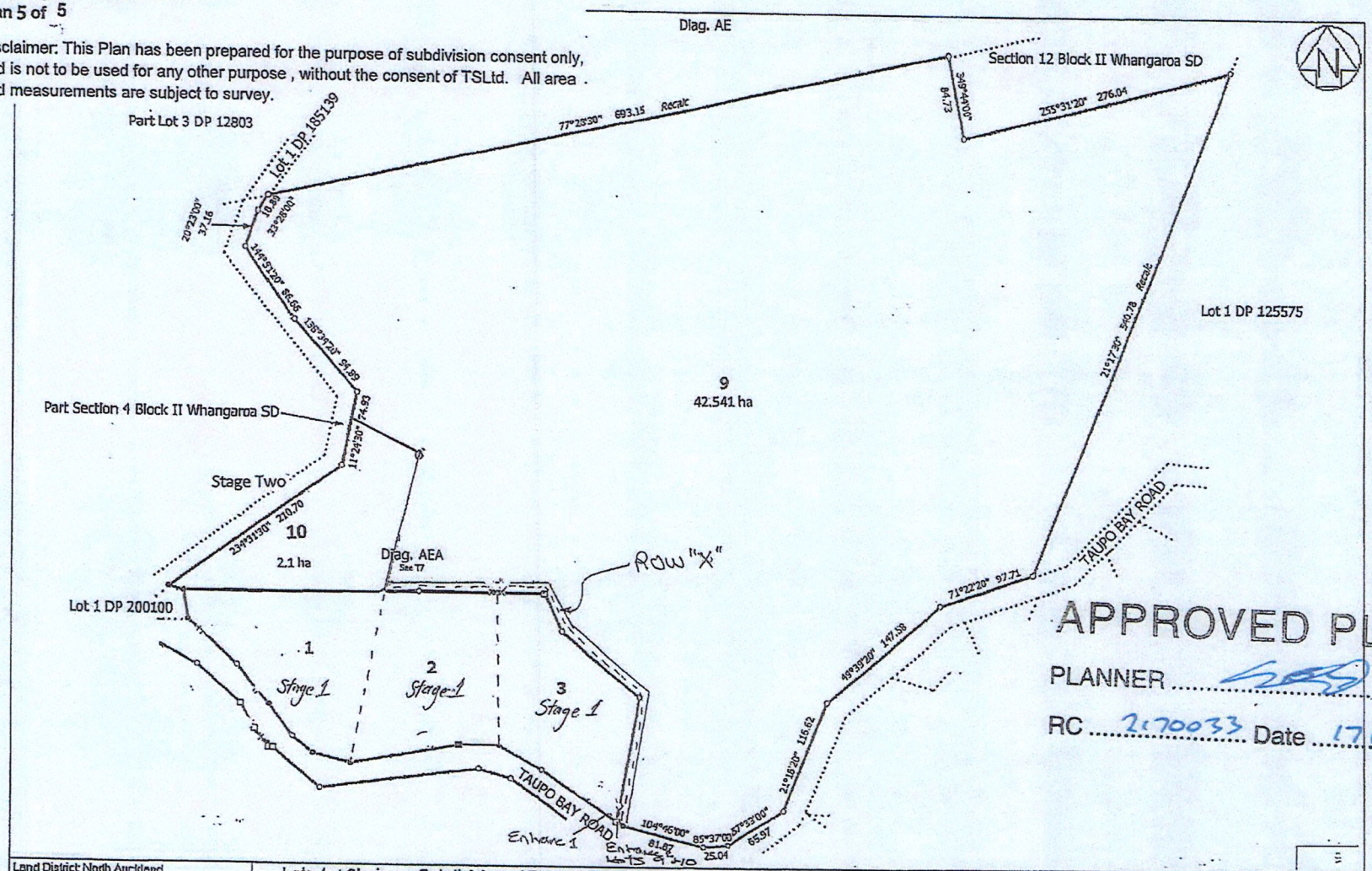
Disclaimer: This Plan has been prepared for the purpose of subdivision consent only, and is not to be used for any other purpose , without the consent of TSLtd. All area and measurements are subject to survey.

Land District: North Auckland Digitally Generated Plan	Lots 1 -10 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018 Stage One	Firm: Thomson Survey Limited	Title Plan DRAFT


Diag. AF
TAUPO BAY ROAD
Diag. AFA
See T9
Diag. AFAA
Lot 3 DP 171825
Lot 1 DP 190747
4
2.0126Ha
5
2.0746Ha
6
2.4627Ha
7
3.6615Ha
8
168.9290Ha
APPROVED PLAN
PLANNER
RC 270033 Date 17/11/16
Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: DS 20 June 2016
Plan 4 of 5
Disclaimer: This Plan has been prepared for the purpose of subdivision consent only, and is not to be used for any other purpose , without the consent of TSLtd. All area and measurements are subject to survey.
Land District North Auckland
Digitally Generated Plan
Lots 1 -10 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018
Stage One
Firm: Thomson Survey Limited
Title Plan
DRAFT

Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: DS 20 June 2016
Plan 5 of 5

Disclaimer: This Plan has been prepared for the purpose of subdivision consent only, and is not to be used for any other purpose , without the consent of TSLtd. All area . and measurements are subject to survey.



APPROVED PLAN
PLANNER .....
RC 2170033 Date 17/11/16

Land District: North Auckland Digitally Generated Plan	Lots 1 -10 being a Subdivision of Pt Lot 1 DP 204899, Pt Lot 2 DP 190747 & Sections 1 & 2 SO 68018 Stage Two	Firm: Thomson Survey Limited	DRAFT

Schedule / Memorandum

THOMSON SURVEY LIMITED
SURVEYORS AND RESOURCE PLANNERS

APPROVED PLAN
PLANNER .....
RC 2170033 Date 17/11/16

Plan Number

Memorandum of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	A	Lot 4 Hereon	Lots 5 - 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	B	Lot 5 Hereon	Lots 6 & 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	C	Lot 6 Hereon	Lot 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media. Right to Convey Water.	E	Lot 2 Hereon	Lot 1 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media. Right to Convey Water.	F	Lot 3 Hereon	Lots 1 & 2 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media. Right to Convey Water.	X	Lot 3 Hereon	Lots 1 Hereon

Thomson Survey Ltd
315 Kerikeri Road, Kerikeri
P.O. Box 372, Kerikeri 0245, New Zealand.
Email: Kerikeri@tsurvey.co.nz

Telephone: 09 4077360
Facsimile: 09 4077322

Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: SL 20 June 2016

Schedule / Memorandum

THOMSON SURVEY LIMITED
SURVEYORS AND RESOURCE PLANNERS

APPROVED PLAN
PLANNER .....
RC 2170033 Date 17/11/16

Plan Number

Memorandum of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	A	Lot 4 Hereon	Lots 5 - 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	B	Lot 5 Hereon	Lots 6 & 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media.	C	Lot 6 Hereon	Lot 7 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media. Right to Convey Water.	E	Lot 2 Hereon	Lot 1 Hereon
Right of Way, Right to Convey Electricity, Telecommunications and Computer Media. Right to Convey Water.	F	Lot 3 Hereon	Lots 1 & 2 Hereon

Thomson Survey Ltd
315 Kerikeri Road, Kerikeri
P.O. Box 372, Kerikeri 0245, New Zealand.
Email: Kerikeri@tsurvey.co.nz

Telephone: 09 4077360
Facsimile: 09 4077322

Generated on 18/07/2013 12:35am

Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: SL 20 June 2016

Schedule / Memorandum

APPROVED PLAN
PLANNER ..... Date 17/6/16
RC 2170077

Memorandum of Easements in Gross			
Purpose	Shown	Servient Tenement	Grantee
Right to Convey Electricity.	G	Lot 8 Hereon	Top Energy Ltd
Right to Convey Electricity.	A	Lot 4 Hereon	Top Energy Ltd
Right to Convey Electricity.	B	Lot 5 Hereon	Top Energy Ltd
Right to Convey Electricity.	C	Lot 6 Hereon	Top Energy Ltd
Right to Convey Telecommunications and Computer Media.	J	Lot 1 Hereon	Chorus New Zealand Ltd

Schedule of Existing Easements			
Purpose	Shown	Servient Tenement	Created by
Right of Way.	D	Lot 8 Hereon	D356948.3

Schedule of Proposed Easements			
Purpose	Shown	Servient Tenement	Dominant Tenement
Right to Convey Water, Right to Convey Electricity.	H	Lot 9 Hereon	Lots 2 & 3 Hereon

The Area shown as X is to be subject to a bush protection consent notice.

Proposed Subdivision for Geoff Lodge
Ref: 8897 TSLtd 20 June 2016
Drawn by: SL 20 June 2016

Far North District Council

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN

DECISION ON RESOURCE CONSENT APPLICATION (SUBDIVISION)

Resource Consent Number: 2300521-RMASUB

Pursuant to section 104 A of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Geoffrey Raymond Lodge and Andrea Sara de Tourret

The activity to which this decision relates:

The applicant proposes to create one additional Lot as a controlled activity subdivision in the Rural production.

Subject Site Details

Address:	660 Taupo Bay Road
Legal Description:	Pt Lot 2 DP 190747
Certificate of Title reference:	CT-610395, CT-610396

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

1. The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Thomson Survey, referenced Proposed subdivision of Lot LT 457532 (RC 2170033-RMASUB), dated 08-08-2017, and attached to this consent with the Council's "Approved Stamp" affixed to it

2. The survey plan, submitted for approval pursuant to Section 223 of the Act shall show:

   (a) All easements in the memorandum to be duly granted or reserved.

3. Prior to the issuing of a certificate pursuant to Section 224(c) of the Act, the consent holder shall:

   (a) Provide evidence to Council that the titles for the lots approved under RC 2170033 (Stage 1) have been issued.

(b) Upgrade the existing crossing from Taupo Bay Road to Lot 2, which complies with NZS 4404:2004 and the Councils Engineering Standard FNDC/S/6 and 6B standards. The crossing is to be sealed or concreted for a minimum distance of 5m from the existing seal edge.

(c) Provide a formed and concreted/sealed entrance from Taupo By to ROW easement "H", which complies with NZS 4404:2004 and the Councils Engineering Standard FNDC/S/6 and 6B standards (Double width crossing including a 6m passing bay). The crossing is to be sealed or concreted for a minimum distance of 6m from the existing seal edge.

(d) Provide formed and metalled access on ROW easement "H" to 3m finished carriageway width. The formation shall include kerbing or a concreted dish channel to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.

(e) Provide confirmation from Council approved TP58 writer or chartered professional engineer which confirms that the effluent disposal field and reserve disposal area are fully contained within the boundaries of the lot 2.

(f) Provide to Council written confirmation from a Licenced Cadastral Surveyor that the access carriageway is fully contained within the

i. Easements provided for access for Lot 1 and,

ii. Boundaries of Lot 2.

(g) Secure the conditions below by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of the affected allotment. The costs of preparing, checking and executing the Notice shall be met by the Applicant.

i. In conjunction with the construction of any dwelling on the lot, and in addition to a potable water supply, a water collection system with sufficient supply for firefighting purposes is to be provided by way of tank or other approved means and is to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509. **(Lot 1)**

ii. Reticulated power supply or telecommunication services are not a requirement of this subdivision consent. The responsibility for providing both power supply and telecommunication services will remain the responsibility of the property owner. **(Lot 1)**

iii. In conjunction with the construction of any building requiring a wastewater disposal system on the lot, the lot owner shall submit with the application for Building Consent a TP58 report and a wastewater treatment and effluent disposal system design prepared by a Chartered Professional Engineer or an council approved Report Writer. **(Lot 1)**

iv. Without the prior approval of the Council, no building shall be erected, nor any works which increase impermeable surfaces be undertaken, nor any planting or structure placed which may create a flow

obstruction, on any area of the site which has been proposed as a secondary / overland (Q100) flow path. (**Lot 1 and 2)**

Advice Notes

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.

2. The Consent holder shall when conducting the upgrade of vehicle crossing in or close to Taupo Bay road reserve shall submit a Corridor Access Request (CAR) and subsequently obtain a Work Access Permit (WAP) from council prior to any excavation or works commencing.

3. Prior to any development being carried out on Lot 1 and 2, it is recommended the consent holder contact Northland Regional Council and, if required, obtain a resource consent under the National Environmental Standards for Fresh Water.

Reasons for the Decision

1. The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are no more than minor and that there are no affected persons or affected customary rights group or customary marine title group.

2. The Application is for a Controlled resource consent as such under s104A Council must grant this application and may only impose conditions in relation to those matters over which control is reserved, these matters are:

3. District Plan Rules Affected:

   Adverse effects will be minor:
   It is considered the relevant and potential effects have been addressed within the assessment of effects, and it has been concluded that the adverse effects will be less than minor.

   13.7.2.1 – Controlled.

4. In accordance with an assessment under s104(1)(b) of the RMA the proposal is consistent with the relevant statutory documents.

   a) The Northland Regional Policy Statement 2018
   b) Northland Regional Plan 2019

5. In accordance with an assessment under s104(1)(c) of the RMA, no other non – statutory documents were considered relevant in making this decision.

6. No other matters were considered in relevant in making this decision.

7. Part 2 Matters

The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

8. In summary it is considered that the activity is consistent with the sustainable management purpose of the RMA.

Approval
This resource consent has been prepared by Shanay Howard, Consent Planner and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

P J Killalea.

Pat Killalea, Principal Planner

Date: 10th May 2021

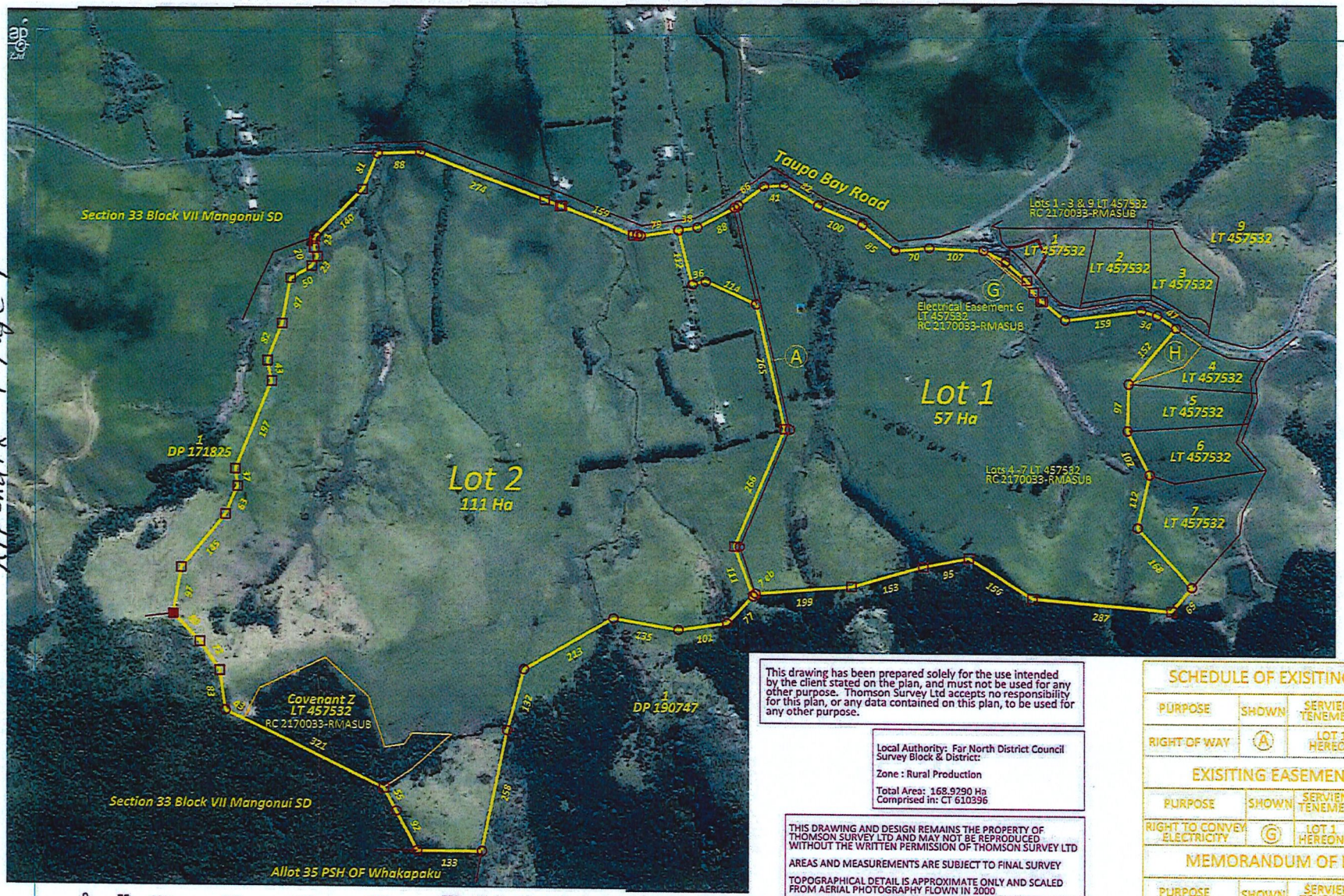
Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.

Appendix 1 Page 1



0 75 150 300 450 600 750m

Bar Scale

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.

This drawing has been prepared solely for the use intended by the client stated on the plan, and must not be used for any other purpose. Thomson Survey Ltd accepts no responsibility for this plan, or any data contained on this plan, to be used for any other purpose.

Local Authority: Far North District Council
Survey Block & District:
Zone : Rural Production
Total Area: 168.9290 Ha
Comprised in: CT 610396

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY FLOWN IN 2000

SCHEDULE OF EXISITING EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	A	LOT 1 HEREON	D356948.3

EXISITING EASEMENTS IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT TO CONVEY ELECTRICITY	G	LOT 1 HEREON	RC 2170033-RMASUB

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY	H	LOT 4 LT 457532	LOT 1 HEREON

APPROVED PLAN
Planner: showard
RC: 230521
Date: 10.05.2021

THOMSON SURVEY LIMITED
315 Kerikeri Rd
P.O. Box 372 Kerikeri
Email: kerikeri@tsurvey.co.nz
Ph: (09) 4077360 Fax (09) 4077322
Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF LOT 8 LT 457532 & EASEMENT OVER LOT 4 LT 457532 (RC 2170033-RMASUB)

PREPARED FOR: Mr G Lodge

	Name	Date
Survey		
Design		
Drawn	PJH	08-08-17
Approved		
Rev	KY	01.03.21

ORIGINAL
SCALE 1:7500
SHEET SIZE A3
9199 Scheme 20210301.lcd

Surveyors Ref. No: 9199
Series
Sheet 1 of 1

Appendix 5

Subdivision Site Suitability Engineering Report

geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

660 TAUPO BAY ROAD, TAUPO BAY, MANGONUI

G R LODGE

C0553-S-01
MAY 2025
REVISION 1

geologix
consulting engineers

DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	660 Taupo Bay Road, Taupo Bay, Mangonui
Client	G R Lodge
Geologix Reference	C0553-S-01
Issue Date	May 2025
Revision	01
Prepared by (Civil)	Ford Yang Civil Design Engineer 
Prepared by (Geotechnical)	Luke Williams  Intermediate Geotechnical Engineer, BEngTech (Civil), NZDipEng (Civil), MEngNZ
Reviewed	 Sebastian Hicks Principal Civil Engineer, CPEng Reg. 1168062, CMEngNZ, IntPE(NZ) /APEC Engineer
Approved by	 Edward Collings Managing Director, CEnvP, CPEng. CMEngNZ
File Reference	*C:\Users\FordYang\SynologyDrive\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\06 - Reports\C0553-S01-R01.docx*

REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
13 May 2025	First Issue – For Consent	FY/LW	SH	EC

geologix
consulting engineers

TABLE OF CONTENTS

TABLES

1 INTRODUCTION

This Site Suitability Engineering Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for G R Lodge as our Client in accordance with our standard short form agreement and general terms and conditions of engagement.

Our scope of work has been carried out to support a Resource Consent application for the proposed subdivision of a rural property (5159556) located at 660 Taupo Bay Road, Mangonui, referred to as the 'site'. This assessment focuses on engineering aspects related to natural hazards, wastewater, stormwater, internal roads, and the necessary earthworks to ensure safe and stable building platforms, with minimal environmental impact from the proposed activities described in Section 1.1.

1.1 Proposal

A proposed scheme plan, prepared by Thomson Surveying[1], was provided to Geologix at the time of writing and is included in Appendix A as Drawing Nos. 100. The Client intends to subdivide the site into twelve new rural lots with Right of Ways (RoWs) designed to provide access. A breakdown of the subdivision lots is detailed in Table 1. Any amendments to the referenced scheme plan may necessitate updates to the recommendations in this report, which are based on conservative, standard rural residential development principles.

Table 1: Summary of Proposed Scheme

Proposed Lots	Size Range	Purpose
1	15.7ha	New rural with future residential use
2	12.2 ha	New rural with future residential use
3	13.1 ha	New rural with future residential use
4	15.0 ha	New rural with future residential use
5	12.0 ha	New rural with future residential use
6	12.1 ha	Existing residential
7	12.1 ha	New rural with future residential use
8	12.3 ha	New rural with future residential use
9	12.0 ha	New rural with future residential use
10	25.1 ha	New rural with future residential use
11	13.8 ha	New rural with future residential use
12	13.5 ha	New rural with future residential use

Site access will be provided from Taupo Bay Road at the northern boundary to the property from two separate, new crossings and private accessway right-of-ways. One existing vehicle crossing to Taupo Bay Road will remain to service the existing residence within Lot 6.

