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: STEPHEN WINCHCOMBE LEANNE GREENWOOD

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

Property Address/ Location:

Postcode

8. Application Site Details

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

Name/s: refer Item 5

Site Address/ Location: [redacted]

Legal Description: [redacted]

Certificate of title: [redacted]

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.

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.

Construction of dwelling & associated earthworks/ Soil disturbance; requiring consent under the operative Far North District Plan & NES-CS.

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) STEPHEN GORDON WINCHCOMBE.

Email: [redacted]

Phone number:

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

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) STEPHEN GORDON WINCHCOMBE

Signature:
(signature of bill payer [redacted]

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) STEPHEN/GORDON WINCHCOMBE

Signature: [redacted]

Checklist (please tick if information is provided)

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

THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10821.1 (FNDC)

16th September 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed dwelling and associated earthworks/soil disturbance at 271 Kerikeri Inlet Road – S Winchcombe and L Greenwood

I am pleased to submit application on behalf of S Winchcombe and L Greenwood, for a dwelling and associated earthworks / soil disturbance, requiring consent under the Operative District Plan (ODP) and the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS). The site is zoned Rural Living. The application is a restricted discretionary activity under the ODP; and a controlled activity under the NES-CS.

The application fee (combined) of $4,653 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

315 Kerikeri Road, Kerikeri
P.O. Box 372, Kerikeri 0245, New Zealand.
Email: Kerikeri@tsurvey.co.nz
denis@tsurvey.co.nz, sam@tsurvey.co.nz

Telephone: **09 4077360**
Facsimile: **09 4077322**
After Hours: Director: Denis Thomson 09 4071372
After Hours: Office Manager: Sam Lee 021 1370060

S Winchcombe & L Greenwood

DWELLING & EARTHWORKS in the RURAL LIVING ZONE Requiring consent under the Operative Far North District Plan And Under the National Environmental Standard For Assessing and Managing Contaminants In Soil to Protect Human Health (NES-CS)

271 Kerikeri Inlet Road, Kerikeri

PLANNING REPORT & ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 INTRODUCTION

1.1 The Proposal

The applicants are the owners of Lot 6 DP 604274, one of several lots created by a subdivision consent issued in November 2023. That consent also contained land use consent for a breach of the zone's Stormwater Management permitted activity threshold; and consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS). A copy of RC 2240128-RMACOM is attached in Appendix 5.

The applicants now want to build on Lot 6. Their build design includes total impermeable surface coverage within the zone's controlled activity threshold of 20% of total site area, as consented under 2240128, and the application is supported by a Suitability Report as required by the Consent Notice registered on the Title.

The design sees an estimated earthworks volume (cut and fill combined) of 800m^3, in excess of the permitted threshold applying in the zone (300m^3). Land use consent is therefore required. In addition, whilst the original subdivision was consented under the NES-CS, along

with future change of use to residential and soil disturbance associated with subdivision site works, future soil disturbance within each lot created by the subdivision was not. The amount of soil disturbance associated with this build job is estimated at 385m^3. It is proposed to remove 120m^3 of soil from the site. The NES-CS allows for 25m^3 soil disturbance for every 500m^2 of a piece of land (as defined by the NES-CS); and 5m^3 soil removal for every 500m2 of a piece of land. The piece of land in this instance is the entire lot, i.e. 3024m^2. This would set permitted activity thresholds of 151m^3 soil disturbance and 30m^3 soil removal, both of which are exceeded detected.

A copy of the original DSI is attached in Appendix 6 to this application. Consent is required under the NES-CS for the soil disturbance and soil removal, as a controlled activity given that (a) a DSI exists and is provided; and (b) the soil has been tested with no exceedances of the NES-CS standards detected.

The proposal includes dwelling, pool and shed. Total building coverage is 304.5m^2 (10% of total site area); total impermeable surface coverage is 605m^2 (20% of total site area). All buildings are more than 3m from boundaries. Buildings are less than 7m in height. The onsite wastewater treatment and disposal design complies with Regional Plan permitted activity standards.

A site plan; floor plan and elevations are attached in Appendix 1. A location map and copy of the record of title & relevant instruments are attached in Appendices 2 & 3 respectively. A Site Suitability Report in support of the application s attached in Appendix 4.

1.2 Scope of this Report

This assessment and report accompanies the Resource Consent Application, and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent to construct a dwelling on land in the Rural Living Zone, where the volume of earthworks will require consent as a restricted discretionary activity under the Operative District Plan. In addition the volume of soil disturbance and soil removal proposed, will require consent under the NES-CS as a controlled activity.

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. The name and address of the owner of the property is contained in the Form 9 Application form. There are no other activities that are part of the proposal to which the application relates, and no other resource consents required other than those addressed in this application.

2.0 PROPERTY DETAILS

Location:	271 Kerikeri Inlet Road, Kerikeri. Location Map attached in Appendix 2.
Legal description:	Lot 6 DP 604274, contained in Record of Title 1183617, 3024m^2 in area. Refer to Appendix 3.

3.0 SITE DESCRIPTION

3.1 Physical characteristics

The site is accessed off the west side of Kerikeri Inlet Road via a shared right of way. It is a gently sloping site, generally sloping downwards in a westerly direction. The site is grass covered site with boundary plantings. The site's eastern boundary is with Kerikeri Inlet Road. The proposed dwelling will be the first dwelling on the site. The site has power and telecommunications connections at the boundary.

The property is zoned Rural Living in the Operative District Plan and Rural Residential in the Proposed District Plan. The site is not in the Coastal Environment. Adjacent sites to the west and south are also zoned Rural Living and Rural Residential. The site on the northern boundary is zoned Coastal Residential in the ODP and Settlement in the PDP.