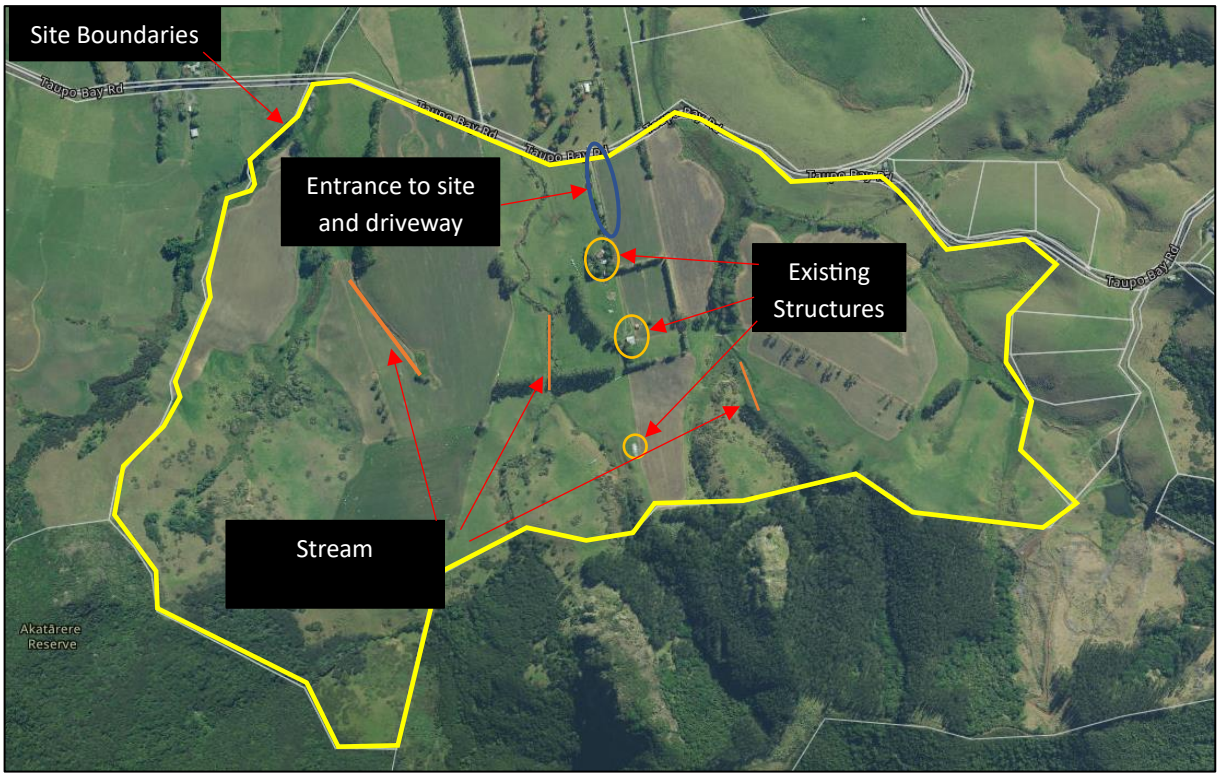
A specific Traffic Impact Assessment (TIA) is outside the scope of this report.

2 DESKTOP APPRAISAL

The site is situated on the southern side of Taupo Bay Road, where a semi-straight alignment forms most of the northern property boundary. The topography of the site is generally flat to gently sloping to the Taupo Bay Road, with elevations gradually decreasing towards low-lying areas.

Refer to Figure 1 below:

Figure 1: Site Setting[1]



The entire area is currently pastureland, covered with rough grass and occasional vegetation, and contains existing structures down the centre portion of the site, highlighted above. A detailed review of the existing watercourses and overland flow paths is provided in Section 3. In summary, the site is crossed by several shallow valleys or gulleys that collect drainage into watercourses. These unnamed watercourses convey the runoff northward to discharge off-site via culverts under the Taupo Bay Road.

[1] *Source: https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html.*

Some existing farm tracks and culvert crossings are present within the site boundaries.

2.1 Existing Reticulated Networks

Far North District Council (FNDC) GIS mapping indicates that no existing 3 water infrastructure or reticulated networks are present within Taupo Bay Road or the site boundaries. This report has been prepared with the goal of the subdivision being self-sufficient for the purpose of wastewater, stormwater, and potable water management.

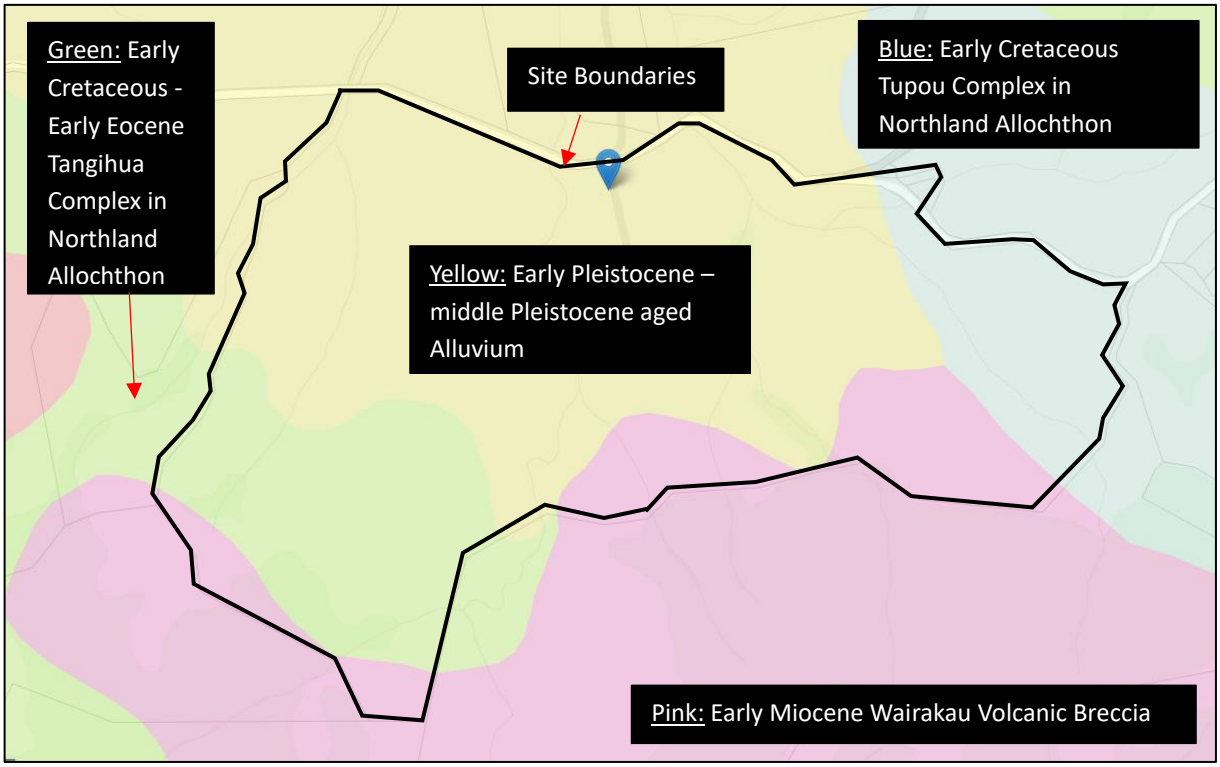
2.2 Geological Setting

Available geological mapping[2] indicates the predominant of the site to be immediately underlain by Early Pleistocene - Middle Pleistocene aged alluvium of the Tauranga Group described as “partly consolidated mud, sand, gravel and peat or lignite of alluvial, colluvial, lacustrine, swamp and estuarine origins”.

Alluvium is derived from the erosion and redeposition of subsoils, consequently, alluvium is variable in term of consistency and strength with the possibility of organic materials present and high likely-hood of loose sandy soils. This is considered to be the earliest geological deposit in the local area. Refer to Figure 2.

[2] Geology 2.0.0

Figure 2: Site Setting[3]



Early Cretaceous aged Taupo Complex in Northland Allochthon (blue) is mapped on the far eastern side of the site, described as "strongly indurated, poorly stratified conglomerate, sandstone and argillite" and it expected to underly the far eastern portion of the site.

Early Cretaceous – early Eocene aged Tangihua Complex in Northland Allochthon is mapped in the south-western corner of the site (green), described as "mainly basalt pillow lava, with subvolcanic intrusived of basalt, dolerite and gabbro; locally incorporating siliceous mudstone".

Early Miocene- aged Wairakau Volcanic Breccia is mapped in pink along the southern boundary of the site, at the highest elevations on the site.

Proposed building envelopes are expected to include both alluvial deposits and northland allochthon soils. Typically, these soils are known for generally poor drainage performance for wastewater disposal.

3 Source: https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html

2.3 Existing Geotechnical Information

Existing subdivision and/ or Building Consent ground investigations were not made available to Geologix at the time of writing. Additionally, a review of available GIS databases, including the New Zealand Geotechnical Database[4] did not indicate borehole records within 500 m of the site.

3 SURFACE WATER FEATURES AND OVERLAND FLOWPATHS

During our site walkover and desktop appraisal of the supplied topographic data, Geologix have developed an understanding of the surface water features and overland flow paths influencing the site. The developed understanding is presented in Drawing Sheet 300 with associated off-set requirements.

3.1 Surface Water Features

The site is located at the high elevations of a larger catchment that extends or flows northward. This catchment features a network of unnamed streams fed by localised minor valleys and erosion gullies. These multiple watercourses run from the southern to the northern boundaries, under Taupo Bay Road via existing culverts, and eventually discharging into an unnamed stream and into the Oruaiti River.

There is one particular stream within the property that is crossed by an existing ford structure that connects the western and eastern sections of the property with a farm race. This ford crossing is indicated in Figure 3. During the site visit, it was noted that there is continuous flow through an existing culvert under the ford crossing. The approaching stream is ponded to a shallow depth before spilling out through the culvert.

[4] https://www.nzgd.org.nz/

Figure 3: Location of existing ford crossing through stream

3.2 Overland Flow Paths

Clearly defined flow paths are evident within the site boundaries upon relatively flat to gently sloping land, generally fed from minor overland flow paths sourcing at south of the site boundaries. Several minor overland flow paths, ranging from 20 to 40 meters in length, contribute to three larger network of major overland flow paths. The three paths traverse the site, ultimately leading to separate culverts beneath Taupo Bay Road, which serve as discharge points for the water runoff. It is anticipated that the culverts are undersized, during the rare rainfall event, the stormwater will spill over the road to the downstream streams.

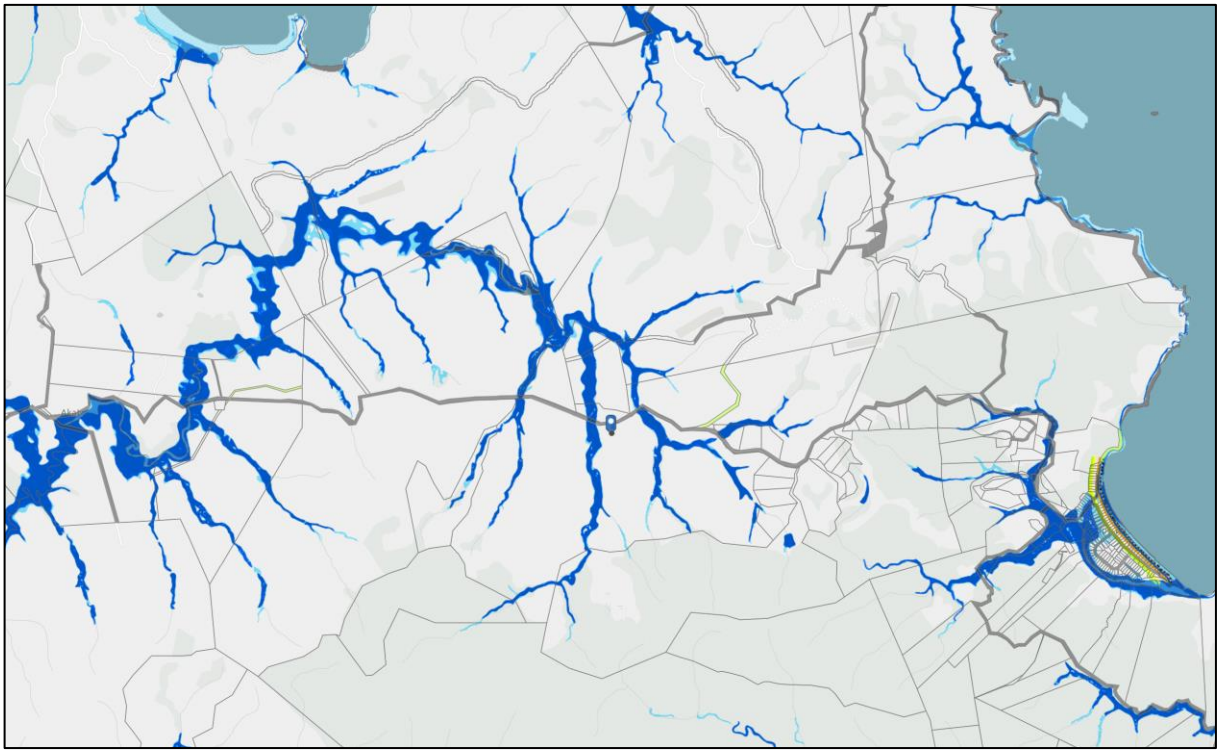
The above is indicated across our drawing set, where in view and detailed with associated off-sets on Drawing No. 300

3.3 Mapped Flood Hazard

The Northland Regional Council GIS indicates mapped river flood hazard zones (regionwide model) with the site, around the three streams. The extent of the river flood hazard is marginal, confined within the low-lying stream channel.

The 2% and 10% AEP flood plains are present too but to a lesser extent.

Figure 4: NRC Mapped River Flood Hazard Extents



The proposed building envelopes will be positioned at a sufficient distance (more than 10m) from any stream and overland flow path (OLFP) channel. This placement of the subdivision's structures and impervious areas and the provided stormwater attenuation measures (refer Section 6.4) are such that the proposed development is unlikely to significantly impact or exacerbate flooding risks for properties located downstream.

It is noted that the mapped flood hazard extends over the existing ford crossing of proposed Road 3, positioned as per Figure 3 above. A conceptual proposal for an upgraded crossing for the purposes of the subdivision and potential future residential use on lots is discussed in Section 6.2.

4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 8 October 2024. The ground investigation was scoped to confirm the findings of the above information and to provide parameters for wastewater assessment. The ground investigation comprised:

- Thirteen hand augered boreholes designated BH01 to BH13, inclusive formed within suitable areas of wastewater disposal fields on each proposed residential lot with a target depth of 1.2 m below ground level (bgl).

4.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography data supplied is in general accordance with that outlined in Section 2 and observed site conditions. Suitable building envelopes[5] can be formed on flat to gently sloping land <5 ° on each proposed lot.
- The site is currently in rough pasture with a saturated surface covering strata, because of the underlying ground properties, see proceeding sections.
- The site is bound to the north and west by similar farming or rural lifestyle block properties. Land to the east and south is currently being used for forestry.
- Taupo Bay Road defines the northern boundary and is also the lowest point of the site. The road does include grassed swale drains which are largely overgrown and require maintenance to clean out.
- No structures or suitably formed roads are present within the site boundary (other than lot 6 with an existing dwelling). There is one shallow ford crossing over an un-named stream within the site, as discussed in 3.1, that provides continuity for the existing farm race that accesses the eastern portion of the property.

4.2 Ground Conditions

Arisings recovered from the exploratory boreholes were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[6]. Engineering borehole logs are presented as Appendix B to this report and approximate borehole positions recorded on Drawing No. 300 within Appendix A. Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered ranging to depths between 0.2 and 0.7 m bgl.** A Topsoil layer was encountered across the site which has variable thickness, recording 0.2m – 0.3m of topsoil across tests BH01 – BH05, BH09 – BH12**,** and recording 0.7m of topsoil at BH07

[5] *Measuring 30 m x 30 m according to FNDC District Plan Rule 13.7.2.2.*

[6] *New Zealand Geotechnical Society, Field Description of Soil and Rock, 2005.*

and 0.4m of topsoil at BH08. The topsoil was described as brown and black in colour, moist to wet with variable plasticity ranging from friable to high.

- **Early Pleistocene – Middle Pleistocene aged Tauranga Group Alluvium to depths > 1.2 m bgl.** Underlying the topsoil layer at test locations BH01 only, located in the northern part of the site, alluvial soils were found and comprised of silty clay and silt, described as dark grey and grey mottled yellowish brown, moist to wet, with variable plasticity ranging from low to high. The upper silty clay layer was organic and contained an organic odour.

- **Northland Allochthon Residual soils to depths > 1.2 m bgl.** At every other hand auger test that was undertaken, Northland Allochthon residual soils were encountered beneath the topsoil layer**,** which comprised of a mixed stratum of silt and clay with occasional pockets of gravel and sand. The soils were generally described as a blend of yellow, brown and grey, moist to wet with plasticity ranging from low to high.

A summary of the above strata horizons and wastewater properties is presented as Table 2.

Table 2: Summary of Ground Investigation

Hole ID	Hole Depth	Proposed Lot	Topsoil Fill Depth	Ground Water[2] (M BGL)	Wastewater Category[4]
BH01	1.2 m	Lot 1	0.2 m	Strike @ 1.2m Rose to 1.0 m	6 – slow draining
BH02	1.2 m	Lot 2	0.2 m	NE	6 – slow draining
BH03	1.2 m	Lot 3	0.2 m	NE	6 – slow draining
BH04	0.6 m	Lot 4	0.2 m	NE	6 – slow draining
BH04a	1.2 m	Lot 4	0.2 m	NE	6 – slow draining
BH05	1.2 m	Lot 5	0.25 m	NE	6 – slow draining
BH07	1.2 m	Lot 7	**0.70 m***	NE	6 – slow draining
BH08	1.2 m	Lot 8	0.40 m	NE	6 – slow draining
BH9	1.2 m	Lot 9	0.25 m	NE	6 – slow draining
BH10	1.2 m	Lot 10	0.30 m	NE	6 – slow draining
BH11	1.2 m	Lot 11	0.20 m	NE	6 – slow draining
BH12	1.2 m	Lot 12	0.20 m	NE	6 – slow draining
BH13	1.2 m	Lot 13	0.20 m	NE	6 – slow draining

1. *All depths recorded in m bgl unless stated.*
2. *Groundwater measurements taken on day of drilling.*
3. *NE – Not Encountered.*

4. *Wastewater category in accordance with Auckland Council TP58[7].*

5 WASTEWATER ASSESSMENT

The scope of this wastewater assessment comprised a ground investigation to ascertain a lot-specific wastewater disposal classification for concept design of suitable systems for a probable future rural residential development. Relevant design guideline documents adopted include:

- Auckland Council, Technical Publication 58, On-site Wastewater Systems: Design and Management Manual, 2004.
- NZS1547:2012, On-site Domestic Wastewater Management.

The concept rural residential developments within this report assume that the proposed new lot may comprise up to a five-bedroom dwelling with a peak occupancy of eight people[8]. This considers the uncertainty of potential future Building Consent designs. The number of usable bedrooms within a residential dwelling must consider that proposed offices, studies, gyms or other similar spaces maybe considered a potential bedroom by the Consent Authority.

5.1 Existing Wastewater Systems

There is an existing wastewater treatment system provided to the existing dwelling within proposed Lot 6. This is positioned well within the boundaries of Lot 6 and will remain intact along with the existing dwelling.

No other existing wastewater treatment or disposal systems have been identified or surveyed within the site boundaries.

5.2 Wastewater Generation Volume

In lieu of potable water infrastructure servicing the site, roof rainwater collection within on-lot tanks has been assumed for this assessment. The design water volume for roof water tank supply is estimated at 160 litres/ person/ day[9]. This assumes standard water saving

[7] Auckland Council, Technical Publication 58, On-site Wastewater Systems: Design and Management Manual, 2004, Table 5.1.

[8] TP58 Table 6.1.

[9] TP58 Table 6.2, AS/ NZS 1547:2012 Table H3.

fixtures[10] being installed within the proposed future developments. This should be reviewed for each proposed lot at the Building Consent stage.

For the concept wastewater design this provides a total daily wastewater generation of 1,280 litres/ day per proposed lot.

5.3 Treatment System

Selection of a wastewater treatment system will be provided by future developers at Building Consent stage. This will be a function of a refined design peak occupancy.

It is recommended within the concept solution provided that to meet suitable minimum treated effluent output, secondary treatment systems are accounted for across the site. The concept solution is detailed further in the following sections.

In the Building Consent design phase, a higher treated effluent output standard such as UV disinfection to tertiary quality may be required should specifically controlled zones such as the prescribed offsets of this report are encroached upon. Moreover, a primary treatment solution may also be considered for the Lot development, provided that the system complies with the proposed Northland Regional Plan. Specifically, controlling rules include:

- Rule C.6.1.3 6), discharge of wastewater from primary systems is to slopes less than 10°.
- Rule C.6.1.3 9)a), 100 % reserve disposal area where the wastewater has received primary treatment.
- Table 9, exclusion areas and setback distances for primary treated domestic type wastewater.

No specific treatment system design restrictions and manufacturers are currently in place. However, the developer will be required to specify the treatment system proposed at the Building Consent stage.

5.4 Land Disposal System

To provide even distribution, evapotranspiration assistance and to minimise effluent runoff it is recommended that treated effluent is conveyed to land disposal via Pressure Compensating Dripper Irrigation (PCDI) systems, a commonplace method of wastewater disposal.

[10] *Low water consumption dishwashers and no garbage grinders.*

The proposed PCDI systems may be surface laid and covered with minimum 150 mm mulch and planted with specific evapotranspiration species with a minimum of 80 % species canopy cover or subsurface laid to topsoil with minimum 200 mm thickness and planted with lawn grass. Site-won topsoil during development from building and/ or driveways footprints may be used in the area of land disposal systems to increase minimum thicknesses. Specific requirements of the land disposal system include the following which have been complied with for this report.

Table 3: Disposal Field Design Criteria

Design Criteria	Site Conditions
Topography at the disposal areas shall not exceed 25°. Exceedances will require a Discharge Consent.	Concept design complies
On shallower slopes >10 ° compliance with Northland Regional Plan (NRP) rule C.6.1.3(6) is required.	Concept design complies, all disposal fields sited on slopes <10 °.
On all terrain irrigation lines should be laid along contours.	Concept design complies
Disposal system situated no closer than 600 mm (vertically) from the winter groundwater table (secondary treated effluent).	Concept design complies
Separation from surface water features such as stormwater flow paths (including road and kerb channels), rivers, lakes, ponds, dams, and natural wetlands according to Table 9, Appendix B of the NRP.	Concept design complies

5.4.1 Soil Loading Rate

Based on the results of the ground investigation, conservatively the shallow soils are inferred to meet the drainage characteristics of TP58 Category 6, sandy clay, non-swelling clay, and silty clay – slowly draining. This correlates to NZS1547 Category 5, poorly drained described as light clays. For a typical PCDI system, a Soil Loading Rate (SLR) of 2 mm/ day is recommended within NZS1547 Table 5.2 and TP58 Table 9.2.