The site does not contain any natural hazard; significant indigenous vegetation; heritage or cultural values or archaeological site.

3.2 Legal Interests

The property is subject to an electricity right and in another instrument, subject to a right of way, right to convey electricity, telecommunications and water. It is subject to Consent Notice imposed by Council – refer to section 5.3 later in this report. There is also a private Land Covenant applying to the title. All instruments form part of Appendix 3.

3.3 Consent History

The property file contained no building consent history specific to land in Lot 6.

Relevant Resource Consent history is RC 2240128-RMACOM, discussed earlier in this report.

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 Section 1.0 of this Planning Report.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6.0 of this Planning Report.
(b) a description of the site at which the activity is to occur:	Refer to Section 3.0 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:	Refer to Sections 3.0 & 5.0 of this Planning Report.
(e) a description of any other resource consents required for the proposal to which the application relates:	None required.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Section 7.0 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* *(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).*	Refer to Sections 6.0 & 7.0 of this Planning Report.
(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)):	There are no existing permitted activities that are part of this proposal.
(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	The site is not within an area subject to a customary marine title group. Not applicable.

management matters set out in that planning document (for the purposes of section 104(2B)).	

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 6.0 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 6.0 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 proposal 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 6.0 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 8.0 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	No protected customary right is affected.

customary right, a description of possible alternative locations or 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 6.0 and 8.0 of this planning report and also to the assessment of objectives and policies in Section 7.0.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Section 6.0.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 6.0. The proposal has no effect on ecosystems or habitat.
(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 6.0.
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The proposal 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 application site is not subject to natural hazards and does not involve hazardous installations.

5.0 COMPLIANCE ASSESSMENT

5.1 Operative District Plan

The property is zoned Rural Living in the Far North Operative District Plan. A brief assessment of the proposal against relevant rules in Chapter 8.7 Rural Living Zone and an assessment of against relevant District Wide rules, is contained in the following Table:

Far North Operative District Plan:

RURAL LIVING ZONE RULES:		

Permitted Standards	**Comment**	**Compliance Assessment**
8.7.5.1.1 RESIDENTIAL INTENSITY	Will be the only single residence on an existing site	Permitted
8.7.5.1.2 SCALE OF ACTIVITIES	N/A	N/A
8.7.5.1.3 BUILDING HEIGHT The maximum height of any building shall be 9m.	The proposed buildings are less than 6m in height.	Permitted
8.7.5.1.4 SUNLIGHT No part of any building shall project beyond a 45 degree recession plane as measured inwards from any point 2m vertically above ground level on any site boundary ….	The proposed buildings will comply with the sunlight plane given their modest height and distance from boundary.	Permitted.
8.7.5.1.5 STORMWATER MANAGEMENT The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 12.5% or 3000m2, whichever is the lesser.	The total estimated impermeable surfaces proposed is 20% of total site area.	**Whilst this does comply with Rule 8.7.5.1.5, RC 2240128-RMACOM, issued in 2023 granted consent for this breach.** **Already consented.**
8.7.5.1.6 SETBACK FROM BOUNDARIES (b) the minimum building setback from boundaries, apart from a boundary with any Rural Production and Minerals Zone, shall be 3m	Buildings are all more than 3m from boundaries.	Permitted.
8.7.5.1.7 SCREENING FOR NEIGHBOURS – NON-RESIDENTIAL ACTIVITIES	N/A	N/A
8.7.5.1.8 TRANSPORTATION	This is now a District Wide Rule First residential unit on a site is exempt from traffic intensity rules. 2 car park spaces are provided. Access is existing and compliant.	Permitted.
8.7.5.1.9 HOURS OF OPERATION - NON-RESIDENTIAL ACTIVITIES	N/A	N/A
8.7.5.1.10 KEEPING OF ANIMALS	N/A	N/A
8.7.5.1.11 NOISE	N/A – residential activity	Permitted.
8.7.5.1.12 HELICOPTER LANDING AREA	N/A	N/A
8.7.5.1.13 BUILDING COVERAGE Any new building or alteration/addition to an existing building is a permitted activity if the total Building Coverage of a site does not exceed 10% or 2400m2, whichever is the lesser.	Proposed building coverage is 10%.	Permitted.

Controlled Activity Standards		
8.7.5.2.2 STORMWATER MANAGEMENT The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 20% or 3300m^2, whichever is lesser	The total estimated impermeable surface coverage is 20%	**Complies – and consented by RC 2240128-RMACOM**
DISTRICT WIDE RULES		
12.3 SOILS AND MINERALS 12.3.6.1.2 EXCAVATION AND/OR FILLING, EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING ZONE Excavation and/or filling, ... is permitted, provided that: (a) it does not exceed 300m^3 in any 12 month period per site; and (b) it does not involve a continuous cut or filled face exceeding 1.5m in height over the length of the face i.e. the maximum permitted cut and fill height may be 3m.	An estimated total cut / fill volume of 800m^3 . No cut/fill face exceeding 1.5m in height.	**Cannot comply with part (a).** **Equivalent restricted discretionary rule provides for 2,000m3. This is complied with.**

In summary, the proposal breaches the following rules:

12.3.6.1.2 Excavation and/or Filling (in the Rural Living Zone), part (a).

The activity is a **restricted discretionary** activity under the Operative District Plan (ODP).

5.2 Proposed District Plan

The FNDC publicly notified its PDP on 27th July 2022. Decisions on submissions have yet to be notified so only specific rules identified as such have legal effect at the time of this application being lodged.

Rules identified by the Council as having legal effect 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.
The property does not contain a scheduled site or area of significance to Maori, a scheduled heritage resource, or any significant natural area.
Not Applicable.

Heritage Area Overlays – the property is not within any Heritage Area overlay
Not applicable.

Historic Heritage rules and Schedule 2 – the property is not listed in Schedule 2 (Historic sites, buildings and objects)
Not applicable.

Notable Trees – none
Not applicable

Sites and Areas of Significance to Maori – none
Not applicable.

Ecosystems and Indigenous Biodiversity – Rules IB-R1 to R5 inclusive.
The proposal does not involve any clearance of vegetation or habitat, and no breach of these rules has been identified.

Subdivision (specific parts) –
Not applicable.

Activities on the surface of water –
Not applicable.

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 (ADP) if carrying out earthworks and any artefacts are discovered. EW-R13 and associated EW-S5 relate to earthworks being done in accordance with industry standard Erosion and Sediment Control measures. Compliance with both there standards can be ensured via conditions of resource consent. Erosion and Sediment Control, following GD05 guidelines for small sites, is shown on the plans in Appendix 1.

Signs –
Not applicable.

Orongo Bay Zone –
Not applicable.

In summary there are no zone rules in the PDP breached.

5.3 Consent Notice 13023580.4

All six clauses in the above consent notice are relevant to the application site.

> *a) At the time of lodging an application for building consent on any of the lots the building applicant is to provide a report from a Chartered Professional Engineer with recognised competence in relevant geotechnical and structural matters, which addresses the site's investigation undertaken, sets out the specific design of the building's foundations. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).*

To be provided with Building Consent.

> *b) In conjunction with the construction of any buildings and other impermeable surfaces, the lot owner shall install a stormwater retention tank/s with a flow-attenuated outlet/s. The system shall be designed such that the total stormwater discharged from the site, after development, is no greater than the predevelopment flow from the site for rainfall events up to a 10% AEP plus allowance for climate change, with overland/secondary flow paths able to accommodate a 1% AEP event. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).*

To be provided with Building Consent – refer to Site Suitability Report by RSEngineering attached as Appendix 4 to this application.

> *c) 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 a 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.*

Water supply will form part of the Building Consent application. Tank location shown on the plans in Appendix 1.

> *d) In conjunction with the construction of any building which includes a wastewater treatment & effluent disposal system the applicant shall submit for Council approval a TP58 Report prepared by a Chartered Professional Engineer or an approved TP58 Report Writer. The report shall identify a suitable method of wastewater treatment for the proposed development along with an identified effluent disposal area plus a 100% reserve disposal area. The report shall confirm that all the treatment & disposal systems can be fully contained within the lot boundary and comply with the Regional Water & Soil Plan Permitted Activity Standards.*

To be provided at Building Consent.

Clauses e) and f) of the consent duplicate clauses d) and c) above respectively. Both remain building consent matters.

In summary the proposal will comply with the requirements of the Consent Notice.

6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

6.1 Stormwater Management

A stormwater management system has been designed in compliance with the consent notice above – clause b). Attenuation design is contained within the Site Suitability Report in Appendix 4. As stated earlier, RC 2240128-RMACOM has already consented a breach of the permitted Stormwater Management threshold, and the proposed coverage meets the controlled activity threshold, as required. No further consent is therefore required for stormwater management. The design and report provided at building consent stage will be assessed for compliance against clause b) of the consent notice.

6.2 Excavation and/or Filling

Consent is required, as a restricted discretionary activity, due to the proposed total cut and fill being greater than 300m^3. There will be no cut/face height in excess of the permitted height.

The Site Suitability Report in Appendix 4 addresses earthworks in its section 8.2. Rule 12.3.6.2.1 lists the matters to which the Council will restrict its discretion. In addition, Rules EW-R12 and R13 and related standards EW-S3 and ES-S5 respectively, in the Proposed District Plan (PDP) also have legal effect. EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol (ADP) if carrying out earthworks and any artefacts are discovered. EW-R13 and associated EW-S5 relate to earthworks being done in accordance with industry standard Erosion and Sediment Control measures

Assessment criteria in 12.3.6.2.1 are addressed below:

(i) the effects of the area and volume of soils and other materials to be excavated; and
(ii) the effects of height and slope of the cut or filled faces; and
(iii) the time of the year when the earthworks will be carried out and the duration of the activity; and
(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; and
(v) the extent to which the activity may adversely impact on visual and amenity values; and
(vi) the extent to which the activity may adversely affect cultural and spiritual values; and
(vii) the extent to which the activity may adversely affect areas of significant indigenous vegetation or significant habitats of indigenous fauna; and
(viii) the number, trip pattern and type of vehicles associated with the activity; and
(ix) the location, adequacy and safety of vehicular access and egress; and
(x) the means by which any adverse environmental effects of the activity will be avoided, remedied or mitigated.

The proposal involves more cut than fill. An estimated 120m^3 will be removed from the site. The excavation and fill work will be carried out pursuant to an Erosion and Sediment Control Plan prepared in accordance with GD05 Guidance for Small Sites – refer to Appendix 1 plans, and in particular Sheet A03 – Part Site Plan. This will ensure mitigation of adverse effects associated with the volume of earthworks proposed (parts (i) and (x) above).

There will be no cut/fill face higher than the permitted height specified in the ODP. The Site Suitability Report in Appendix 4 contains several recommendations in terms of the management of cut/fill faces and sloped batters (part (ii) above).