To achieve the above SLR, technical guidance documents require the following compliance within the final design.

- 100 to 150 mm minimum depth of good quality topsoil (NZS1547 Table M1, note 1) to slow the soakage and assist with nutrient reduction.
- Minimum 30 % reserve disposal field area to enact 2.0 mm/ day SLR.

5.4.2 Disposal Areas

The sizing of wastewater system disposal areas is a function of soil drainage, the loading rate and topographic relief. For each proposed lot a primary and reserve disposal field is required as follows. The recommendations below are presented on Drawing Nos. 131 and 132.

- **Primary Disposal Field.** A minimum PCDI primary disposal field of 640 m^2 laid parallel to the natural contours.
- **Reserve Disposal Field.** A minimum reserve disposal field equivalent to 30 % of the primary disposal field is required under NRP rule C.6.1.3(9)(b) for secondary or tertiary treatment systems. Due to the shallow hard pan with associated very poorly draining soils, the gentle topographic relief and distances to surface and groundwater features this has been conservatively increased to 100 % of the primary disposal area for all proposed lots. This concept design therefore allows for a 640 m^2 reserve disposal area to be laid parallel to the natural contours.

Topography at the proposed wastewater disposal fields has been measured as ranging from flat and level to <5 °. Surface water cut-off drains are not considered necessary to meet the provisions of NRP rule C.6.1.3. In addition, no Discharge Consent is required. These requirements should be reviewed at the Building Consent stage.

5.5 Further Engineering Recommendations

A consistent cemented sand or hard pan layer was recorded across the site at shallow depth, ranging from 300 to 500 mm bgl. The hard pan characteristics determine the site as Category 7 soils. To potentially improve the conservative soil loading rate and to facilitate the drainage of the surface horizons the hard pan layer could be ripped by a hydraulic excavator during construction of wastewater disposal fields. To determine the benefits of this at Building Consent stage a lot-specific soakage test targeting the underlying cohesive layer only by falling head method should be undertaken to re-categorise the shallow soils.

Potentially this could refine the soil category to TP58 Category 6 which has an associated soil loading rate of 3 mm/ day. If in-situ testing achieves this the disposal areas may be reduced by approximately 33 % in surface area.

5.6 Summary of Concept Wastewater Design

Based on the above design assumptions a concept wastewater design is presented as Table 4 and presented schematically upon Drawing Nos. 131 and 132. It is recommended that each

lot is subject to Building Consent specific review and design amendment according to final development plans.

Table 4: Concept Wastewater Design Summary

Design Element	Specification
Concept development	Five-bedroom, peak occupancy of 8 (per lot)
Design generation volume	160 litres/ person/ day
Water saving measures	Standard. Combined use of 11 litre flush cisterns, automatic washing machine & dishwasher, no garbage grinder[1]
Water meter required?	No
Min. Treatment Quality	Secondary
Soil Drainage Category	TP58 Category 6, NZS1547 Category 5
Soil Loading Rate	2.0 mm/ day
Primary disposal field	Surface/ subsurface laid PCDI, min. 640 m^2
Reserve disposal field	Surface/ subsurface laid PCDI, min. 100 % or 640 m^2
Dosing Method	Pump with high water level visual and audible alarm. Minimum 24-hour emergency storage volume.
Stormwater Control	Divert surface/ stormwater drains away from disposal fields. Cut off drains not required. Stormwater management discharges downslope of all disposal fields.

1. Unless further water saving measures are included.

5.7 Assessment of Environmental Effects

An Assessment of Environmental Effects (AEE) is required to address two aspects of wastewater disposal. These include the effect of treated wastewater disposal for an individual lot and the cumulative or combined effect of multiple lots discharging treated wastewater to land as a result of subdivision.

The scale of final development is unknown at the time of writing and building areas, impervious areas including driveways, ancillary buildings, landscaped gardens, and swimming pools may reduce the overall area for on-site wastewater disposal. For the purpose of this report, the above impervious features are considered to be comprised within the conceptual 30 x 30 m square building envelope indicated on Drawing 100, Appendix A. The conceptual wastewater disposal field areas are clear of this indicative building envelope area.

It is recommended that the AEE is reviewed at the time of Building Consent once specific development plans, final disposal field locations and treatment systems are established. The TP58 guideline document provides a detailed AEE for Building Consent application. Based on the proposed scheme, ground investigation, walkover inspection and Drawing No. 300, a site-

specific AEE is presented as Appendix C to demonstrate the proposed wastewater disposal concept will have a less than minor effect on the environment.

6 STORMWATER ASSESSMENT

Considering the nature of rural subdivision and residential development, increased storm water runoff occurs as pervious surfaces such as pasture are converted to impervious features such as roads or future on-lot buildings and driveways.

6.1 Impervious Surfaces and Activity Status

The site is within the Rural Production Zone, the relevant permitted activity rule for impermeable surfaces is as follows:

> **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%.*

The permitted activity rules of the Far North District Plan allow for up to 15% impermeable surfaces in the Rural Production Zone. Whilst built development within the new rural lots following subdivision will result in an increase in impermeable surfaces from the existing coverage, it is highly unlikely to exceed the 15% permitted activity threshold, which would equate to approximately 18,000 m^2 per site, even taking into account ROW coverage within specific lots.

It is anticipated that houses when they are built will be of a similar scale to the existing residential development on Lot 6. A typical lot without a right of way (ROW) may have 300m^2 of roof area and 200m^2 of impervious driveway area once the site is developed.

Overall, each lot impermeable surfaces (including rights of way) on the rural-residential lots is estimated to be around 1% of the lot area.

Regional Plan rules require the avoidance or mitigation of any adverse effects of stormwater runoff on receiving environments, including downstream properties. To achieve this objective, it is proposed to attenuate stormwater runoff from the site to pre-development levels.

6.2 Stormwater Management Concept

The stormwater management concept considered in this report has been prepared to meet the requirements of the local and regional consent authorities considering the design storm event as follows:

- **Probable Future Development (Lots 1 – 12, excluding Lot 6).** The proposed application includes subdivision formation only and not lot-specific residential development at this stage. However, a conservative model of probable future on-lot development has been developed for this assessment considering variation of scale in typical rural residential development. The probable future on-lot development concept includes up to 300 m^2 potential roof area and up to 200 m^2 potential driveway or parking areas. The latter has been modelled as an offset within lot-specific attenuation devices.

- **Subdivision Development – ROWs.** The three new private accessways (Right-of-way) identified as Road 1, 2 and 3 will be unsealed metal roadways. Runoff from this new impervious area will be collected in lined channels parallel to the road edge. The channels will generally convey runoff to four proposed stormwater attenuation ponds, or where necessary, directly to existing streams, overland flow paths, or grassed area with suitable energy dissipation outlets to mitigate against erosion and scour.

- **Subdivision Development – Stormwater Ponds.** The concept design proposes four dry detention ponds within the subdivision. These ponds are to be utilised for purposes of attenuation of runoff from the private accessways only. Ponds 1 – 4 are detailed further in Section 6.4.2 and presented in Drawing Sheet 300.

- **Subdivision Development – Stream Crossings / Culverts.** There are two proposed road crossings over an overland flow path (Road 1) and a stream (Road 3).

  The Road 1 crossing will be formed in conjunction with the proposed Pond 1 dam. This catchment is fairly minor and the pond outlet's discharge will be via a pipe culvert through the dam/roadway embankment. There shall also be an emergency spillway over the dam/roadway.

  The Road 3 crossing is over a stream that has a catchment sourced within the neighbouring hills to the south of the site. The NRC mapped river flood hazard regionwide model (1% AEP + CC) indicates a flood level of about 91m at this crossing point, which LINZ contours suggest is about 1m higher than the culvert position.

  The concept proposal for the crossing is a replacement of the existing ford crossing (farm race) and its associated existing culvert to provide a safer thoroughfare for residential access. It is proposed that the new road crossing be

raised to improve freeboard above the stream's peak flood level under the 1% AEP storm event factored for climate change. The concept roading alignment and earthworks has incorporated a raised crossing to 91.5m as a conceptual solution to test feasibility.

A detailed design assessment including site-specific flood modelling and topographic survey is recommended to be undertaken to size the appropriate culvert capacity and optimise the road level to mitigate the flood depth to safe depth and velocities for residential access.

- **Subdivision Development – Vehicle crossings.** Access to each proposed lot will be established by individual vehicle crossings to the proposed three private accessways (right-of-way). These impervious surfaces will produce an insignificant increase in runoff, with less than minor adverse effect on environment, therefore requiring no attenuation.

6.3 Design Storm Events

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model[11]. The NIWA HIRDS rainfall data is presented in full within Appendix D. Provision for climate change has been adopted by means of applying a factor of 20 % to rainfall intensities, in accordance with FNDC Engineering Standards 2023.

Noting the risk of flood hazard downstream of the site as discussed in Section 3.3, this assessment has been modelled to provide stormwater attenuation up to and including 80 % of the pre-development condition for the 1 % AEP storm event which is recommended for the site including any future activities to comply with FNDC Engineering Standard Table 4-1.

This provides additional conservatism over the 10 % AEP pre-development requirement to comply with NRP Rule C6.4.2(2) and also with the Operative District Plan 13.7.3.4 (a). Attenuation modelling under this scenario avoids exacerbating downstream flooding and provides for sufficient flood control as presented in the FNDC Engineering Standards.

Furthermore, the Table 4-1 stipulates that flow attenuation controls reduce the post-development peak discharge to 80 % of the pre-development condition for the 50 % and 20 % AEP storm event. To be compliant with the above rules, the attenuation modelling within

[11] *NIWA High Intensity Rainfall Data System, https://hirds.niwa.co.nz.*

this report has been undertaken for all of the above storm events. The results are summarised in Table 7 and Table 8 and with calculations provided in full in Appendix D.

Outlet dispersion devices shall manage the 20% AEP event to reduce scour and erosion at discharge locations. Concept devices for the on-lot roof rainwater tank outlets are detailed further in Section 6.5.1 of this report.

Table 5: Design Storm Selections

Stormwater System	% AEP
Primary System – Swales, culvert, dispersion devices	20%
Secondary System - Overland flow paths	1%
Attenuation - Stormwater detention structures	1%

6.4 Concept Stormwater Attenuation

Based on the design storm events indicated above and the corresponding modelling results (in Appendix D) an attenuation concept to suit the maximum storage requirement has been provided. In this case the concept limits the post-development peak discharge to 80% of the pre-development condition for the 1% AEP storm event. This is achievable by installing specifically sized low-flow orifices into the attenuation devices.

The rational method has been adopted by Geologix with run-off coefficients as published by FNDC Engineering Standards[13] to provide a suitable concept attenuation design to limit post-development peak flows to 80% of pre-development conditions. The proposed devices with the concept design are listed below:

6.4.1 Roof Runoff Tanks

The proposed impermeable surfaces will increase peak stormwater runoff from the lots. It is proposed to provide stormwater detention tanks for up to 500 m^2 impermeable surfaces (excluding any right of way) in each lot.

The conceptual proposed tanks are above-ground and these tanks will receive the runoff from the roof only. The driveway runoff is not proposed to flow into the tanks. Instead, the tanks will over-attenuate the roof runoff to offset the driveway runoff. In this manner, the attenuation capacity of the tanks will be sufficient to mitigate the proposed on-lot impermeable surfaces (roof and driveway) such that post-development peak discharge is

[13] *FNDC Engineering Standards 2023, Version 0.6, Issued May 2023.*

limited to 80 % of the pre-development condition for the 20 %, 50 % and 1% AEP storm event. This is achievable by installing specifically sized low-flow orifices into the attenuation devices. The balance of the tank storage will be used as retention for water supply.

A summary of the probable future lot development concept design is presented as Table 6, with a specific summary of the roof tanks concept provided in Table 7. The attenuation modelling within this report has been undertaken and provided in full in Appendix D.

Table 6: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Development – Lot 1-12, excluding Lot 6			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	0 m^2	200 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**500 m^2**	

Table 7: Probable Future Development Attenuation Concept – Roof Tanks

Design Parameter	Flow Attenuation: 50 % AEP (80% of pre dev)	Flow Attenuation: 20 % AEP (80% of pre dev)	Flood Attenuation: 1 % AEP (80% of pre dev)
Proposed Development			
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1
Pre-development peak flow	5.65 l/s	7.33 l/s	12.93 l/s
80 % pre-development peak flow	4.52 l/s	5.87 l/s	10.35 l/s
Post-development peak flow	919 l/s	11.93 l/s	21.04 l/s
Total Storage Volume Required	6,025 litres	7,889 litres	14,328 litres

Concept Summary:	- Attenuation storage calculation accounts for offset flow from driveway (not indicated explicitly in summary above. Refer Appendix D for calcs in full) - Attenuation to 80 % of pre-development condition for 1 % AEP storm represents maximum storage requirement and is adopted for the concept design tank storage. - 2 x 25,000 litre tank is sufficient for attenuation (14,328l) + potable storage (35,672l) - 1 % AEP attenuation in isolation requires a 46 mm orifice 0.68 m below overflow. However regulatory requirements are to consider an additional orifice to control the 50 %. We note this may vary the concept orifice indicated above. This should be provided with detailed design for building consent approval.

If proposed impermeable surfaces in a future development are greater than the proposed Lot impervious area (500m^2), additional stormwater attenuation will be required for the area of impermeable surfaces in excess of that allowed for.

If a future development has a large area of pavement in comparison to roof area, it may not be possible to attenuate total runoff to 80% of pre-development flows by detaining roof runoff alone. In this case, a combination of stormwater dual purpose tank and underground detention tank/soakage trench might be necessary.

6.4.2 Stormwater Ponds

Stormwater management in rural areas often employs detention basins or ponds to control runoff. Detention ponds are typically dry, except during rainfall events, and quickly increase in depth during storm events.

Four dry detention ponds (Ponds 1-4) will provide sufficient storage to suit the design storms referred to in Section 6.3.. These ponds are proposed to collect runoff from common accessway (ROW) impervious area as far as possible. Any runoff that cannot be conveyed to the ponds, will have an equivalent offset provided within the ponds detention storage.

The concept position of the ponds has been strategically selected to ensure that each of the streams that exit the site is neutralised in terms of the effects of post-development runoff. Similarly, the routing of runoff from the roads and associated channels is crucial to the performance of the ponds in this regard. The concept has considered that all runoff from

pervious areas adjacent to the road will be conveyed to bypass the ponds with carefully routed channels and culverts. The crossfall of the common roading is a particularly important factor to direct impervious runoff in this manner.

The concept ponds shall have 1V:3H side slopes (minimum), be grass lined only, and have an outlet manhole structure. The outlet structure shall comprise specifically sized orifice inlets to suit the constraints of the design storms, a scruffy dome lid for overflow, and a suitably sized pipe culvert outlet that must not be smaller than the inlet pipe (or any combination of inlet pipes). Furthermore, the ponds must have an emergency spillway structure.

The concept has presented suitability sized ponds to manage the 1% AEP design storm only. It has not undertaken the detailed analysis to accommodate the lesser design storms, but this shall be required in detailed design. The effect of the multi-storm design will likely increase the overall storage requirement of the pond but not significantly. Similarly, the detailed design process shall aim to provide optimisations of the ponds to suit topographical survey and final design constraints, which may yield alternative parameters from the pond concept, including different shape, footprint and storage capacities.

Considering the above limitations of the concept pond design, the selected pond dimensions are considered to be conservative for feasibility assessment, particularly with respect to hydraulic function and earthworks requirements.

The conceptual design parameters for Pond 1 - 4 are summarised in table below.

Table 8: Subdivision Development Attenuation Concept – Ponds

Design Parameter	Pond 1	Pond 2	Pond 3	Pond 4
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1
Pre-development peak flow (1% AEP)	127.68 l/s	112.51 l/s	104.33 l/s	92.82 l/s
80 % pre-development peak flow (1% AEP)	102.15 l/s	90.00 l/s	83.47 l/s	74.26 l/s
Post-development peak flow (1% AEP)	189.81 l/s	167.25 l/s	155.10 l/s	137.98 l/s

Total Storage Volume (1% AEP) Required	53 m^3	47 m^3	85 m^3 (includes for offset)	72 m^3 (includes for offset)
Total Storage Volume (1% AEP) Provided	61 m^3 (at 0.7m depth)	55 m^3 (at 0.65m depth)	95 m^3 (at 0.85m depth)	95 m^3 (at 0.85m depth)
Emergency Storage (including spillway depth)	127 m^3 (at 1.1m depth)	117 m^3 (at 1.05m depth)	178 m^3 (at 1.25m depth)	178 m^3 (at 1.25m depth)
Total Volume (Base to Crest, including retention)	158 m^3 (at 1.25m depth)	147 m^3 (at 1.20m depth)	217 m^3 (at 1.40m depth)	217 m^3 (at 1.40m depth)
Pond Base Area	48 m^2	48 m^2	60 m^2	60 m^2
Pond Crest Area	126.4 m^2 (at 1.25m depth)	122.5 m^2 (at 1.20m depth)	155 m^2 (at 1.40m depth)	155 m^2 (at 1.40m depth)
Orifice Ø (1% AEP)	283 mm	271 mm	123 mm	122 mm
Concept Summary:	- Attenuation storage calculation accounts for offset flows where impervious area runoff cannot be directed to the ponds (not indicated explicitly indicated in summary above. Refer Appendix D for calcs in full) - Attenuation to 80 % of pre-development condition for 1 % AEP storm represents maximum storage requirement and is adopted for the concept design pond storage. - All ponds have 0.15m retention depth above base - All ponds sized with 1V:1H side slopes - All ponds sized with 300mm deep spillway, positioned 100mm above top of outlet manhole - 1 % AEP attenuation (in isolation) requires above orifice diameters. However regulatory requirements are to consider an additional orifice/s to control the 50 %, 20 % and 1 % AEP events specifically. We note this may vary the concept orifice indicated above. This should be provided with detailed design for approval.			

6.5 Subdivision Development Management

All stormwater conveyance devices must be suitably sized to accommodate peak run-off flows from the design storm event. Stormwater conveyance to be constructed at the time of subdivision formation is proposed to include:

- 300mm Ø min pipe culverts formed at each vehicle crossing with the proposed common accessways the to provide conveyance of drainage beneath the lot accessway.
- Suitably sized culverts under the proposed intersections (crossings) with Taupo Bay Road for Road 1 and Road 2. To be sized at detailed design stage.
- Inlet and outlet pipe culverts to Ponds 1 – 4, with suitable headwall/wingwall structures and energy dissipation at outlets.
- All road-side channels to be suitably sized for their respective catchments, and lined as necessary depending on slope and velocity of flows, subject to detailed design approvals. It is noted particularly that routing of flows in these drains is a critical aspect of the concept design. Pervious area runoff shall be diverted directly to streams/ overland flow paths. Impervious areas shall be collected and conveyed to ponds as far as possible. Offset mitigation shall be applied where necessary.

Other stormwater infrastructure mentioned in this report is conceptual only to justify the subdivision formation, and should be designed specifically and constructed at lot-development stage, and subjected to building consent where applicable.

6.5.1 On-Lot Discharge – Roof tank outlets

The direct discharge of concentrated runoff can cause scour and erosion in addition to excessive saturation of shallow soils.

It is recommended that overflow from rainwater detention tanks is conveyed in sealed pipes to a designated discharge point downslope of proposed building footprints and wastewater disposal fields.

Typical residential developments on rural properties may construct either above ground level spreader or an equivalent in-ground dispersion trench. Feeding pipes can be either buried or pinned to the surface as desired and shall be design in accordance with Auckland Council TR2013/018 document or other suitable guideline. It is recommended that all pipes are designed to accommodate the design storm event peak overflows from the attenuation tank.

It is recommended that dispersion devices are subject to specific assessment at the Building Consent stage to limit scour and erosion from tank overflows.

6.5.2 Accessway Channel Culvert Inlet and Outlets

It is recommended that concentrated discharge from the conceptual accessway's road-side channels or pipe culverts are controlled via energy dissipation devices such as stormwater outlet and rip rap aprons.

The rip rap aprons should be designed in accordance with Auckland Council Technical Report TR2013/018 or similarly adopted code of practice. It is recommended that the rip rap apron dispersion devices are subject to specific assessment at the detailed design phase.

Where road-channels are collecting and conveying water to a stormwater pond, it is recommended that a scruffy dome catchpit is positioned within the channel, with a pipe culvert to discharge water efficiently into the pond's basin with a suitable energy dissipation structure.

6.6 Stormwater Quality

The proposed application is for a rural subdivision and future development. The key contaminant risks in this setting include:

- Sediments and minor contaminants washed from impervious surfaces.
- Leaf matter, grass, and other organic debris.

Stormwater treatment requirements are minor to maintain good quality stormwater discharge. Stormwater quality will be provided by:

- Leaf guards on roof guttering/ first flush devices on roof guttering and downpipes.
- Rainwater tank for potable use onsite only to be filled by roof runoff.
- Room for sedimentation (minimum 150 mm according to Auckland Council GD01) within the base of the stormwater attenuation roof runoff tanks as dead storage volume.
- Stormwater discharges directed towards roading swale drains where possible.
- Grassed swale drains from rainwater inception (road surfaces) to discharge points.

The risk of other contaminants being discharged out of the site boundaries (hydrocarbons, metals etc.) as a result of the proposed activities once stormwater has been processed through the above measures that will affect the downstream water quality is considered low.

7 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Taupo Bay Road or within the site it is recommended that roof runoff water tanks are adopted for potable water supply with appropriate filtration and UV disinfection at point of use. The volume of potable water supply on each lot should consider the required stormwater detention volume identified within Table 6. For the proposed lots, a second tank may be required for sufficient potable water volumes.

Furthermore, the absence of potable water infrastructure and fire hydrants within Taupo Bay Road require provision of the on-lot roof water supply tanks to be used for firefighting purposes, if required. Specific analysis and calculation for firefighting is outside the scope of this report and may require specialist input. Supply for firefighting should be made in accordance with SNZ PAS4509:2008.

8 EARTHWORKS

As part of the subdivision application, earthworks are required as follows:

- **Internal Roading.** Cut/ fill earthworks are required to form the three proposed RoWs within the site boundaries.
- **Stormwater Ponds.** Cut/ fill earthworks are required to form the four proposed dry detention ponds within the site boundaries.
- **Vehicle Crossings (Lots 1 – 12, ex 6; and 2 ROW crossings).** Cut/ fill earthworks for construction of the vehicle crossing to Council Engineering Standards. Required at subdivision formation.

Table 9: Summary of Proposed Earthworks Volumes - Roads

Activity	Proposed Area	Proposed Volume	Net	Max. Height
ROAD 1				
Cut		1089.59 m^3		< 3m
Fill		1896.55 m^3		< 3m
Sub-total	11426.87 m^2	2986.14 m^3	809.96 m^3 fill	
ROAD 2				

Cut		1757.62 m^3		< 3m
Fill		1474.98 m^3		< 3m
Sub-total	9157.10 m^2	3232.60 m^3	282.64 m^3 cut	
ROAD 3				
Cut		248.07 m^3		< 3m
Fill		1597.83 m^3		< 3m
Sub-total	4641.63 m^2	1845.90 m^3	1349.76 m^3 fill	
Total	**25225.60 m^2**	**8,064.62 m^3**	**1874.08 m^3 fill**	

Earthworks requirements for the ponds has been conservatively estimated as 150% of the pond "crest level" area and volume. This is considered a reasonable allowance on the basis that the ponds will be excavated in gently sloped land (< 2.8%) and with a reasonable cut to fill balance available. The ponds internal side slopes and external batters shall be 1V:3H unless otherwise defined at detailed design stage. This estimate includes for trenching of culverts and structures associated to the pond.

Table 10: Summary of Proposed Earthworks Volumes - Ponds

Activity	Proposed Area	Proposed Volume	Net	Max. Height
POND 1				
Cut		119 m^3		2 m
Fill		119 m^3		2 m
Sub-total	190 m^2	238 m^3	0 m^3 fill	
POND 2				
Cut		110 m^3		2 m
Fill		110 m^3		2 m
Sub-total	184 m^2	220 m^3	0 m^3 fill	
POND 3				
Cut		163 m^3		2.5 m
Fill		163 m^3		2.5 m
Sub-total	233 m^2	326 m^3	0 m^3 fill	
POND 4				
Cut		163 m^3		2 m
Fill		163 m^3		2 m
Sub-total	233 m^2	326 m^3	0 m^3 fill	
Total	**840 m^2**	**1,110 m^3**	**0 m^3 fill**	

It is recommended to allow for 40m^2 area and 15m^3 volume of earthworks/fill per vehicle crossing as a conservative allowance. There are 14 vehicle crossings proposed i.e. one for each of the 12 lots, plus two for the ROW entrances. Therefore, 560m^2 area and 210m^3 volume total.

Table 11: Summary of Proposed Earthworks Volumes - Total

Activity	Proposed Area	Proposed Volume	Net
ROADS			
Sub-total	25,225.60 m²	8,064.62 m^3	1,874.08 m^3 fill
PONDS			
Sub-total	840 m²	1,110 m^3	282.64 m^3 cut
CROSSINGS			
Sub-total	560 m²	210 m^3	210 m^3 fill
Total	**26,625.6 m²**	**9,384.62 m^3**	**1,801.44 m^3 fill**

Proposed earthwork volumes exceed the 5,000 m^3 Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.1(a) however the maximum cut and fill height is <3 m to comply with 12.3.6.1.1(b).

Rule C.8.3.1, Table 13 of the Proposed Regional Plan outlines a Permitted Activity as 5,000 m^2 of exposed earth at any time for 'other areas'. Proposed earthwork areas to form the subdivision, are anticipated to not comply with the Permitted Activity standard for other areas. A full assessment according to the criteria is presented within Appendix C; of primary concern is effectively controlling the sediment runoff from earthworks to comply with Rule C.8.3.1(6). This has been addressed further within Section 8.3.

8.1 General Recommendations

Bulk fill with site-won earth can be moderately sensitive to disturbance when exposed to rain or runoff which may cause saturation or vehicle movements and trafficking during earthworks. Accordingly, care should be taken during construction, including probable future developments to minimise degradation of any earth fill due to construction traffic and to minimise machinery on site.

Any areas of proposed bulk fill which are required to meet specific subgrade requirements within should be subject to a specific earthwork specification prepared by a professional Engineer such as Geologix.

Due to the topography of the site, significant excavations are not anticipated. However, to reduce the risk of instability of excavations during construction, it is recommended that **temporary** unsupported excavations have a maximum vertical height of 1.0 m. Excavations >1.0 m should be battered at 1V:1H or 45 °. Permanent batter slopes may require a shallower angle to maintain long term stability and if proposed these should be assessed at the Building Consent stage within a specific geotechnical investigation report.

Temporary batters should be covered with polythene sheets secured to the surface with pins or batons to prevent saturation. All works within close proximity to excavations should be undertaken in accordance with Occupational Safety and Health regulations.

All earthworks should be carried out in periods of fine weather within the typical October to April earthwork season. Consent conditions commonly prescribe working restrictions.

8.2 Right of Way Geotechnical Recommendations

To achieve suitable vertical changes in the road formation, some excavation and filling is expected. By simply stripping topsoil only from fill areas there is the potential to form RoW crests bearing upon the hard pan and RoW cuts through the hard pan into underlying cohesive alluvial deposits which are most likely variable in strength and consistency along the RoW alignment which may cause excessive differential settlement.

It is recommended that a geotechnical assessment is undertaken along the RoW alignments at detailed design stage to ascertain CBR values at the proposed subgrade levels and to determine settlement potential. Some improvement may be required to the subgrade to prevent excessive differential settlement between cuts and fills which conceptually could be remedied as follows:

- Ripping and removal of hard pan along the proposed RoW length exposing uniform cohesive alluvial strata.
- In areas of localised low-strength alluvial deposits with excessive settlement potential undertake a sub-excavation depth determined by specific geotechnical analysis.
- Replace sub-excavated materials with compacted GAP hard fill. This may require geogrid reinforcement.

8.3 Erosion and Sediment Control

Erosion and sediment control measures are required to control sediment runoff from areas of proposed earthworks within the scope of this application. This drawing has been prepared

in general accordance with Auckland Council GD05[14] and with additional measures to specifically protect sensitive environmental receptors within close proximity to the earthworks area. Preliminary erosion and sediment control measures are summarised as follows which should be confirmed during detailed design:

- Multiple sediment retention ponds (SRPs) and or decanting earth bunds (DEBs) will be required to manage the collection of sediment-laden runoff during the earthworks of the subdivision roads and vehicle crossings. It is recommended that these devices are design specifically at detailed design stage.
- It is recommended that the permanent Ponds 1, 2, 3 & 4 are well located to be constructed and used as sediment retention ponds during construction of upstream road sections. Once roadworks are completed they may be completed to suit the permanent details.
- Dirty water diversion channels shall be constructed downslope of all subdivision roadworks and any temporary roads being used for construction vehicles to traffic. The channels will collect and convey water to nearest SRP or DEB. These shall be lined with suitable geofabric or PE liner.
- Clean water diversion above roadworks area to divert the upslope catchment toward suitable overland flow paths or stream with suitable discharge outlets. These shall be lined with suitable geofabric or PE liner.
- Stabilised entrances formed at the proposed RoW intersections with Taupo Bay Road.
- Super silt fences installed along perimeter faces of earthworks of RoW alignments, ponds and downslope of culvert crossings to be constructed.
- Temporary diversion of existing overland flow paths, i.e. drainage ditches around culvert crossings during the construction period.

9 NATURAL HAZARD ASSESSMENT

To satisfy the Resource Management Act, 1991 the proposed subdivision must plan for and manage the risk from natural hazards to reduce the potential adverse effects to less than minor. Regulatory assessment of natural hazards at the site location are managed under the

[14] *Auckland Council Guideline Document 2016/005, Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region, June 2016, Incorporating Amendment 2.*

jurisdiction of the FNDC District Plan[15], Northland Regional Council (NRC) Proposed Regional Plan for Northland[16] and Regional Water and Soil Plan for Northland. Following our ground investigation and considering the measures presented in this report, a summary of the proposed activities against defined natural hazards is presented as Table 12.

Table 12: Summary of Natural Hazards

Natural Hazard	Applicability	Mitigation & Effect on Environment
Erosion	Yes	Mitigation required. Managed to less than minor effect.
Overland flow paths, flooding, inundation	Yes	Mitigation required. Flooding of proposed Road 3 stream crossing may be managed safely but requires detailed design assessment
Landslip	NA	No mitigation required, less than minor.
Rockfall	NA	No mitigation required, less than minor.
Alluvion	NA	No mitigation required, less than minor.
Avulsion	NA	No mitigation required, less than minor.
Unconsolidated fill	NA	No mitigation required, less than minor.
Soil contamination	NA	No mitigation required, less than minor.
Subsidence	NA	No mitigation required, less than minor.
Fire hazard	NA	No mitigation required, less than minor.
Sea level rise	NA	No mitigation required, less than minor.

NA – Not Applicable.

10 INTERNAL ROADING AND VEHICLE CROSSINGS

It should be noted that we are not traffic engineers, and no specific Traffic Impact Assessment is included within the scope of these works. If required, it is recommended that advice is sought from a chartered traffic engineer.

10.1 Traffic Intensity Factor and Household Equivalents

According to Appendix 3A of the Operative District Plan, providing for one standard residential unit per lot, each accounting for up to 10 traffic movements per unit per day the following Traffic Intensity Factors (TIF) and Household Equivalents have been developed for each proposed RoW.

- **Road 1:** TIF of 60 from five HE (Lots 7, 8, 9, 10, 11, 12).

[15] *Operative District Plan Rule 13.7.3.2.*

[16] *Proposed Regional Plan for Northland, Appeals Version, July 2021, Chapter D.6.*

- **Road 2:** TIF of 50 from five HE (Lots 1, 2, 3, 4, 5).
- **Road 3:** TIF of 30 from three HE (Lots 2, 3, 4)

10.2 Right of Ways (RoWs)

Two private accessways (RoWs) comprising presented Roads 1, 2 & 3 will provide internal access to all proposed lots and will be constructed to the standards specified in Appendix 3B-1 of the Operative District Plan, as summarised in Table 13.

Table 13: Summary of Proposed RoW Specification

Location	Lots	H.E	Standard	Min. Legal Width	Min. Carriageway Width
Road 1 (CH0 – 340m)	7 to 12	6	RoW 5 – 8 HE	7.5 m	5.0 m Lined swale drains and check dams
Road 1 (CH 340 – 820m)	9 to 12	4	RoW 3 – 4 HE	7.5 m	3.0 m with passing bays Lined swale drains and check dams
Road 1 (CH 820 – 991m)	11 & 12	2	RoW 2 HE	5 m	3.0 m Lined swale drains and check dams
Road 2 (CH0 – 100)	1 to 5	5	RoW 5 – 8 HE	7.5 m	5.0 m Lined swale drains and check dams
Road 2 (CH100 – 470)	2 to 5	4	RoW 3 – 4 HE	7.5 m	3.0 m with passing bays Lined swale drains and check dams
Road 3 (CH0-270)	2 to 4	3	RoW 3 – 4 HE	7.5 m	3.0 m with passing bays Lined swale drains and check dams
Road 3 (CH270-466)	3 & 4	2	RoW 2 HE	5 m	3.0 m Lined swale drains and check dams

The private accessways are about 2km in total length. The longitudinal gradients are limited to 17% maximum which is in keeping with FNDC Standards. The concept geometry has applied vertical curves with K values generally exceeding 4 in effort to create suitable speed environment recommended limited to 30km/h. However, through some steeper areas such as the stream/overland flow path crossings on Road 1 and 3, the K value has been reduced to > 1.5. Through these sections, speeds should be reduced to 15km/h considering the curvature and narrow width of the road (3m).

It is proposed to construct two lined swale drains along each face of the proposed RoWs which have been graded to direct stormwater runoff to stormwater infrastructure at specific low points of the RoW alignment. Due to the RoW proximity to sensitive environments, it is

recommended that additional stormwater quality improvement devices such as grassed swales with check dams are constructed to reduce the downstream effect of stormwater run-off along the length of all swale drains. Specific engineering design and sizing of the check dams should be undertaken within a detailed design phase with accompanying construction drawings prior to breaking ground.

10.3 Vehicle Crossings

10.3.1 Right of Way Crossings

Access to the proposed subdivision will be via two new crossings to access Road 1 and 2 at the locations shown on the drawings. These crossing positions have been specifically selected to maximise sight line distance from the egress position of the crossings. A sightline distance assessment has been undertaken with the results presented in Figures 5 and 6 below.

- At Road 1, the sight line distance is determined 103m east and 242m west
- At Road 2, the sight line distance is determined 123m east and 107m west

According to the operational FNDC Engineering Standards 2009, which take reference from Austroads in this regard, the minimum sight distances achieved are safe for up to approximately 75km/h operational speed.

It is determined that this is reasonably conservative for this particular section of Taupo Bay Road, with due consideration for the horizontal and vertical curvature, as well as the surrounding topography and vegetation within adjacent properties that obstructs driver sight lines.

10.3.2 Individual Lot Crossings

Access to the individual lots is recommended by providing standard rural residential crossings according to current FNDC Engineering Standards. The concept layout positions the crossings close to the proposed building footprints. The final crossing locations to proposed lots may be determined at the Building Consent Stage according to NZS4404 Clause 3.3.17.2 however certain crossings' position may influence the requirements for the right of way, as presented in Table 13, and therefore is constrained to meet these outcomes.

Figure 5: Road 1 Vehicle Crossing Sight Distances

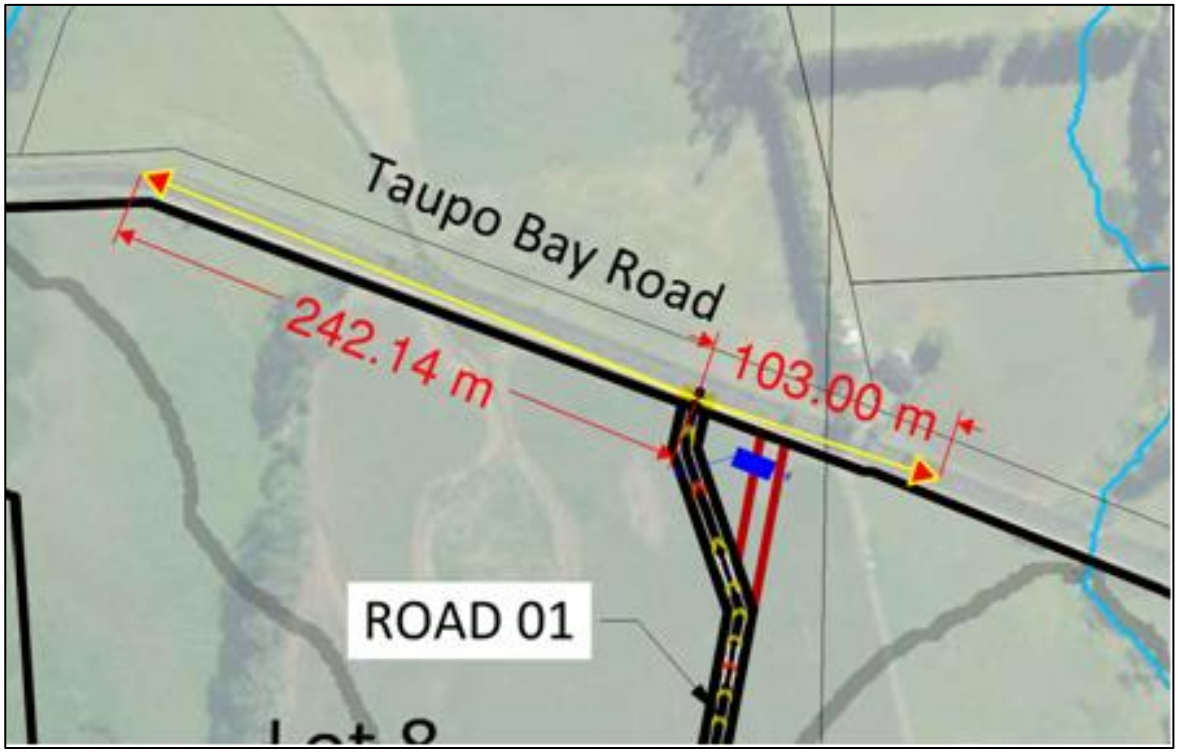
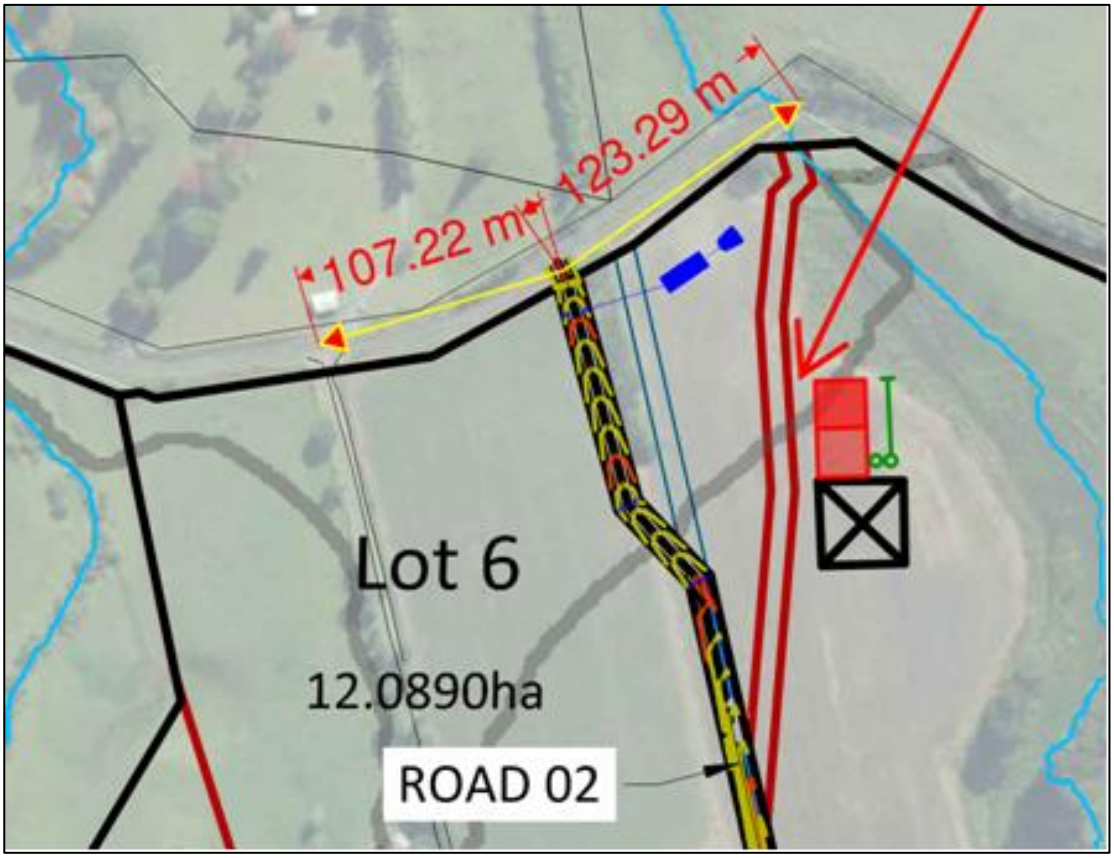


Figure 6: Road 2 Vehicle Crossing Sight Distances



11 LIMITATIONS

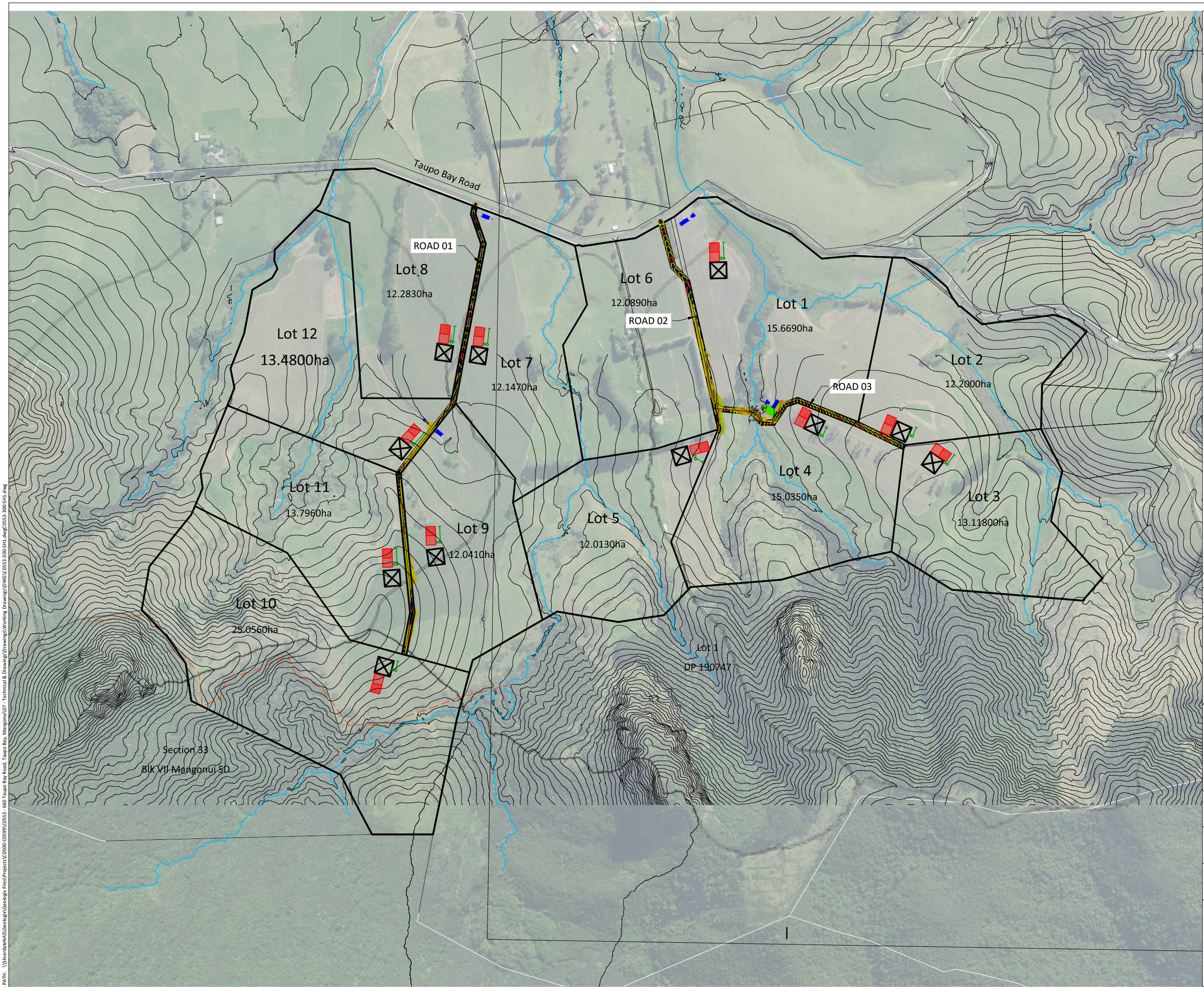
This report has been prepared for G R Lodge as our Client. It may be relied upon by our Client and their appointed Consultants, Contractors and for the purpose of Consent as outlined by the specific objectives in this report. This report and associated recommendations, conclusions or intellectual property is not to be relied upon by any other party for any purpose unless agreed in writing by Geologix Consulting Engineers Ltd and our Client. In any case the reliance by any other party for any other purpose shall be at such parties' sole risk and no reliability is provided by Geologix Consulting Engineers Ltd.