The earthworks will be undertaken during Summer/Autumn,

1) the Shed cut 1 is scheduled for pre-christmas and the driveway and retaining wall behind the shed will be formed and metalled and the slab will be down.
2) The house cut and scrape – cut 2 and services (tanks and WTS) are scheduled for directly post Christmas. (January)

3) The effluent field area will be placed and mulched and planted before commissioning
4) And any other fill areas will be placed and mulched and planted or grassed before the following summer

(part (iii) of assessment criteria above).

Subject to construction and ongoing implementation of appropriate Erosion and Sediment Control, the activity will not exacerbate erosion. The site is not subject to any hazard and is not near any lake, river, wetland or the coastline (part (iv) above).

The earthworks will be temporary. It is required to create a level building platform, for the pool, and for the driveway. There will be no bare faces left as such. All bare faces will be vegetated / mulch covered, or covered by built development. The earthworks will not generate any adverse effects on the visual and amenity values of the site (part (v)).

The site is not known to contain any cultural/heritage values. The area of earthworks remains relatively small in relation to the overall site area. I do not believe any adverse effects on cultural or spiritual values will result (part (vi)). There is no indigenous vegetation on or near the site of the earthworks (part (vii)).

As stated above, the duration of the earthworks is not long. The cut material/spoil to be to be removed from site = 120m^3 (12x10m^3 truckloads) (part (viii)). The existing access to the site was constructed to Council standard at time of subdivision and has good sight lines onto Kerikeri Inlet Road. The entrance is considered a safe vehicle entrance (part (ix)).

In summary, the proposed earthworks, carried out subject to an approved Erosion and Sediment Control Plan, will have less than minor adverse effects on the environment and on any adjacent property.

6.3 Soil Disturbance and Removal (NES-CS)

As stated earlier, the subdivision (and associated siteworks) and use of lots for residential purposes, has been previously consented. However, individual lots, when being developed, need to assess the soil disturbance associated with that development against the NES-CS for compliance.

Regulation 8(3) specifies the permitted activity standards for soil disturbance. Parts (c) and (d) are breached:

(c) the volume of the disturbance of the soil of the piece of land must be no more than 25 m^3 per 500 m^2:
(d) soil must not be taken away in the course of the activity, except that,—
(i)for the purpose of laboratory analysis, any amount of soil may be taken away as samples:
(ii)for all other purposes combined, a maximum of 5 m^3 per 500 m^2 of soil may be taken away per year:

Regulation 9(1) outlines the requirements to be considered a 'controlled activity'.

(1) If a requirement described in any of regulation 8(1) to (3) is not met, the activity is a controlled activity while the following requirements are met:
- (a) a detailed site investigation of the piece of land must exist:
- (b) the report on the detailed site investigation must state that the soil contamination does not exceed the applicable standard in regulation 7:
- (c) the consent authority must have the report:
- (d) conditions arising from the application of subclause (2), if there are any, must be complied with.

A Detailed Site Investigation of the entire underlying site from which Lot 6 was created, was carried out as part of the subdivision. The DSI is attached in Appendix 6 (parts (a) and (c)). The DSI states that the soil contamination does not exceed the applicable standard in regulation 7 (part (b)). Soils tested within the building platform and in the vicinity showed results well below soil guidelines applying.

Sub clause (2) lays out the matters over which control is reserved. That "control" is administered by the Council in applying subclause (2).

7.0 STATUTORY ASSESSMENT

7.1 District Plan Objectives and Policies

Objectives and policies relevant to this proposal are predominantly those listed in Chapter 8.7 Rural Living Zone.

Objective 8.7.3.1 seeks to achieve a style of development on the urban periphery where the effects of the different types of development are compatible and Objective 8.7.3.2 seeks to provide for low density residential development. A characteristic of the general area is that it is not really 'urban periphery' any more. Kerikeri Inlet Road is being becoming more and more built up with fewer and fewer larger sites. Immediately opposite is the Heron Hill large lot subdivision. Immediately to the west, down slope, is another large lot subdivision. Reinga Heights (higher density housing) is not far to the north. The site is consistent with the objective of providing for low density residential development.

Policy 8.7.4.1 is not overly relevant as it addresses the area of transition between residential and rural zones. The site is not within such a 'transition' area. Policy 8.7.4.2 provides guidance to the territorial authority when considering zoning.

Policy 8.7.4.3 seeks to ensure that residential activities have sufficient land associated with them to provide outdoor space and sufficient land for on-site effluent disposal. The proposed ensures adequate open outdoor space for residents and on-site effluent treatment and disposal can be accommodated.

Policy 8.7.4.4 is an enabling policy, encouraging different types of housing and forms of accommodation.

Policies 8.7.4.5, 8.7.4.6, 8.7.4.8 and 8.7.4.9 only apply to non residential activities and are not relevant.

Policy 8.7.4.7 promotes buildings on sites having adequate access to sunlight and daylight. The application site faces west and the house is orientated in that same direction. The site has adequate access to sunlight and daylight.

In summary I believe the proposed subdivision to be consistent with the ODP's objectives and policies in regard to subdivision.

7.2 Proposed District Plan Objectives and Policies

The property is proposed to be zoned Rural Residential in the PDP

Rural Residential Zone Objectives:

RRZ-O1 *The Rural Residential zone is used predominantly for rural residential activities and small scale farming activities that are compatible with the rural character and amenity of the zone.*

RRZ-O2 *The predominant character and amenity of the Rural Residential Zone is maintained and enhanced, which includes:*
a. peri-urban scale residential activities;
b. small-scale farming activities with limited buildings and structures;
c. smaller lot sizes than anticipated in the Rural Production or Rural Lifestyle Zones; and
d. a diverse range of rural residential environments reflecting the character and amenity of the adjacent urban area.

RRZ-O3 *The Rural Residential zone helps meet the demand for growth around urban centres while ensuring the ability of the land to be rezoned for urban development in the future is not compromised.*

RRZ-O4 *Land use and subdivision in the Rural Residential zone:*
a. maintains rural residential character and amenity values;
b. supports a range of rural residential and small-scale farming activities; and
c. is managed to control any reverse sensitivity issues that may occur within the zone or at the zone interface.

The site is proposed to be utilised for residential living (RRZ-O1). The predominant character and amenity of the zone and immediate vicinity is not adversely affected (RRZ-O2). The site is one of several recently created to help meet demand for growth around Kerikeri (RRZ-O3). There is high demand for residential living in locations such as this, with ready access to road and footpaths and not far from the town centre. The proposal will not add to reverse sensitivity effects (RRZ-O4).

RRZ-P1 *Enable activities that will not compromise the role, function and predominant character and amenity of the Rural Residential Zone, while ensuring their design, scale and intensity is appropriate, including:*
a. rural residential activities;
b. small-scale farming activities;
c. home business activities;
d. visitor accommodation; and
e. small-scale education facilities.

RRZ-P2 *Avoid activities that are incompatible with the role, function and predominant character and amenity of the Rural Residential Zone including:*
a. activities that are contrary to the density anticipated for the Rural Residential Zone;
b. primary production activities, such as intensive indoor primary production or rural industry, that generate adverse amenity effects that are incompatible with rural residential activities; and
c. commercial or industrial activities that are more appropriately located in an urban zone or a Settlement Zone.

RRZ-P3 *Avoid where possible, or otherwise mitigate, reverse sensitivity effects from sensitive and other non-productive activities on primary production activities in adjacent Rural Production Zones and Horticulture Zones.*

RRZ-P4 *Require all subdivision in the Rural Residential zone to provide the following reticulated services to the boundary:*
a. telecommunications:
i. fibre where it is available;
ii. copper where fibre is not available;
iii. copper where the area is identified for future fibre deployment.
b. local electricity distribution network.

RRZ-P5 *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. consistency with the scale and character of the rural residential environment;
b. location, scale and design of buildings or structures;
c. 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;
d. the capacity of the site to cater for on-site infrastructure associated with the proposed activity;
e. the adequacy of roading infrastructure to service the proposed activity;
f. managing natural hazards;
g. any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity; and
h. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

The land use on the site is proposed to be residential. This is an activity expected in the zone (RRZ-P1). The existing and future land use is/will be compatible with the role, function and predominant character and amenity of the zone (RRZ-P2). Reverse sensitivity effects are not added to (RRZ-P3). In addition the area is not 'zoned' under the PDP for continued rural production use. The site has connections to power and telecommunications (RRZ-P4). All of the matters in RRZ-P6, where relevant, have been considered and the proposal is considered consistent with the policy.

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.

The application site does not exhibit any of the features and values listed in s6.

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". These include 7(b), (c), (d) and (f). It is considered that the proposal represents efficient use and development of a site. Amenity values will be maintained as will the quality of the environment. The proposal has had regard to the values of ecosystems.

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 Environmental Standards

The proposal is a residential development. The site is subject to consideration under the NES-CS and this has been covered elsewhere in this report.

7.5 Regional Policy Statement for Northland

I consider the proposal to be consistent with the RPS for Northland. The site is not in the coastal environment and contains no outstanding landscape or natural feature, nor any indigenous vegetation or cultural/heritage values. It is not zoned for rural production purposes and is not subject to hazard.

8.0 CONSULTATION & s95A-E ASSESSMENT

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 circumstance exists and Step 3 of s95A must be considered. This specifies that public notification is required in certain circumstances. The application is not subject to a rule or national environmental standard that requires public notification. 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. In summary public notification is not required pursuant to Step 3 of s95A.

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. None exist in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstance exists and Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified. The application is not for a boundary activity and no affected persons have been identified. Refer to section 8.4 below.

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.

8.4 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 breaches are considered to have less than minor effects on any adjacent property. Appropriate Erosion and Sediment Control measures will be put in place during works to ensure no off-site adverse effects. I have not identified any adjacent properties as 'affected' by the proposal.

9.0 CONCLUSION

The site is considered suitable for the proposal, and effects on the wider environment are less than minor. The proposal is consistent with the relevant objectives and policies of the Operative and Proposed District Plans, and the Regional Policy Statement, as well as Part 2 of the Resource Management Act. There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified and no persons have been identified as adversely affected by the proposal. No special circumstances have been identified that would suggest notification is required.

It is therefore requested that the Council grant approval on a non-notified basis, subject to appropriate conditions.