The opinions and recommendations of this report are based on plans, specifications and reports provided to us at the time of writing, as referenced. Any changes, additions or amendments to the project scope and referenced documents may require an amendment to this report and Geologix Consulting Engineers should be consulted. Geologix Consulting Engineers Ltd reserve the right to review this report and accompanying plans.

The recommendations and opinions in this report are based on arisings extracted from exploratory boreholes at discrete locations and any available existing borehole records. The nature and continuity of subsurface conditions, interpretation of ground condition and models away from these specific ground investigation locations are inferred. It must be appreciated that the actual conditions may vary from the assumed ground model. Differences from the encountered ground conditions during subdivision construction may require an amendment to the recommendations of this report.

APPENDIX A

Drawings



GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
5. DO NOT SCALE FROM THIS DRAWING.

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A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROADING SITE LAYOUT - OVERALL

Sheet

300

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PLOTTED: 20/11/2024

GENERAL NOTES

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A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROAD 01 - CH 0.0 - 120.0

Sheet

310

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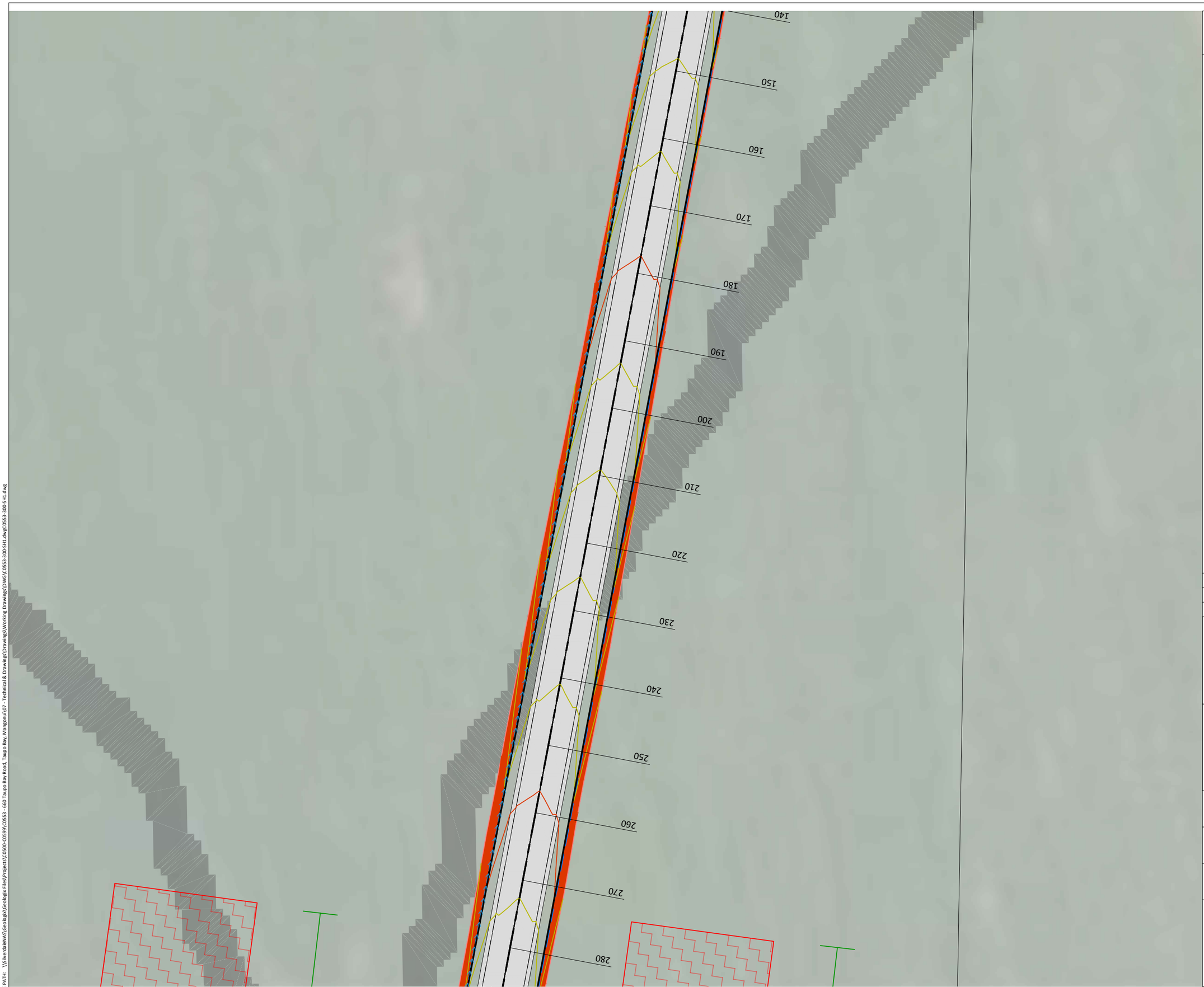
PLOTTED: 20/11/2024



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A	CONSENT	24/04/2025
Revision	Issue	Date

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AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROAD 01 - CH 120.0 - 260.0

Sheet

311

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical (& Drawings)\Drawings\Working Drawings\DWGs\C0553-300-SH1.dwg[C0553-300-SH1.dwg

PLOTTED: 20/11/2024

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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
DAILY WASTEWATER GEN.	160 LITRES/PERSON/ DAY
TOTAL WASTEWATER GEN.	1,280 LITRES/ DAY
SOIL CATEGORY (TP58)	CATEGORY 6
SOIL CATEGORY (NZS1547)	CATEGORY 5
SOIL LOADING RATE	3.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROAD 01 - CH 260.0 - 400.0

Sheet

312

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWGs\C0553-300-SH1.dwg

PLOTTED: 20/11/2024

RIP RAP ENERGY DISSIPATION DEVICE

WING WALL

POND 1
158 M3

SWMH WITH SCRUFFY DOME

LOT 12

430
440
450
460
470
480
490
500
510
530
550
560
570
580
590

GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
5. DO NOT SCALE FROM THIS DRAWING.

CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
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RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10
1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix
consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client
G R LODGE

Sheet Title
ROAD 01 - CH 400.0 - 560.0

Sheet
313

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-Sht1.dwg C0553-300-Sht1.dwg

PLOTTED: 20/11/2024

GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
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5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

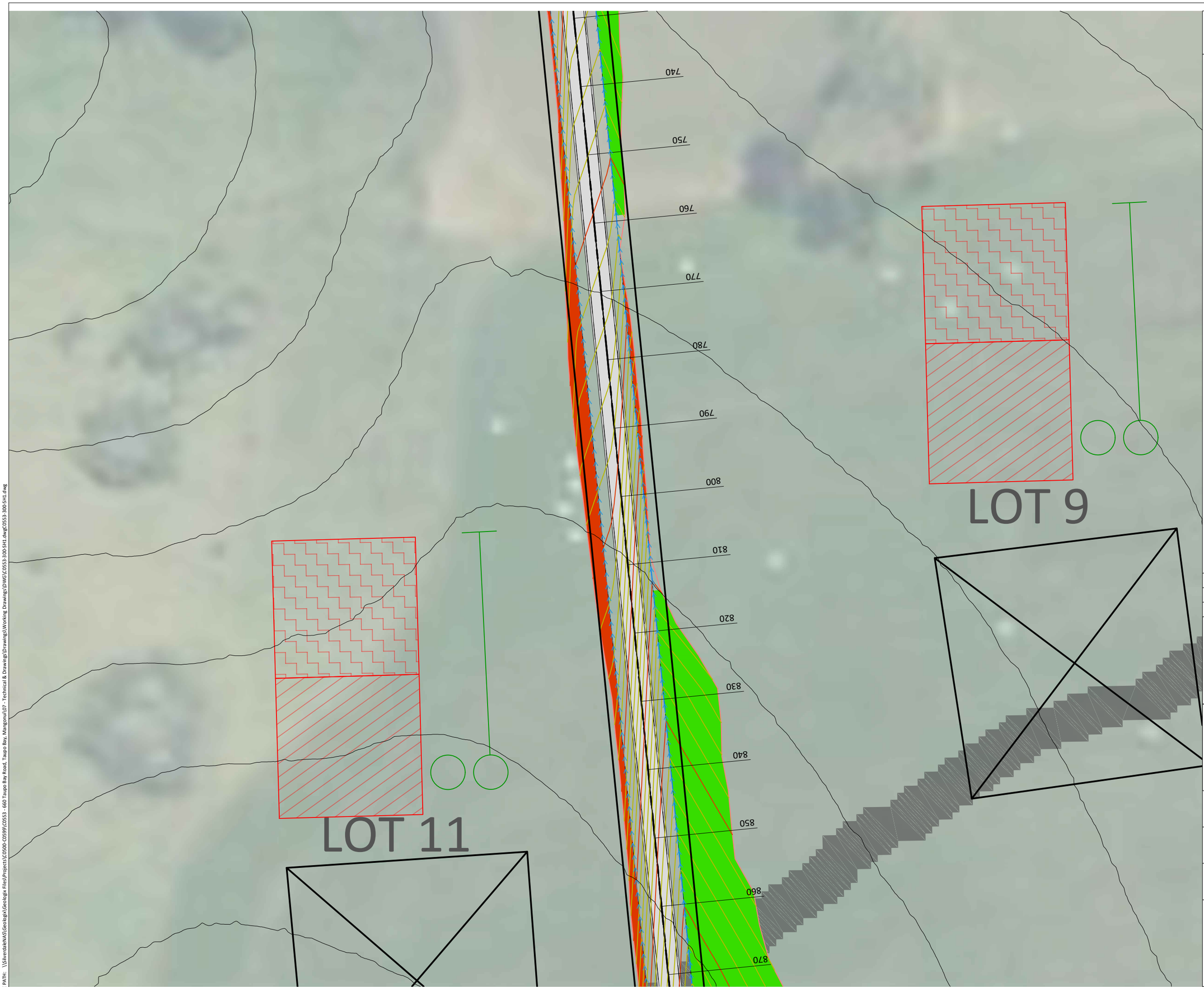
ROAD 01 - CH 560.0 - 710.0

Sheet

314

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1.dwgC0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

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2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
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SOIL LOADING RATE	3.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

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AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

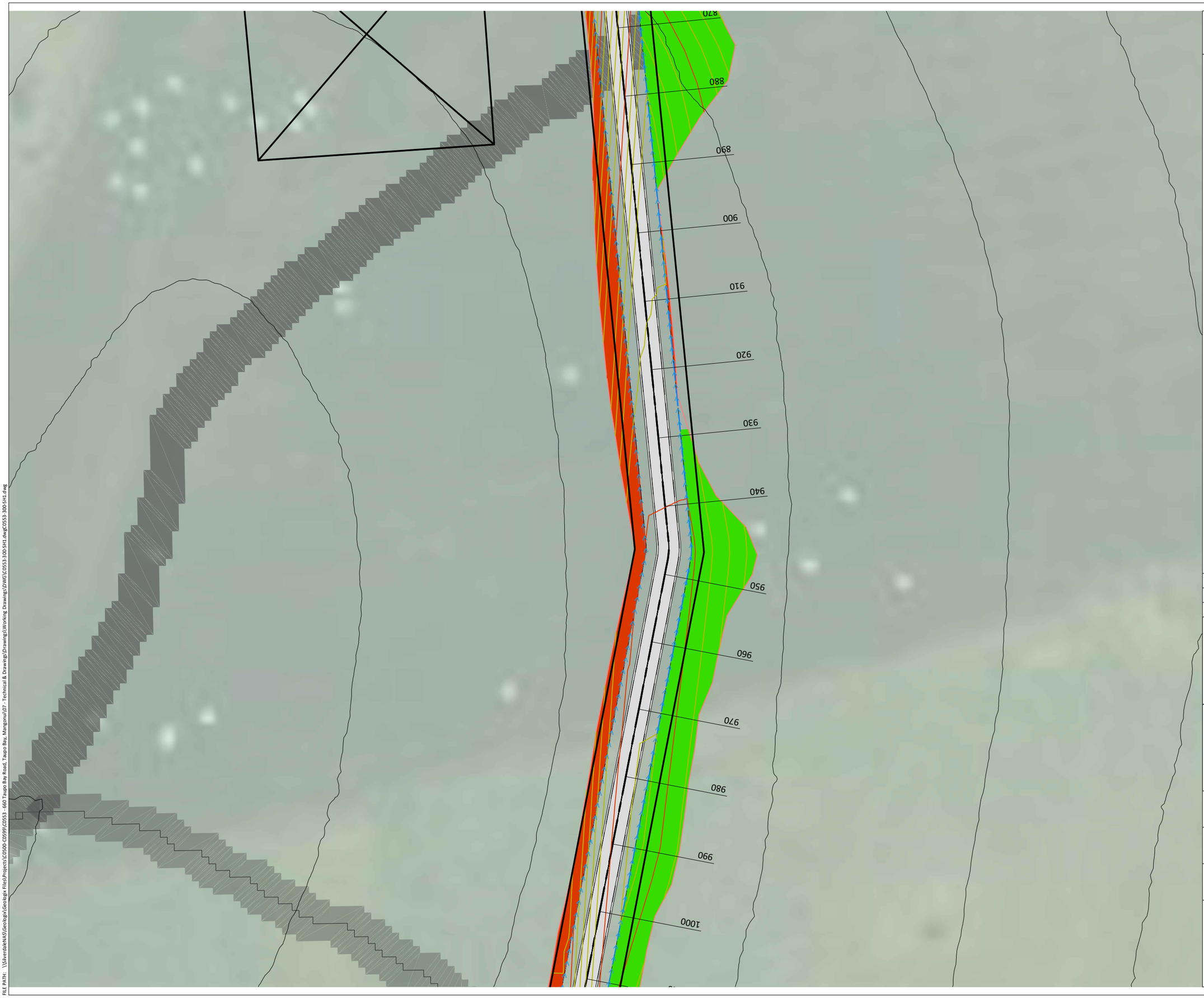
ROAD 01 - CH 710.0 - 850.0

Sheet

315

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWGs\C0553-300-SH1.dwg|C0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
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SOIL LOADING RATE	3.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROAD 01 - CH 850.0 - 1000.0

Sheet

316

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical (& Drawings)\Drawings\Working Drawings\DWGs\C0553-300-SH1.dwg[C0553-300-SH1.dwg

PLOTTED: 20/11/2024

980
990
1000
1010
1020
1030
1040
1041
LOT 10

GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
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RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10
1:500

Revision	Issue	Date
A	CONSENT	24/04/2025

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

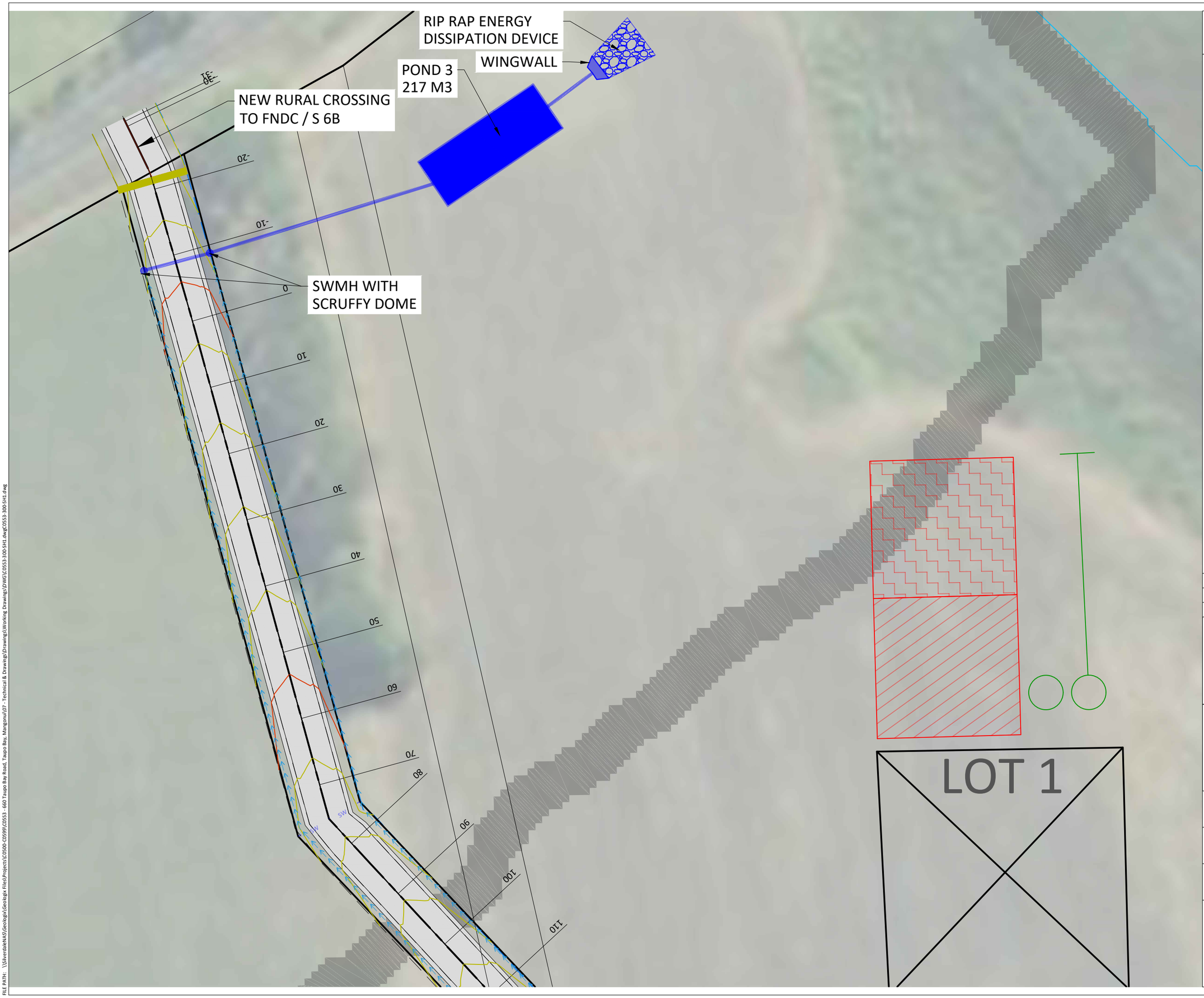
Client
G R LODGE

Sheet Title
ROAD 01 - CH 1000.0 - 1040.0

Sheet
317

FILE PATH: \\SilverlakeNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical\& Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1.dwg C0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
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PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

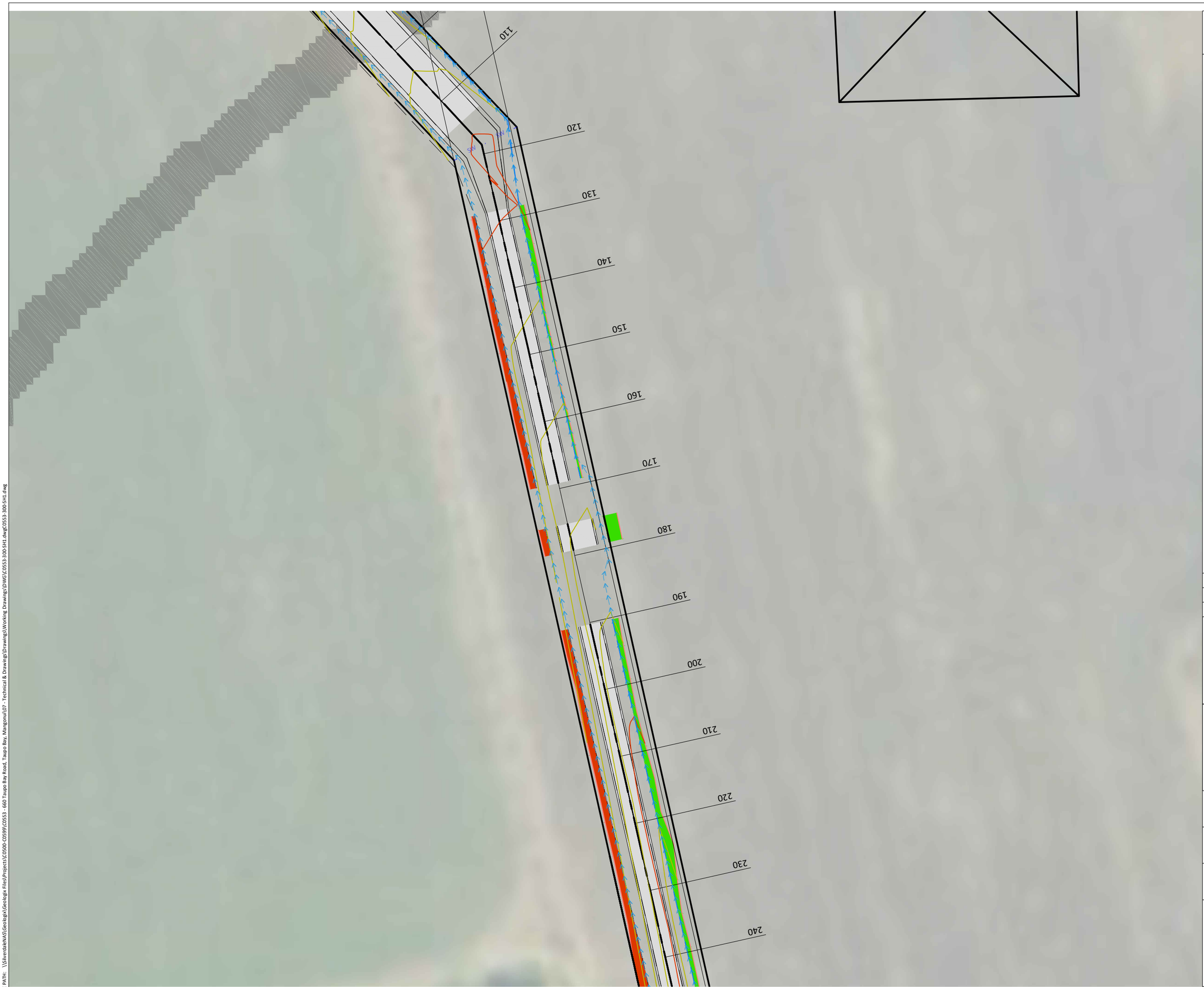
G R LODGE

Sheet Title

ROAD 02 - CH 0.0 - 110.0

Sheet

318



GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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CONCEPT WASTEWATER DESIGN

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FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

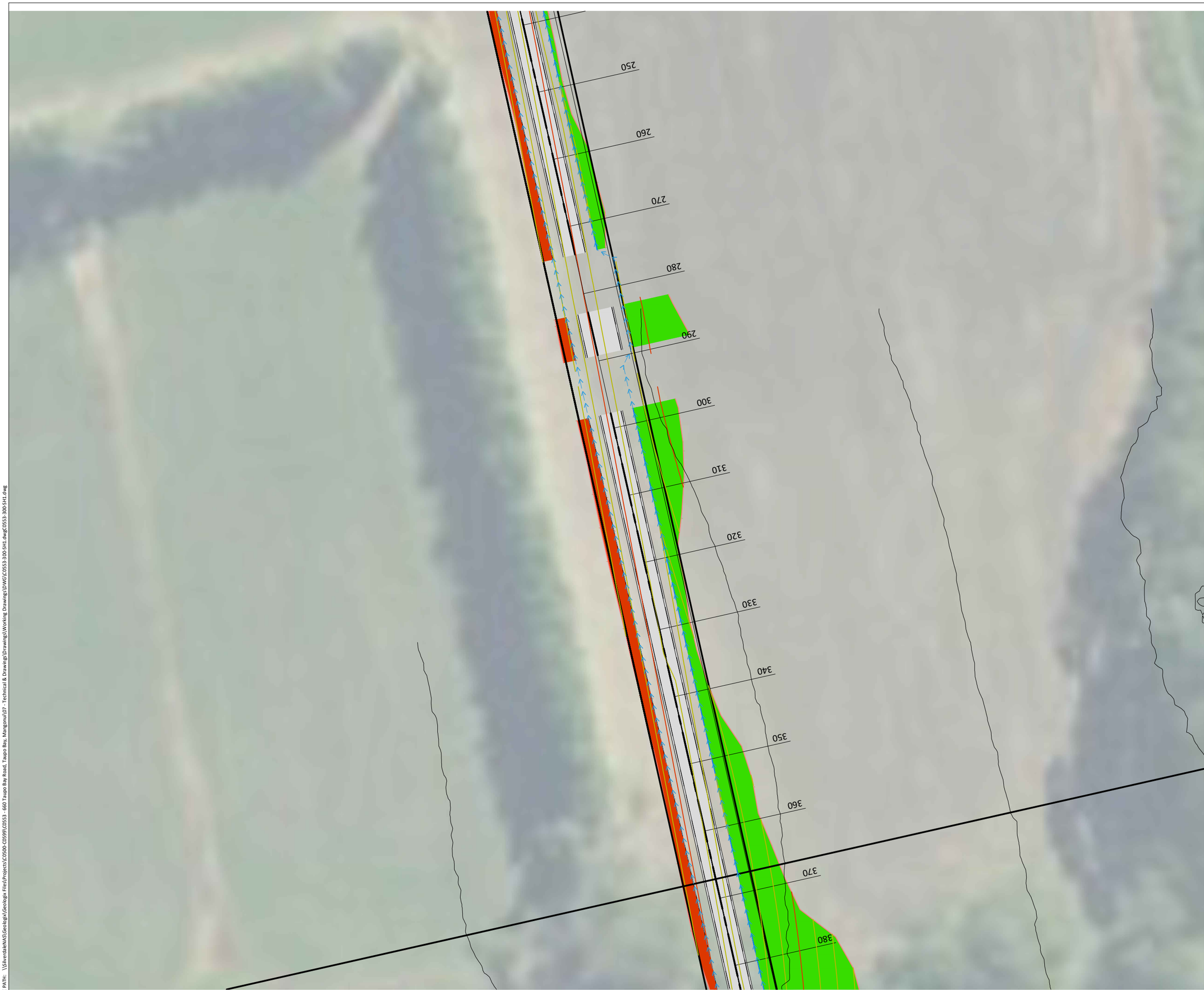
ROAD 02 - CH 110.0 - 250.0

Sheet

319

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWGS\C0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
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CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
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CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

ROAD 02 - CH 250.0 - 390.0

Sheet

320

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-Sht1.dwg

PLOTTED: 20/11/2024

EXISTING FORD CROSSING OVER STREAM, PROPOSED TO BE RAISED OVER NEW CULVERT. FINAL LEVELS SUBJECT TO DETAILED DESIGN TO DETERMINE SAFE FREEBOARD ABOVE STREAM FLOOD LEVEL

RIP RAP ENERGY DISSIPATION DEVICE

WINGWALL

POND 4
217 M3

EXISTING CULVERT DIMENSIONS/MATERIAL UNKNOWN.

PROPOSED TO UPGRADE WITH NEW PIPE CULVERT, SIZING SUBJECT TO DETAILED DESIGN

GENERAL NOTES

1. CONTOURS AT 25.0m MAJOR AND 5.0m MINOR INTERVALS.
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CONCEPT WASTEWATER DESIGN

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RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10
1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix
consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

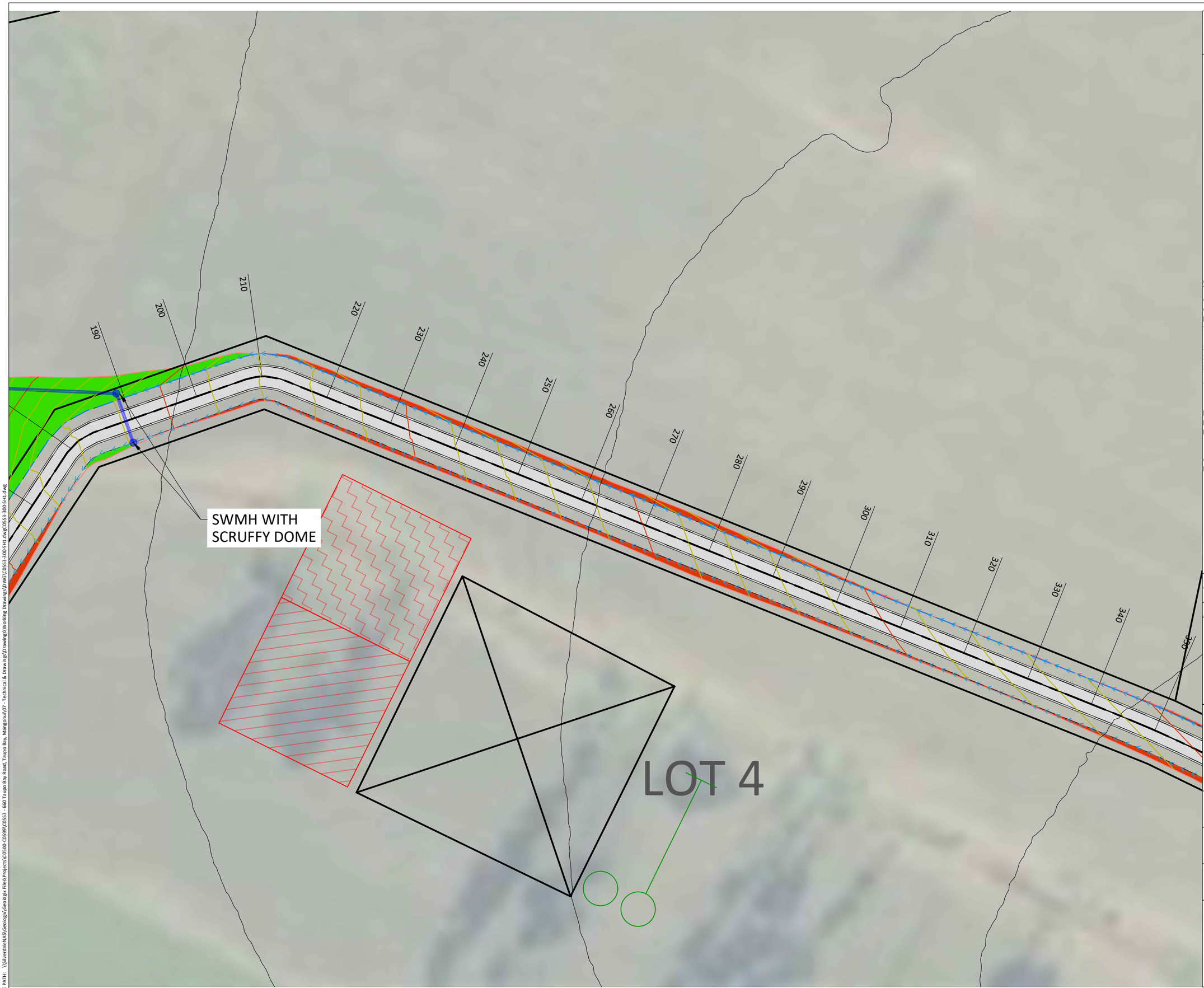
Client
G R LODGE

Sheet Title
ROAD 03 - CH 0.0 - 190.0

Sheet
321

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawing\DWG\C0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

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2. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10

1:500

Revision	Issue	Date
A	CONSENT	24/04/2025

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client

G R LODGE

Sheet Title

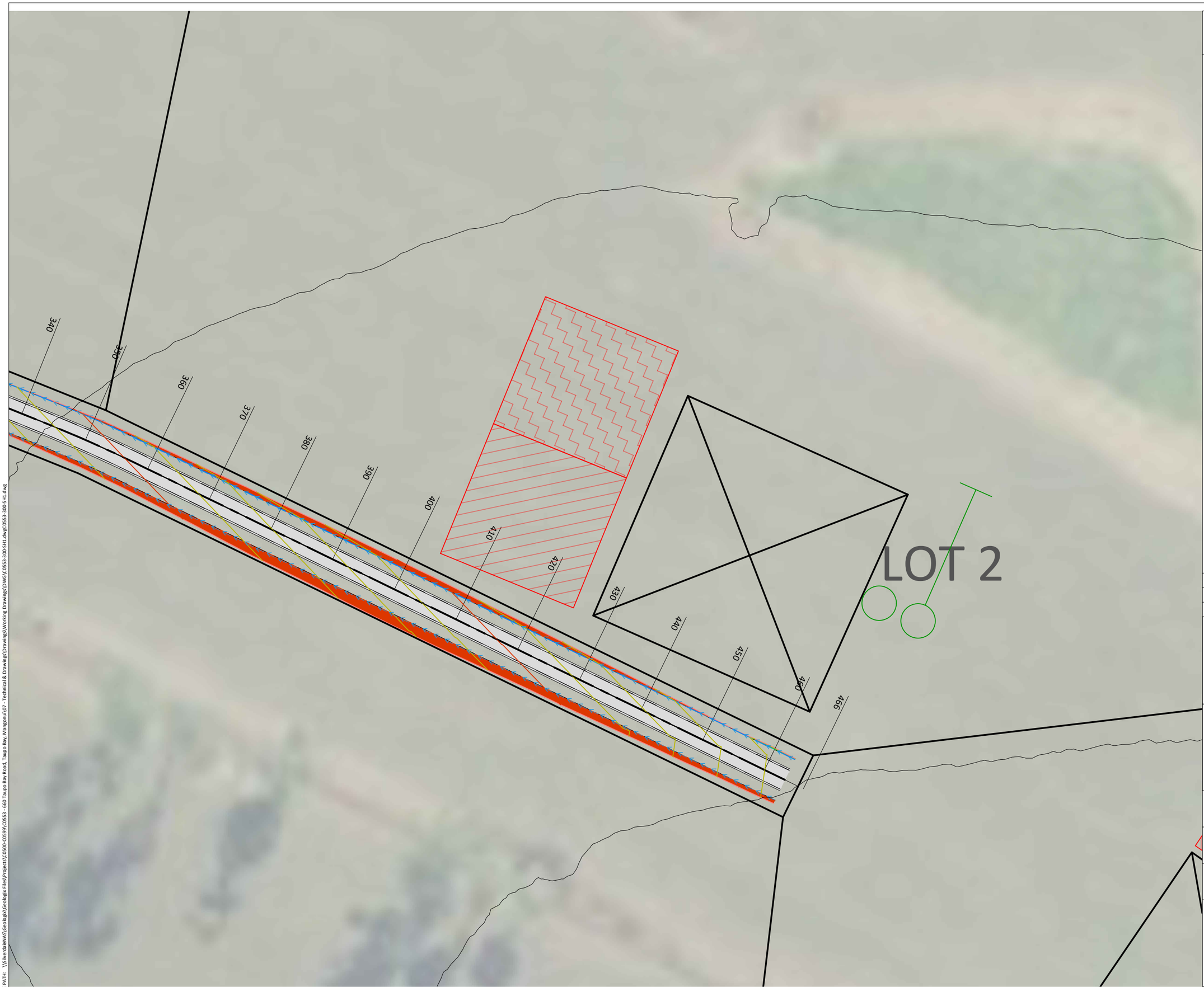
ROAD 03 - CH 190.0 - 350.0

Sheet

322

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1-dwg\C0553-300-SH1.dwg

PLOTTED: 20/11/2024



GENERAL NOTES

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CONCEPT WASTEWATER DESIGN

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RESERVE DISPOSAL AREA	640 m² (100 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	NO
DISCHARGE CONSENT	NO

5 0 Meters 5 10
1:500

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

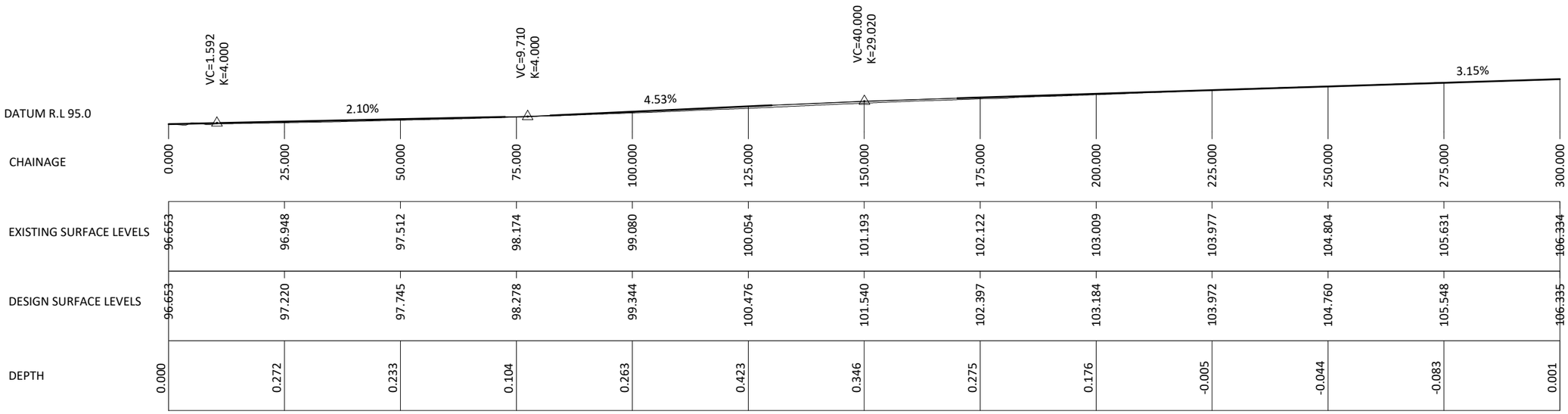
Client
G R LODGE

Sheet Title
ROAD 03 - CH 350.0 - 466.0

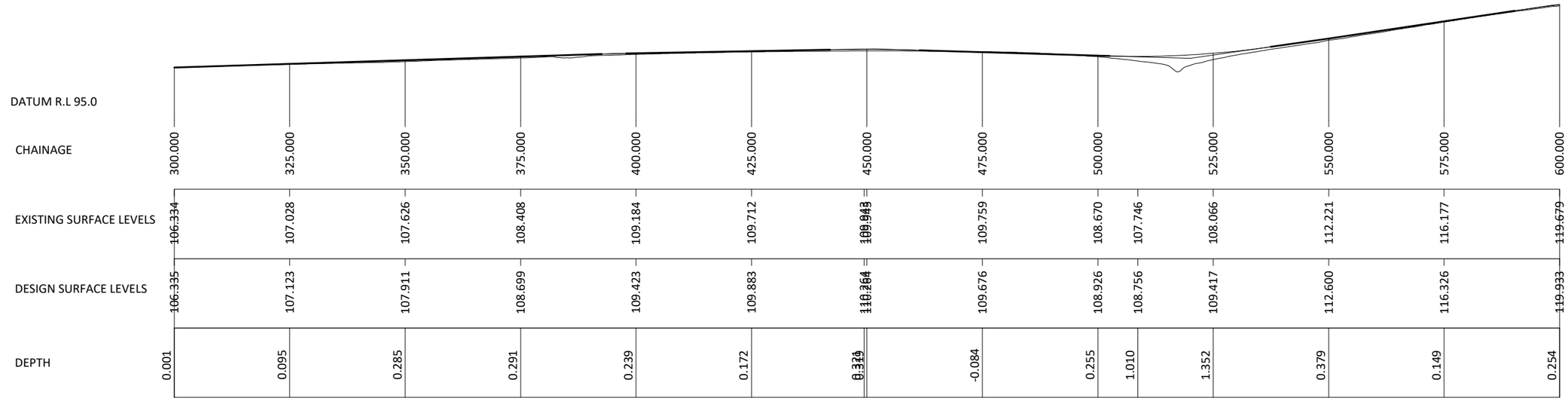
Sheet
323

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1.dwg

PLOTTED: 20/11/2024



LONGITUDINAL SECTION - ROAD 01
SCALE - HORIZ 1:250.000, VERT. 1:250.000



LONGITUDINAL SECTION - ROAD 01
SCALE - HORIZ 1:250.000, VERT. 1:250.000

GENERAL NOTES

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10 0 Meters 10 20
1:999.9995

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

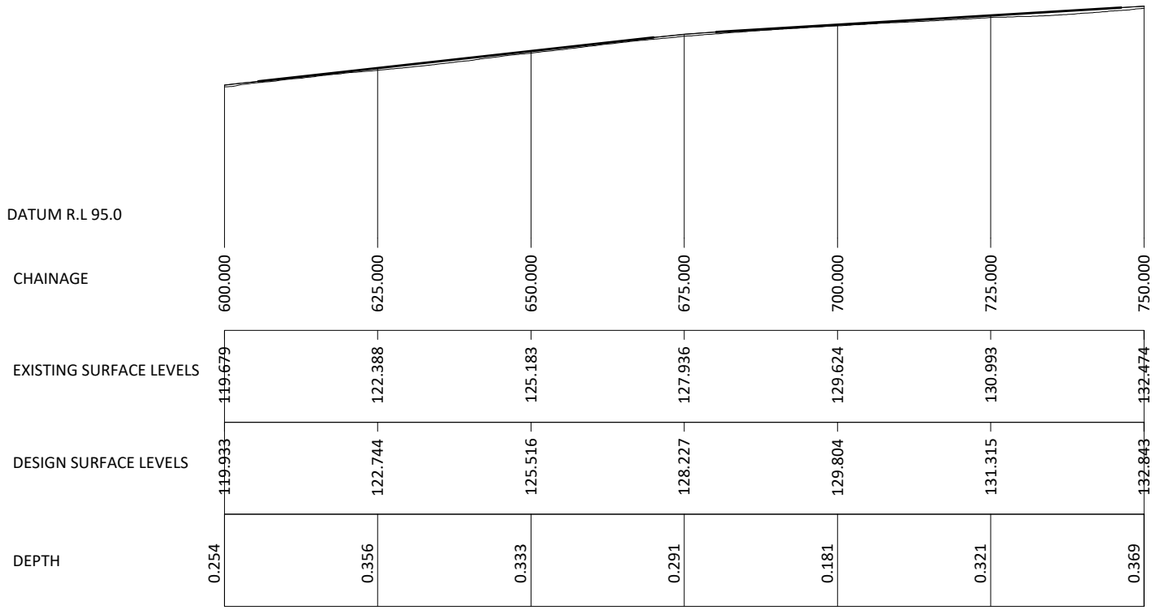
Client
G R LODGE

Sheet Title
ROAD 01 - LONGSECTIONS

Sheet
350

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawing\Working Drawings\DWG\C0553-300-SH1.dwg[C0553-300-SH1.dwg

PLOTTED: 20/11/2024



LONGITUDINAL SECTION - ROAD 01
SCALE - HORIZ 1:250.000, VERT. 1:250.000

LONGITUDINAL SECTION - ROAD 01
SCALE - HORIZ 1:250.000, VERT. 1:250.000

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
2. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
3. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
4. DO NOT SCALE FROM THIS DRAWING.