Lynley Newport Date 16th September 2025
Senior Planner, Thomson Survey Ltd

10.0 APPENDICES

Appendix 1 Site, Floor and Elevation Plans

Appendix 2 Location Map

Appendix 3 Record of Title & Easement Instruments

Appendix 4 Site Suitability Report

Appendix 5 RC 2240128-RMACOM

Appendix 6 DSI for RC 2240128

Appendix 1

Site, Floor and Elevation Plans

PROPOSED NEW DWELLING

AT 271 KERIKERI INLET ROAD, KERIKERI

for S WINCHCOMBE & L GREENWOOD

Mid-Winter 4pm

Artistic Impression Only

H 11/09/2025

CONCEPT

Lindholmdesign
ARCHITECTURAL SERVICES

P.0 Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

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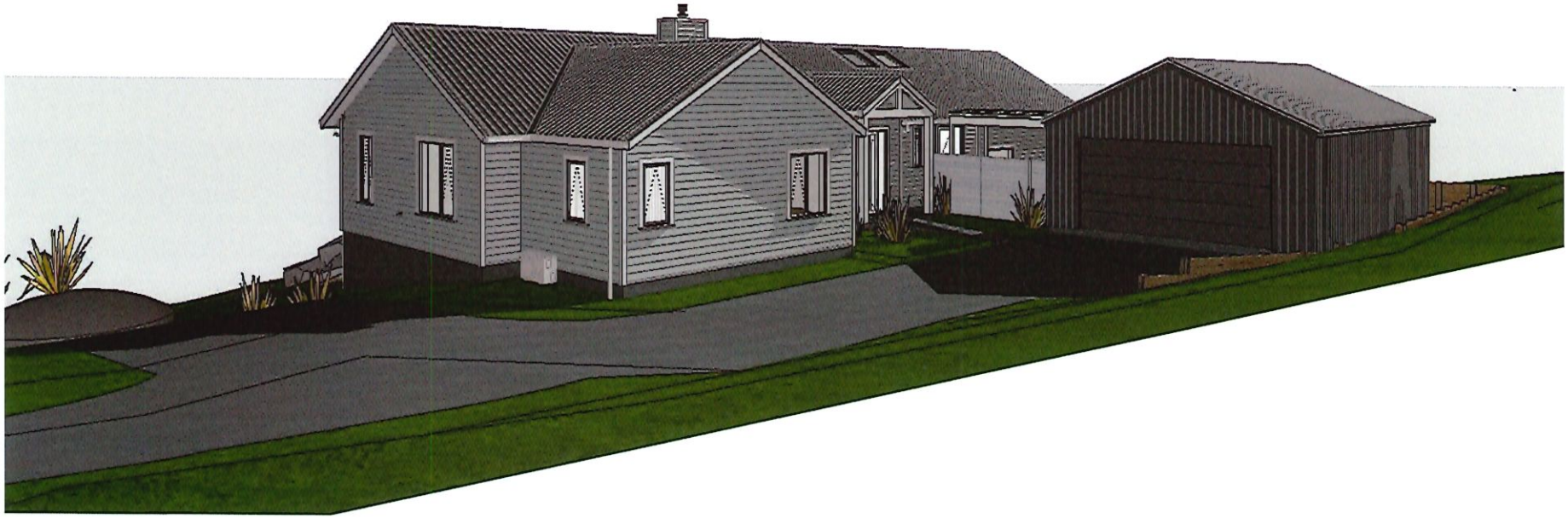

Lindholmdesign
ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
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PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI,
LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A00a 3D VIEWS -MID WINTER - 12 NOON

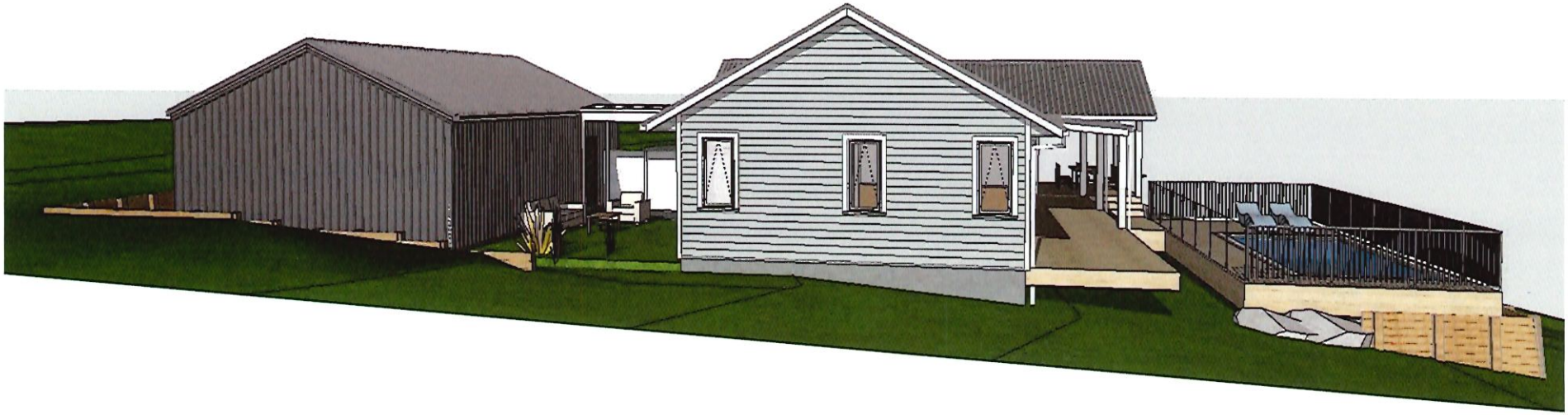
Date: Thursday, 11 September 2025 SCALE:

H 11/09/2025

CONCEPT

DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC



Lindholmdesign
ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
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PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI,
LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A00b 3D VIEWS- MID WINTER - 12 NOON

Date: Thursday, 11 September 2025 SCALE:

H 11/09/2025

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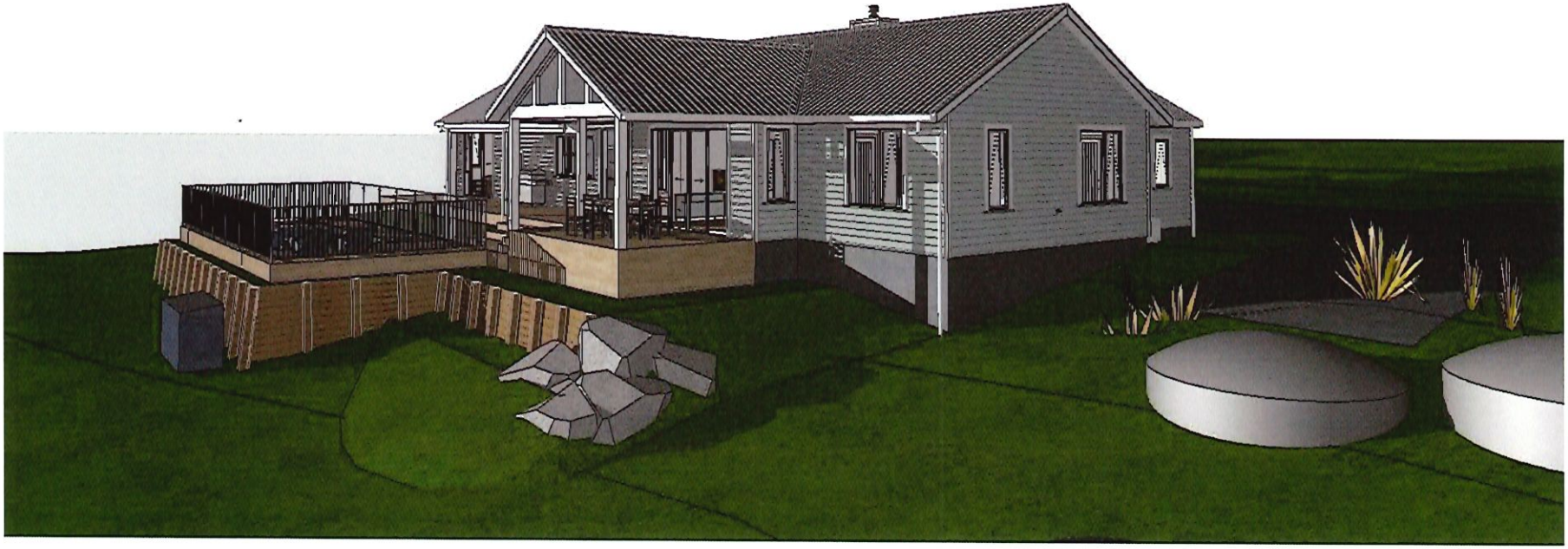

Lindholmdesign
ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
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PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI,
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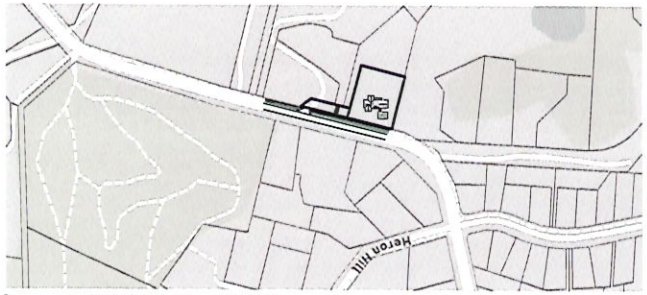


2 Location Plan 1:5000

NORTHPOINT

SITE DESCRIPTION:
LOT 6 DP 604274
SITE AREA: 3024m2

EASEMENTS:

ID:	Purpose	Servient Tenement	Dominant Tenement
E, F	Right of Way,Right to Convey Electricity, Telecommunications,Water,	LOT 6 DP 604274	LOTS 4 & 5 DP604274
G	Right of Way,Right to Convey Electricity, Telecommunications,Water,	LOT 6 DP 604274	LOTS 3, 4 & 5 DP604274
E	Right to Convey Electricity,	LOT 6 DP 604274	document 499495.1

PLAN AREAS:

FLOOR AREA: 198.46m2 approx
SHED FLOOR AREA:68.64m2 approx

HOUSE ROOF AREA: 268.11m2 approx
SHED ROOF AREA:69.84m2 approx

DISTRICT PLAN COMPLIANCE: RURAL LIVING ZONE
RESIDENTIAL INTENSITY:

Permitted: 1 unit per 4,000m² of land. In all cases the land shall be developed in such a way that each unit shall have at least 3,000m² for its exclusive use surrounding the unit plus a minimum of 1,000m² elsewhere on the property.
Proposed: 1 Dwelling = 3000m2min exclusive area/dwelling = COMPLIES

BUILDING HEIGHT:
Permitted: = 9m max
Proposed House: = <7 m approx
=COMPLIES

SUNLIGHT: = COMPLIES

STORMWATER MANAGEMENT: (Impermeable surfaces)
Total Permitted = ≤12.5% of gross site area
Total Proposed:
Proposed driveway to shed & house = 180.5m2
Proposed Shed roof area: = 69.84m2 approx
Proposed House roof area =268.11m2 approx
Extg metal R.O.W (shared) = 168m2/4 users =42m2
Pool & coping : 24m2 approx
1 additional water tanks 10m2 approx
Covered walkway: 8m2 approx
Pool Pump shed : 2m2 approx
Total Impermeable surface = 605m2 approx = 20% = SW report required in accordance with consent notice. Refer to site suitability report by RS Engineering