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1:1000

A	CONSENT	24/04/2025
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
660 TAUPO BAY ROAD
TAUPO BAY, MANGONUI
LOT 2 DP 190747

Project	Drawn By
C0553	TI

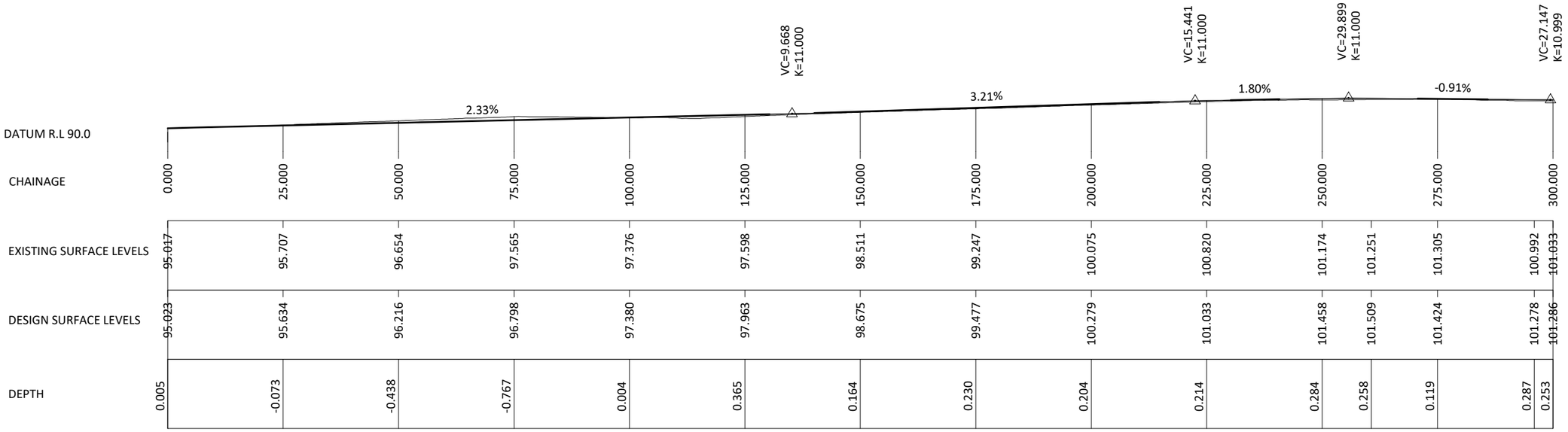
Client
G R LODGE

Sheet Title
ROAD 01 - LONGSECTIONS

Sheet
351

FILE PATH: \\Silverdale\NAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1.dwg C0553-300-SH1.dwg

PLOTTED: 20/11/2024



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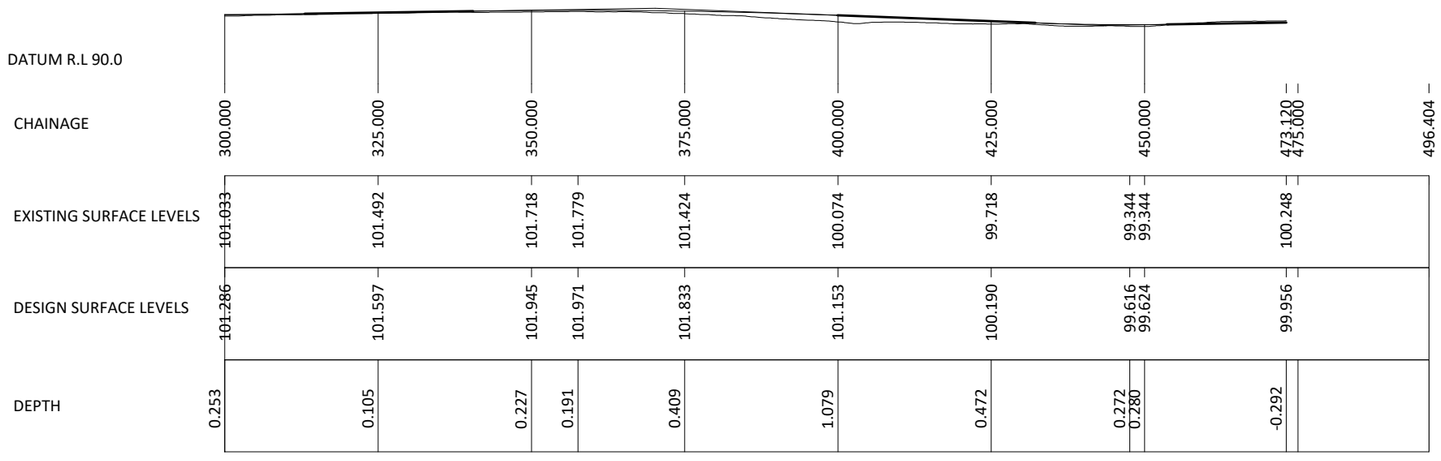

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SCALE - HORIZ 1:250.000, VERT. 1:250.000

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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C0553	TI

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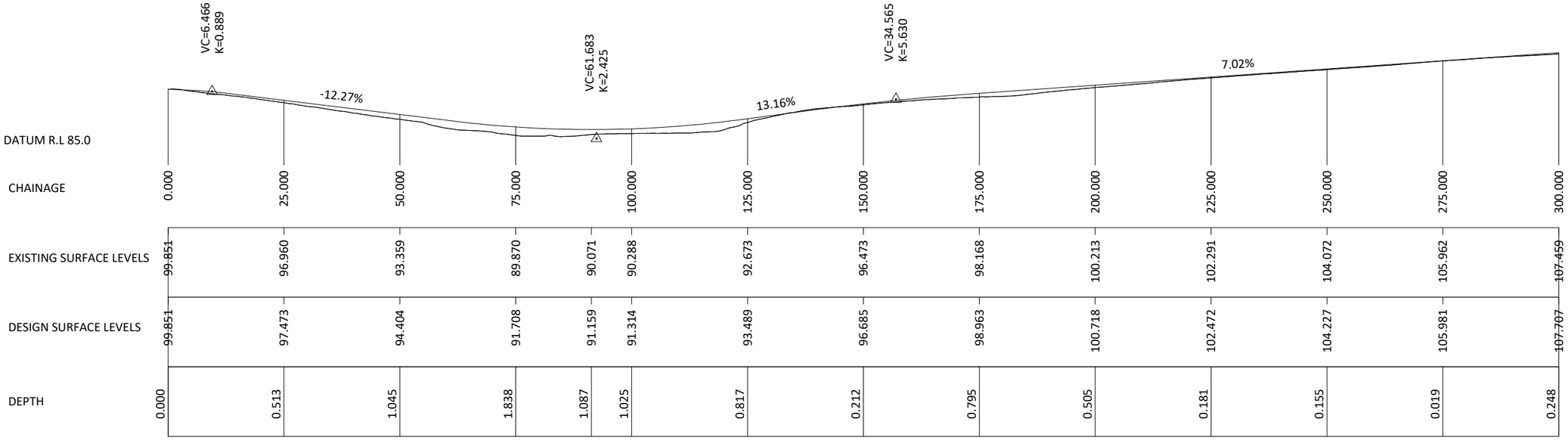
Sheet Title
ROAD 02 - LONGSECTIONS

Sheet
352

FILE PATH: \\SilverdaleNAS\Geologix\Geologix Files\Projects\C0500-C0599\C0553 - 660 Taupo Bay Road, Taupo Bay, Mangonui\07 - Technical & Drawings\Drawings\Working Drawings\DWG\C0553-300-SH1.dwg[C0553-300-SH1.dwg

PLOTTED: 20/11/2024



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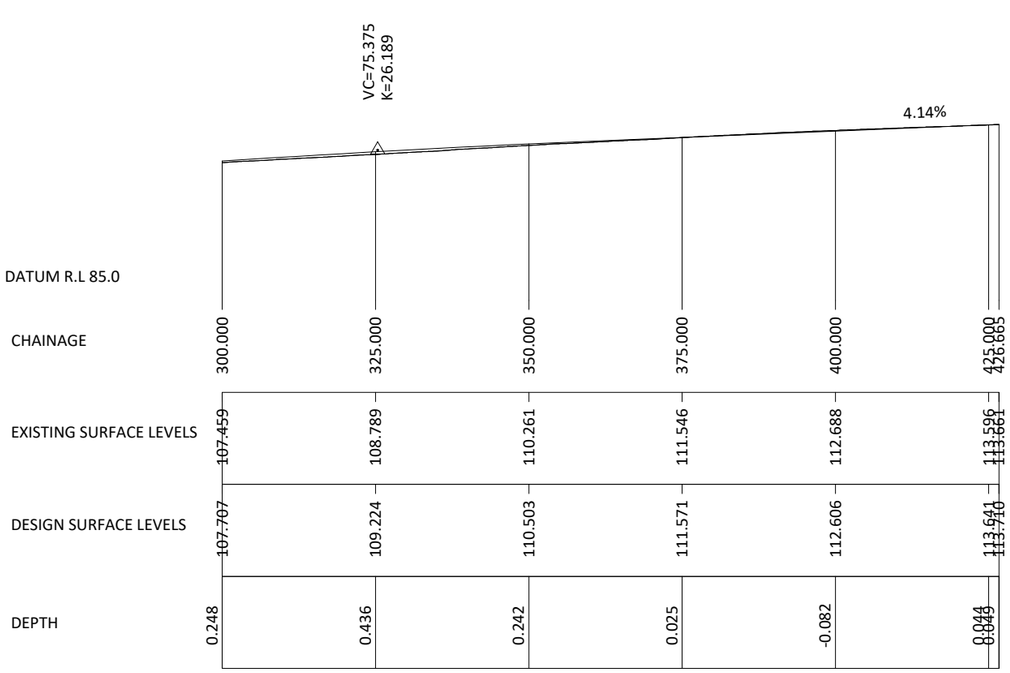

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GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA FROM LINZ - LIDAR.
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3. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
4. DO NOT SCALE FROM THIS DRAWING.

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1:1000

A	CONSENT	24/04/2025
Revision	Issue	Date

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LOT 2 DP 190747

Project	Drawn By
C0553	TI

Client
G R LODGE

Sheet Title
ROAD 03 - LONGSECTIONS

Sheet
353

APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.: BH01

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661800.610mE, 6128038.910mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising organic SILT; black; moist; high plasticity.		0.0	TS			
Organic Silty CLAY; dark grey. Moist to wet; high plasticity; Organic odor [Alluvium].		0.2				
		0.4				
		0.6				
		0.8				
SILT; light grey mottled yellowish brown. Moist to wet; low plasticity; [Alluvium]. 1.0m - 1.1m: Becoming Clayey, grey mottled yellow.		1.0				◁
		1.2				▼ 08/10/2024
End Of Hole: 1.20m						

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater encountered at 1.2m bgl, and rose to 1.0m bgl.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH02

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1662170.560mE, 6127681.500mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL (CROPS) comprising clayey SILT; brown; wet; high plasticity.		0.2				Groundwater Not Encountered
Silty CLAY; brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.4				
Clayey SILT; yellowish brown. Wet; high plasticity; [Northland Allochthon Residual Soils] .		0.6 0.8 1.0				
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH03

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1662249.050mE, 6127636.600mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL (CROPS) comprising organic SILT with some fine sand; brown dry to moist; friable.		0.0				
CLAY, with some silt; brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.2				
Clayey SILT; yellowish brown. Wet; high plasticity; [Northland Allochthon Residual Soils] . 1.0m - 1.2m: With occasional fine to medium gravel sized pockets of fine grey sand.		0.6 0.8 1.0				Groundwater Not Encountered
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH04

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661982.560mE, 6127683.330mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL (CROPS) comprising organic sandy SILT; dark brown; moist; friable; fine sand.		0.0	TS			Groundwater Not Encountered
Clayey SILT; brown. Moist; low plasticity; [Northland Allochthon Residual Soils] .		0.2				
0.6m: Becoming gravelly, gravel is subangular to subrounded; fine to course.		0.4				
End Of Hole: 0.60m		0.6				
		0.8				
		1.0				
		1.2				

PHOTO(S)

REMARKS

1. Hand auger refused at depth 0.6m bgl due to dense gravelly strata, relocated to HA04a.

3. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH04a

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661980.280mE, 6127683.900mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL (CROPS) comprising organic SILT with some fine sand; dark brown; moist; friable.		0.0	TS			
Silty CLAY; brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.2				
		0.4				
		0.6				
		0.8				
Clayey SILT; brown mottled yellow brown. Wet; high plasticity; [Northland Allochthon Residual Soils] .		1.0				
1.1m - 1.2m: Becoming multicolored, brown mottled yellow brown, reddish brown, grey and purple.						
End Of Hole: 1.20m		1.2				

Groundwater Not Encountered

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH05

CLIENT: Geoffery Lodge

JOB NO.: C0553

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661729.930mE, 6127642.170mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

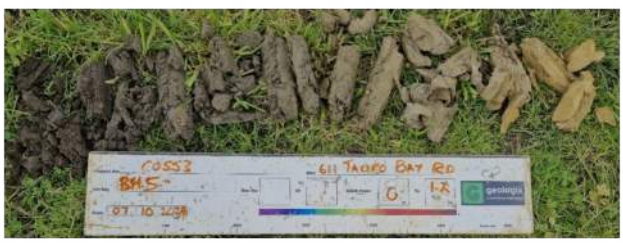
RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL comprising organic clayey SILT with trace fine sand; dark brown; moist; low plasticity		0.2	TS			
Silty CLAY; grey. Moist; high plasticity; [Northland Allochthon Residual Soils] . 0.7m: Becoming mottled yellow brown.		0.4 0.6 0.8				Groundwater Not Encountered
CLAY; yellowish brown mottled light grey. Wet; high plasticity; [Northland Allochthon Residual Soils] .		1.0 1.2				
End Of Hole: 1.20m						

PHOTO(S)



REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH07

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661269.710mE, 6127879.280mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL comprising organic clayey SILT with trace fine sand; black; dry; low plasticity; with light organic odor.		0.2, 0.4, 0.6	TS			Groundwater Not Encountered
CLAY, with trace sand; grey mottled brown and yellow brown. Wet; high plasticity; sand, fine; [Northland Allochthon Residual Soils] .		0.8				
1.0m - 1.2m: With occasional medium gravel sized pockets of grey fine to course sand.		1.0				
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH08

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661185.210mE, 6127890.930mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TOPSOIL (CROPS) comprising organic clayey SILT; dark grey; moist; low plasticity 0.4m: With some angular to subangular fine gravel fragments.		0.2	TS			
Silty CLAY; orange brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.4 0.6 0.8				Groundwater Not Encountered
Clayey SILT; orange brown. Wet; low plasticity; [Northland Allochthon Residual Soils] .		1.0				
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH09

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661172.010mE, 6127441.680mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising organic silty CLAY; dark brown; moist; high plasticity.		0.2				
Silty CLAY; brown mottled yellow brown. Moist to wet; high plasticity; [Northland Allochthon Residual Soils] .		0.4 0.6 0.8				Groundwater Not Encountered
Clayey SILT; reddish brown. Wet; low plasticity; [Northland Allochthon Residual Soils] .		1.0				
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH10

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661042.570mE, 6127169.350mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising SILT; dark brown; moist; friable.		0.2				
CLAY, with trace silt; brown mottled yellow brown. Moist to wet; high plasticity; [Northland Allochthon Residual Soils] .		0.4				
Clayey SILT; brown mottled reddish brown. Moist to wet; high plasticity; [Northland Allochthon Residual Soils] .		0.6				
SILT; reddish brown. Wet; low plasticity; [Northland Allochthon Residual Soils] .		0.8				
End Of Hole: 1.20m		1.0				
		1.2				Groundwater Not Encountered

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH11

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661039.570mE, 6127289.890mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising clayey SILT; dark brown; moist; high plasticity.		0.2				Groundwater Not Encountered
Silty CLAY; yellowish brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.4 0.6 0.8				
Clayey SILT; brown mottled yellow brown. Moist; low plasticity; [Northland Allochthon Residual Soils] .		1.0				
End Of Hole: 1.20m		1.2				

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH12

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661061.470mE, 6127403.420mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising clayey SILT; dark brown; moist; low plasticity.		0.0	TS			
CLAY, with trace silt; brown. Moist; high plasticity; [Northland Allochthon Residual Soils] .		0.2				
0.4m - 0.5m: With some subangular to subrounded fine to medium gravel.		0.4				
0.5m: Becoming yellow brown.		0.6				
Silty CLAY; reddish brown mottled orange. Moist to wet; high plasticity; [Northland Allochthon Residual Soils] .		0.8				
		1.0				
End Of Hole: 1.20m		1.2				

Groundwater Not Encountered

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: BH13

CLIENT: Geoffery Lodge

PROJECT: 660 Taupo Bay Road, Taupo Bay, Mangonui

JOB NO.: C0553

SITE LOCATION:

START DATE: 08/10/2024

CO-ORDINATES: 1661089.620mE, 6127677.350mN

ELEVATION: Ground

END DATE: 08/10/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger

DRILLER: EC SH

LOGGED BY: EC

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
Grassed TOPSOIL comprising SAND with trace silt; brown; dry to moist;sand fine to medium; friable.		0.0	TS			
SILT, with some sand; grey mottled yellow brown. Dry; sand, fine; friable [Northland Allochthon Residual Soils] .		0.2				
Clayey SILT; yellowish brown. Moist; low plasticity; [Northland Allochthon Residual Soils] .		0.4				
1.0m - 1.2m: Becoming light yellow brown; wet; high plasticity.		0.6				
		0.8				
		1.0				
End Of Hole: 1.20m		1.2				Groundwater Not Encountered

PHOTO(S)

REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

APPENDIX C

Assessment of Environmental Effects and Assessment Criteria

Table 14: Wastewater Assessment of Environmental Effects

Item	NRC Separation Requirement [2]	FNDC Separation Requirement	Site Assessment [3]
Individual System Effects			
Flood Plains	Above 5 % AEP	NR	Complies according to available GIS data and visual assessment.
Stormwater Flowpath[4]	5 m	NR	Complies.
Surface water feature[5]	15 m	15 m (3x feature area in ha)	Complies.
Coastal Marine Area	15 m	30 m	Complies.
Existing water supply bore.	20 m	NR	Complies. None recorded within or within 20 m of the site boundaries.
Property boundary	1.5 m	1.5	Complies. Including proposed subdivision boundaries.
Winter groundwater table	0.6 m	0.6 m	Complies.
Topography			Ok – chosen disposal areas are flat and level to <5 °.
Cut off drain required?			No.
Discharge Consent Required?			No.

	Cumulative Effects			
	Biological Oxygen Demand		≤20 g/m^3	Complies – secondary treatment.
	Total Suspended Solids		≤30 g/m^3	Complies – secondary treatment.
	Total Nitrogen	10 – 30 g/m^3	15 – 75 g/m^3	Complies – secondary treatment.
	Phosphorous	NR	4 – 10 g/m^3	Complies – secondary treatment.
	Ammonia	NR	Negligible	Complies – secondary treatment.
	Nitrites/ Nitrates	NR	15 – 45 g/m^3	Complies – secondary treatment.
	Conclusion: Effects are less than minor on the environment.			

1. AEE based on proposed secondary treated effluent.
2. Northland Regional Plan Table 9.
3. Based on the recommendations of this report and Drawing No. 130.
4. Including any formed road with kerb and channel, and water-table drain that is down-slope of the disposal area.
5. River, lake, stream, pond, dam, or natural wetland.

AEP Annual Exceedance Probability.
NR No Requirement.

Table 15: Operative Far North District Plan Earthworks Assessment Criteria, to rule 12.3.6.2.3

Assessment Criteria		Comments
(i)	the effects of the area and volume of soils and other materials to be excavated; and	Earthworks volume > 500m3 < 20,000m3,Restricted Discretionary Activity. Erosion and sediment control measures, including sediment retention ponds, will be implemented to control effects.
(ii)	the effects of height and slope of the cut or filled faces	The average cut and fill heights are <3m to comply with 12.3.6.1.1(b). Batters are generally fill and have been set conservatively at 1V:5H to promote stability.
(iii)	the time of the year when the earthworks will be carried out and the duration of the activity	It is expected the earthworks can be completed within a typical summertime earthworks sequence to minimise sediment runoff.
(iv)	the degree to which the activity may cause or exacerbate erosion and/or other natural hazards on the site or in the vicinity of the site, particularly lakes, rivers, wetlands and the coastline	Erosion and sediment control measures will be implemented to control effects. Stormwater attenuation has been applied to control peak flows.
(v)	the extent to which the activity may adversely impact on visual and amenity values	Please refer to planners' comments / Assessment of Environmental Effects
(vi)	the extent to which the activity may adversely affect cultural and spiritual values	Please refer to planners' comments / Assessment of Environmental Effects
(vii)	the extent to which the activity may adversely affect areas of significant indigenous vegetation or significant habitats of indigenous fauna	Please refer to planners' comments / Assessment pof Environmental Effects
(viii)	the number, trip pattern and type of vehicles associated with the activity	Materials for bulk earthworks are anticipated to be site won with only roading materials imported from a registered quarry facility. Site entrances will be stabilised.
(ix)	the location adequacy and safety of vehicular access and egress	The proposed Road 1 and Road 2 entrances off Taupo Bay Road have been assessed for safe sight distances, equating to a speed environment of approximately 75km/hr. Site entrances will be stabilised.
(x)	the means by which any adverse environmental effects of the activity will be avoided, remedied or mitigated	Erosion and sediment control measures will be implemented to control effects. Stormwater attenuation has been applied to control peak flows. A Construction Management Plan shall be provided by the contractor at the time of construction.

APPENDIX D

Stormwater Calculations

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	660 Taupo Bay Road, Taupo Bay, Mang			
Design Case:	CONCEPT FUTURE LOT DEVELOPMENT		**1 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	500	0.67	PASTURE
0	0	0	
TOTAL	**500**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	200	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**500**	TYPE D	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	139.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	166.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP WITH CC, VARIOUS DURATIONS

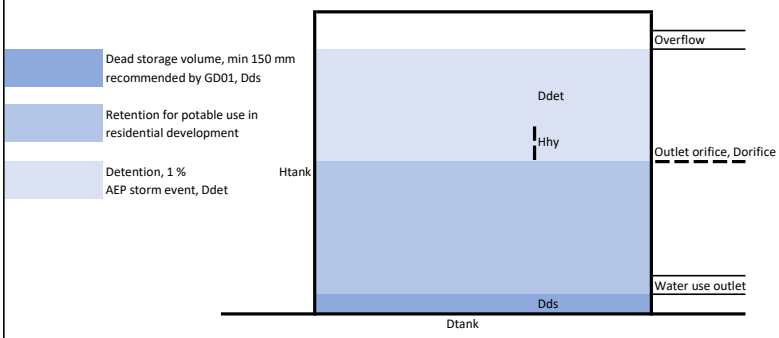
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	139.00	1.2	166.80	21.04	12.93	10.35	*Critical duration (time of concentration) for the catchments is 10min*
20	107.00	1.2	128.40	16.19	9.96	7.97	
30	90.70	1.2	108.84	13.73	8.44	6.75	
60	67.20	1.2	80.64	10.17	6.25	5.00	
120	48.40	1.2	58.08	7.32	4.50	3.60	*Pre-dev calculated on Intensity without CC factor*
360	27.10	1.2	32.52	4.10	2.52	2.02	
720	18.00	1.2	21.60	2.72	1.68	1.34	
1440	11.40	1.2	13.68	1.73	1.06	0.85	
2880	6.99	1.2	8.39	1.06	0.65	0.52	
4320	5.12	1.2	6.14	0.77	0.48	0.38	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	7.69	13.34	2.66	2.66	10.69	6413	*Selected Tank Outflow is selected for critical duration (time of concentration). In this case = 10min*
20	5.92	10.27	2.04	2.66	7.62	9139	
30	5.02	8.71	1.73	2.66	6.05	10891	
60	3.72	6.45	1.28	2.66	3.79	13661	
120	2.68	4.65	0.92	2.66	1.99	14328	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	1.50	2.60	0.52	2.66	No Att. Req.	0	
720	1.00	1.73	0.34	2.66	No Att. Req.	0	
1440	0.63	1.09	0.22	2.66	No Att. Req.	0	
2880	0.39	0.67	0.13	2.66	No Att. Req.	0	
4320	0.28	0.49	0.10	2.66	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT

Concept sizing for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	14.328	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.66	m	No. of Tanks 2
TANK AREA, Atank	21.04	m2	Area of TWO tanks
TANK MAX STORAGE VOLUME, Vtank	52604	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.68	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.83	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00266	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.34	m	
AREA OF ORIFICE, Aorifice	1.66E-03	m2	
ORIFICE DIAMETER, Dorifice	46	mm	
VELOCITY AT ORIFICE	3.66	m/s	At max. head level

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	660 Taupo Bay Road, Taupo Bay, Mang			
Design Case:	CONCEPT FUTURE LOT DEVELOPMENT		**20 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	500	0.67	PASTURE
TOTAL	**500**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	200	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**500**	TYPE D	

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION

20 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	78.8	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	94.6	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 20%AEP WITH CC, VARIOUS DURATIONS

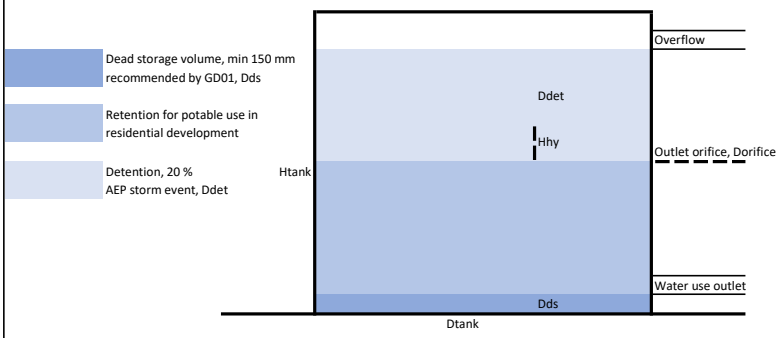
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	78.80	1.2	94.56	11.93	7.33	5.87	*Critical duration (time of concentration) for the catchments is 10min*
20	60.20	1.2	72.24	9.11	5.60	4.48	
30	51.00	1.2	61.20	7.72	4.75	3.80	
60	37.60	1.2	45.12	5.69	3.50	2.80	
120	27.10	1.2	32.52	4.10	2.52	2.02	*Pre-dev calculated on Intensity without CC factor*
360	15.10	1.2	18.12	2.29	1.41	1.12	
720	9.96	1.2	11.95	1.51	0.93	0.74	
1440	6.33	1.2	7.60	0.96	0.59	0.47	
2880	3.85	1.2	4.62	0.58	0.36	0.29	
4320	2.82	1.2	3.38	0.43	0.26	0.21	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	4.36	7.56	1.51	1.51	6.06	3635	*select largest required storage , regardless of duration, to avoid overflow*
20	3.33	5.78	2.27	1.51	4.27	5128	
30	2.82	4.90	1.92	1.51	3.39	6102	
60	2.08	3.61	1.42	1.51	2.10	7573	
120	1.50	2.60	1.02	1.51	1.10	7889	
360	0.84	1.45	0.57	1.51	No Att. Req.	0	
720	0.55	0.96	0.38	1.51	No Att. Req.	0	
1440	0.35	0.61	0.24	1.51	No Att. Req.	0	
2880	0.21	0.37	0.15	1.51	No Att. Req.	0	
4320	0.16	0.27	0.11	1.51	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT

Concept sizing for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	7.889	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.66	m	No. of Tanks 2
TANK AREA, Atank	21.04	m2	Area of TWO tanks
TANK MAX STORAGE VOLUME, Vtank	52604	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.37	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.52	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00151	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.19	m	
AREA OF ORIFICE, Aorifice	1.27E-03	m2	
ORIFICE DIAMETER, Dorifice	40	mm	
VELOCITY AT ORIFICE	2.71	m/s	At max. head level

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	660 Taupo Bay Road, Taupo Bay, Mang			
Design Case:	CONCEPT FUTURE LOT DEVELOPMENT		**50 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A			
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	500	0.67	PASTURE
TOTAL	**500**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	200	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
TOTAL	**500**	TYPE D	

RAINFALL INTENSITY, 50% AEP, 10MIN DURATION

50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	60.7	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	72.84	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

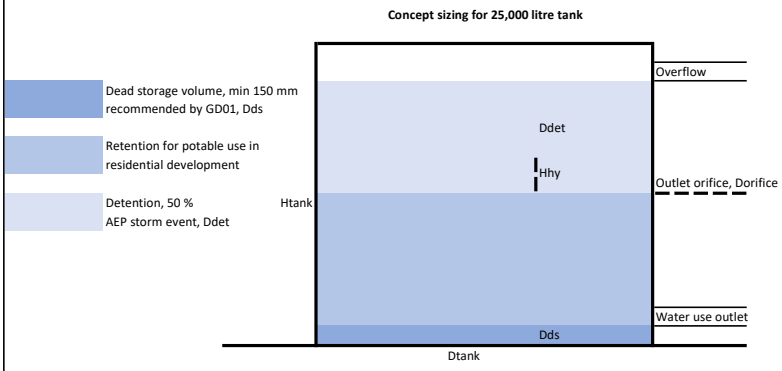
PRE AND POST-DEVELOPMENT RUNOFF, 50%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	60.70	1.2	72.84	9.19	5.65	4.52	*Critical duration (time of concentration) for the catchments is 10min*
20	46.40	1.2	55.68	7.02	4.32	3.45	
30	39.20	1.2	47.04	5.93	3.65	2.92	
60	28.90	1.2	34.68	4.37	2.69	2.15	
120	20.80	1.2	24.96	3.15	1.94	1.55	*Pre-dev calculated on Intensity without CC factor*
360	11.60	1.2	13.92	1.76	1.08	0.86	
720	7.63	1.2	9.16	1.15	0.71	0.57	
1440	4.84	1.2	5.81	0.73	0.45	0.36	
2880	2.94	1.2	3.53	0.44	0.27	0.22	
4320	2.15	1.2	2.58	0.33	0.20	0.16	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	3.36	5.83	1.16	1.16	4.67	2800	*select largest required storage , regardless of duration, to avoid overflow*
20	2.57	4.45	0.89	1.16	3.29	3953	
30	2.17	3.76	0.75	1.16	2.60	4686	
60	1.60	2.77	0.55	1.16	1.61	5812	
120	1.15	2.00	0.40	1.16	0.84	6025	
360	0.64	1.11	0.22	1.16	No Att. Req.	0	
720	0.42	0.73	0.15	1.16	No Att. Req.	0	
1440	0.27	0.46	0.09	1.16	No Att. Req.	0	
2880	0.16	0.28	0.06	1.16	No Att. Req.	0	
4320	0.12	0.21	0.04	1.16	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	6.025	m3	Select largest storage as per analysis	
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank	
TANK DIAMETER, Dtank	3.66	m	No. of Tanks	2
TANK AREA, Atank	21.04	m2	Area of TWO tanks	
TANK MAX STORAGE VOLUME, Vtank	52604	litres		
REQUIRED STORAGE HEIGHT, Ddet	0.29	m	Below overflow	
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum	
TOTAL WATER DEPTH REQUIRED	0.44	m		
SELECTED TANK OUTFLOW, Qout, l/s	0.00116	m3/s	Selected tank outflow	
AVERAGE HYDRAULIC HEAD, Hhy	0.14	m		
AREA OF ORIFICE, Aorifice	1.12E-03	m2		
ORIFICE DIAMETER, Dorifice	38	mm		
VELOCITY AT ORIFICE	2.37	m/s	At max. head level	

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Taupo Bay Road, Taupo Bay			
Design Case:	Pond 1		**1 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	4935.7	0.67	PASTURE
0	0	0	
TOTAL	**4935.7**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO POND	4935.7	0.83	DRIVEWAY - METAL
OFFSET	0	0.00	
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**4935.7**	TYPE D	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	139.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	166.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	139.00	1.2	166.80	189.81	127.68	102.15	*Critical duration (time of concentration) for the catchments is 10min*
20	107.00	1.2	128.40	146.11	98.29	78.63	
30	90.70	1.2	108.84	123.85	83.32	66.65	
60	67.20	1.2	80.64	91.76	61.73	49.38	
120	48.40	1.2	58.08	66.09	44.46	35.57	*Pre-dev calculated on Intensity without CC factor*
360	27.10	1.2	32.52	37.01	24.89	19.92	
720	18.00	1.2	21.60	24.58	16.53	13.23	
1440	11.40	1.2	13.68	15.57	10.47	8.38	
2880	6.99	1.2	8.39	9.55	6.42	5.14	
4320	5.12	1.2	6.14	6.99	4.70	3.76	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	0.00	189.81	102.15	102.15	87.66	52598	*Selected Tank Outflow is selected for critical duration (time of concentration). In this case = 10min*
20	0.00	146.11	78.63	102.15	43.97	52759	
30	0.00	123.85	66.65	102.15	21.71	39074	
60	0.00	91.76	49.38	102.15	No Att. Req.	0	
120	0.00	66.09	35.57	102.15	No Att. Req.	0	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	0.00	37.01	19.92	102.15	No Att. Req.	0	
720	0.00	24.58	13.23	102.15	No Att. Req.	0	
1440	0.00	15.57	8.38	102.15	No Att. Req.	0	
2880	0.00	9.55	5.14	102.15	No Att. Req.	0	
4320	0.00	6.99	3.76	102.15	No Att. Req.	0	

SPECIFICATION

TOTAL STORAGE REQUIRED	52.759	m3	Select largest storage as per analysis	
TANK HEIGHT, Htank	0	m	NA	
TANK DIAMETER, Dtank	0	m	NA	1
TANK AREA, Atank	0.00	m2	NA	
TANK MAX STORAGE VOLUME, Vtank	61000	litres		
REQUIRED STORAGE HEIGHT, Ddet	0.70	m	Below overflow	
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum	
TOTAL WATER DEPTH REQUIRED	0.85	m		
SELECTED TANK OUTFLOW, Qout, l/s	0.10215	m3/s	Selected tank outflow	
AVERAGE HYDRAULIC HEAD, Hhy	0.35	m		
AREA OF ORIFICE, Aorifice	6.29E-02	m2		
ORIFICE DIAMETER, Dorifice	283	mm		
VELOCITY AT ORIFICE	3.71	m/s	At max. head level	

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Taupo Bay Road, Taupo Bay			
Design Case:	Pond 2		**1 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	4349	0.67	PASTURE
0	0	0	
TOTAL	**4349**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO POND	4349	0.83	DRIVEWAY - METAL
OFFSET	0	0.00	
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**4349**	TYPE D	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	139.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	166.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	139.00	1.2	166.80	167.25	112.51	90.00	*Critical duration (time of concentration) for the catchments is 10min*
20	107.00	1.2	128.40	128.74	86.61	69.28	
30	90.70	1.2	108.84	109.13	73.41	58.73	
60	67.20	1.2	80.64	80.86	54.39	43.51	
120	48.40	1.2	58.08	58.24	39.17	31.34	*Pre-dev calculated on Intensity without CC factor*
360	27.10	1.2	32.52	32.61	21.93	17.55	
720	18.00	1.2	21.60	21.66	14.57	11.66	
1440	11.40	1.2	13.68	13.72	9.23	7.38	
2880	6.99	1.2	8.39	8.41	5.66	4.53	
4320	5.12	1.2	6.14	6.16	4.14	3.32	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	0.00	167.25	90.00	90.00	77.24	46346	*Selected Tank Outflow is selected for critical duration (time of concentration). In this case = 10min*
20	0.00	128.74	69.28	90.00	38.74	46488	
30	0.00	109.13	58.73	90.00	19.13	34429	
60	0.00	80.86	43.51	90.00	No Att. Req.	0	
120	0.00	58.24	31.34	90.00	No Att. Req.	0	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	0.00	32.61	17.55	90.00	No Att. Req.	0	
720	0.00	21.66	11.66	90.00	No Att. Req.	0	
1440	0.00	13.72	7.38	90.00	No Att. Req.	0	
2880	0.00	8.41	4.53	90.00	No Att. Req.	0	
4320	0.00	6.16	3.32	90.00	No Att. Req.	0	

SPECIFICATION

TOTAL STORAGE REQUIRED	46.488	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	0	m	NA
TANK DIAMETER, Dtank	0	m	NA 1
TANK AREA, Atank	0.00	m2	NA
TANK MAX STORAGE VOLUME, Vtank	55000	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.65	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.80	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.09000	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.33	m	
AREA OF ORIFICE, Aorifice	5.75E-02	m2	
ORIFICE DIAMETER, Dorifice	271	mm	
VELOCITY AT ORIFICE	3.57	m/s	At max. head level

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Taupo Bay Road, Taupo Bay			
Design Case:	Pond 3		**1 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	4033	0.67	PASTURE
0	0	0	
TOTAL	**4033**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO POND	2416	0.83	DRIVEWAY - METAL
OFFSET	1617	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**4033**	TYPE D	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	139.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	166.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	139.00	1.2	166.80	155.10	104.33	83.47	*Critical duration (time of concentration) for the catchments is 10min*
20	107.00	1.2	128.40	119.39	80.31	64.25	
30	90.70	1.2	108.84	101.20	68.08	54.46	
60	67.20	1.2	80.64	74.98	50.44	40.35	
120	48.40	1.2	58.08	54.00	36.33	29.06	*Pre-dev calculated on Intensity without CC factor*
360	27.10	1.2	32.52	30.24	20.34	16.27	
720	18.00	1.2	21.60	20.08	13.51	10.81	
1440	11.40	1.2	13.68	12.72	8.56	6.85	
2880	6.99	1.2	8.39	7.80	5.25	4.20	
4320	5.12	1.2	6.14	5.71	3.84	3.07	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	62.18	92.91	21.28	21.28	71.63	42978	*Selected Tank Outflow is selected for critical duration (time of concentration). In this case = 10min*
20	47.87	71.52	16.38	21.28	50.24	60289	
30	40.58	60.63	13.89	21.28	39.35	70822	
60	30.06	44.92	10.29	21.28	23.64	85095	
120	21.65	32.35	7.41	21.28	11.07	79712	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	12.12	18.11	4.15	21.28	No Att. Req.	0	
720	8.05	12.03	2.76	21.28	No Att. Req.	0	
1440	5.10	7.62	1.75	21.28	No Att. Req.	0	
2880	3.13	4.67	1.07	21.28	No Att. Req.	0	
4320	2.29	3.42	0.78	21.28	No Att. Req.	0	

SPECIFICATION

TOTAL STORAGE REQUIRED	85.095	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	0	m	NA
TANK DIAMETER, Dtank	0	m	NA 1
TANK AREA, Atank	0.00	m2	NA
TANK MAX STORAGE VOLUME, Vtank	95000	litres	NA
REQUIRED STORAGE HEIGHT, Ddet	0.85	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	1.00	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.02128	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.43	m	
AREA OF ORIFICE, Aorifice	1.19E-02	m2	
ORIFICE DIAMETER, Dorifice	123	mm	
VELOCITY AT ORIFICE	4.08	m/s	At max. head level

Project Ref:	C0553		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Taupo Bay Road, Taupo Bay			
Design Case:	Pond 4		**1 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	16 April 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	3588	0.67	PASTURE
0	0	0	
TOTAL	**3588**	TYPE D	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO POND	2202	0.83	DRIVEWAY - METAL
OFFSET	1386	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**3588**	TYPE D	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	139.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	166.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	139.00	1.2	166.80	137.98	92.82	74.26	*Critical duration (time of concentration) for the catchments is 10min*
20	107.00	1.2	128.40	106.22	71.45	57.16	
30	90.70	1.2	108.84	90.04	60.57	48.45	
60	67.20	1.2	80.64	66.71	44.87	35.90	
120	48.40	1.2	58.08	48.05	32.32	25.86	*Pre-dev calculated on Intensity without CC factor*
360	27.10	1.2	32.52	26.90	18.10	14.48	
720	18.00	1.2	21.60	17.87	12.02	9.62	
1440	11.40	1.2	13.68	11.32	7.61	6.09	
2880	6.99	1.2	8.39	6.94	4.67	3.73	
4320	5.12	1.2	6.14	5.08	3.42	2.74	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	53.30	84.68	20.95	20.95	63.73	38236	*Selected Tank Outflow is selected for critical duration (time of concentration). In this case = 10min*
20	41.03	65.19	16.13	20.95	44.23	53078	
30	34.78	55.26	13.67	20.95	34.30	61743	
60	25.77	40.94	10.13	20.95	19.98	71946	
120	18.56	29.49	7.30	20.95	8.53	61427	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	10.39	16.51	4.09	20.95	No Att. Req.	0	
720	6.90	10.97	2.71	20.95	No Att. Req.	0	
1440	4.37	6.95	1.72	20.95	No Att. Req.	0	
2880	2.68	4.26	1.05	20.95	No Att. Req.	0	
4320	1.96	3.12	0.77	20.95	No Att. Req.	0	

SPECIFICATION

TOTAL STORAGE REQUIRED	71.946	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	0	m	NA
TANK DIAMETER, Dtank	0	m	NA 1
TANK AREA, Atank	0.00	m2	NA
TANK MAX STORAGE VOLUME, Vtank	95000	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.85	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	1.00	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.02095	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.43	m	
AREA OF ORIFICE, Aorifice	1.17E-02	m2	
ORIFICE DIAMETER, Dorifice	122	mm	
VELOCITY AT ORIFICE	4.08	m/s	At max. head level

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: 660 Taupo Bay Road
Coordinate system: WGS84
Longitude: 173.6746
Latitude: -34.9883

DDF Mode Parameters:	c	d	e	f	g	h	i
Values:	0.00137968	0.54234394	-0.02752918	-0.00178308	0.25236985	-0.0107647	3.27394428

Example:	Duration (hrs)	ARI (yrs)	x	y	Rainfall Rate (mm/hr)
	24	100	3.17805383	4.600149227	11.44465245

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.4	42.3	35.8	26.4	19	10.5	6.95	4.41	2.68	1.96	1.55	1.29
2	0.5	60.7	46.4	39.2	28.9	20.8	11.6	7.63	4.84	2.94	2.15	1.71	1.42
5	0.2	78.8	60.2	51	37.6	27.1	15.1	9.96	6.33	3.85	2.82	2.24	1.86
10	0.1	92.2	70.5	59.7	44.1	31.8	17.7	11.7	7.44	4.53	3.32	2.64	2.19
20	0.05	106	81.1	68.7	50.8	36.6	20.4	13.5	8.6	5.24	3.84	3.05	2.54
30	0.033	114	87.5	74.2	54.9	39.5	22.1	14.6	9.3	5.67	4.16	3.3	2.74
40	0.025	120	92.1	78	57.8	41.6	23.3	15.4	9.8	5.98	4.38	3.48	2.89
50	0.02	125	95.7	81.1	60	43.3	24.2	16	10.2	6.22	4.56	3.62	3.01
60	0.017	129	98.6	83.6	61.9	44.6	24.9	16.5	10.5	6.42	4.71	3.74	3.11
80	0.013	135	103	87.6	64.9	46.8	26.2	17.3	11	6.74	4.94	3.93	3.27
100	0.01	139	107	90.7	67.2	48.4	27.1	18	11.4	6.99	5.12	4.07	3.39
250	0.004	159	122	103	76.6	55.3	31	20.6	13.1	8.01	5.88	4.67	3.89

Intensity standard error (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	7.1	4.7	3.4	2.5	1.8	1.1	0.78	0.64	0.41	0.32	0.24	0.2
2	0.5	7.7	5.1	3.7	2.7	2	1.2	0.86	0.71	0.45	0.35	0.26	0.23
5	0.2	11	7.1	5.3	3.7	2.8	1.7	1.2	0.96	0.62	0.47	0.35	0.31
10	0.1	13	9.4	7.2	4.8	3.7	2.2	1.5	1.1	0.74	0.56	0.41	0.37
20	0.05	17	12	9.6	6.2	4.8	2.9	2	1.4	0.89	0.67	0.49	0.45
30	0.033	20	15	11	7.3	5.6	3.5	2.4	1.5	0.98	0.74	0.54	0.49
40	0.025	22	16	13	8.2	6.3	3.9	2.7	1.6	1.1	0.79	0.58	0.53
50	0.02	23	18	14	8.9	6.9	4.3	2.9	1.7	1.1	0.83	0.61	0.56
60	0.017	25	19	15	9.5	7.4	4.6	3.1	1.8	1.2	0.87	0.64	0.59
80	0.013	28	22	17	11	8.3	5.2	3.5	1.9	1.2	0.93	0.69	0.63
100	0.01	30	24	19	12	9	5.7	3.8	2	1.3	0.99	0.72	0.66
250	0.004	42	34	26	16	13	8.3	5.5	2.6	1.7	1.2	0.91	0.83