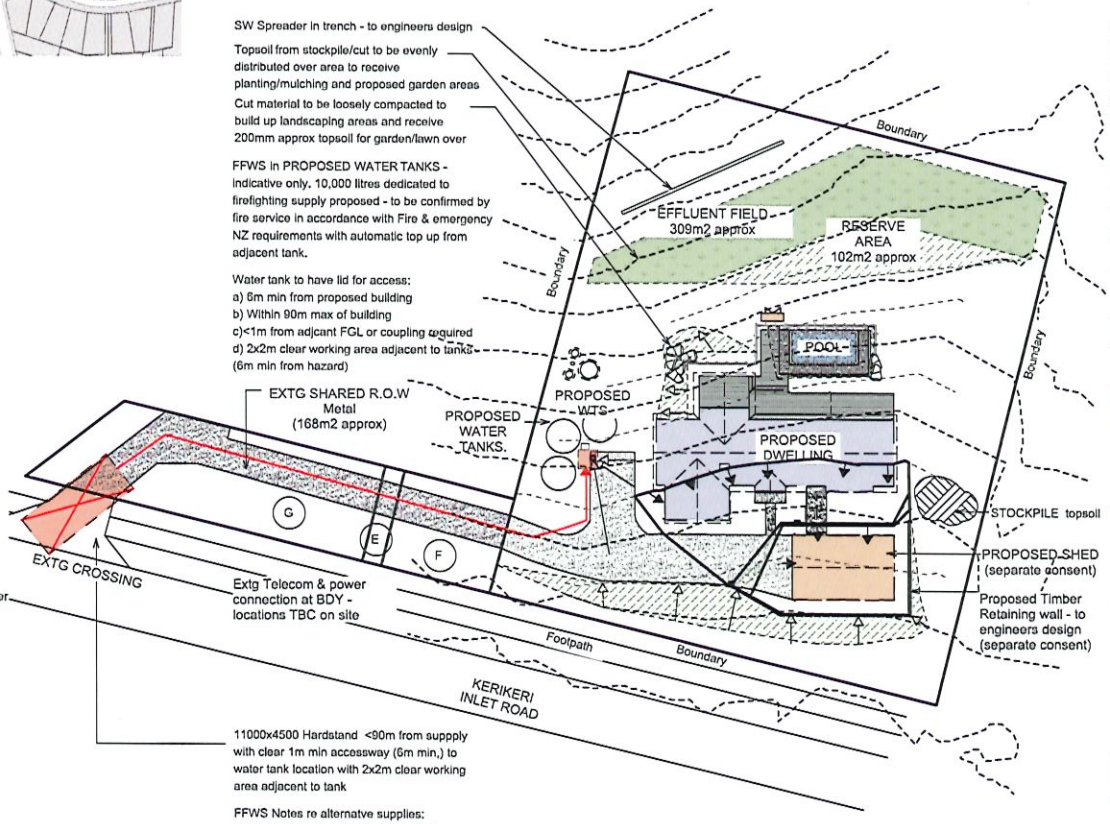
SETBACKS to BOUNDARIES: =3m min permitted =COMPLIES

BUILDING COVERAGE:
Total Proposed: = 304.52M2 = 10%
Total Permitted: = 10% max of gross site area
= COMPLIES

EARTHWORKS VOLUME:
Total Proposed: =385m3 approx cut - incl cut for shed, driveway, foundations and scrape to remove topsoil from areas to receive fill and under buildings/structures plus 150m2 imported fill - incl Brownrock base and metal driveway, compacted fill under house and pool and shed slab
All Topsoil from cut to be stockpiled on site and used for garden fill/ladscaping fill = 200m3 approx. Clay cut material to be used as fill = 65m3 approx.
Total Cut and Fill Volume = 800m3 approx
Remainder to be to be removed from site = 120m3
Total Permitted: =300m3 max in any 12month period
= RESOURCE CONSENT REQUIRED

CUT/FILL FACE: = ≤1.5m max permitted = COMPLIES
Cut face and fill face battered at 1V:3H or retained by engineered retaining wall.

HAIL: SOIL DISTURBANCE: >25m3/500m2 of site area = RESOURCE CONSENT REQUIRED
NOTE: DSI undertaken at subdivision - no incidence of exceedance. Refer to DS1 report by NZ Environmental dated April 2023



1 Overall Site Plan 1:500

NOTES:

1) All construction to comply with NZBC & NZ Standards and LA requirements.

2) All Services locations and connections shown indicative only. Contractor to confirm all existing services runs on site prior to commencing construction

3) Extg. Contours are indicative only from FNDC MAPS and contours and spot levels over building site by Thomson survey. All levels to be confirmed on site by builder prior to construction.

5) Earthworks and Sediment Control to comply with Geotechnical Report requirements and FNDC Proposed District Plan EW-S5: to comply with "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016" - refer to accompanying documents for " Building on Small Sites - Doing it Right" for guidance.

6) Earthworks to comply with FNDC Proposed District Plan EW-S3 "Accidental Discovery Protocol"

7) Plans to be read in conjunction with Site suitability /Geotech Report and TP58

8) Refer to Site Service Plan for drainage & Services runs and locations

GENERAL NOTES:
PLANNING ZONE: RURAL LIVING
WIND ZONE: VERY HIGH - to NZS3604 5.2.3
EXPOSURE ZONE: design to Zone D (Zone C to 3604:2011)
SUB SOIL CLASSIFICATION: C (from Geotech report)
SOIL CLASS: M (from Geotech report)
ROOF PITCH: 30 Degrees
ROOF CLADDING WEIGHT:LIGHT
CLADDING WEIGHT:LIGHT

WIND ZONE CALCULATION:
TERRAIN: Urban
>10 obstructions, houses or trees (3m high)/hectare
SITE EXPOSURE: Exposed
TOPOGRAPHICAL CLASS: T4
-Crest Zone
-Moderate gradient 1:15 < 1:20

EFFLUENT FIELDS AND SW TRENCH LOCATION & SETBACKS TBC BY TP58 REPORT

H 11/09/2025

CONCEPT

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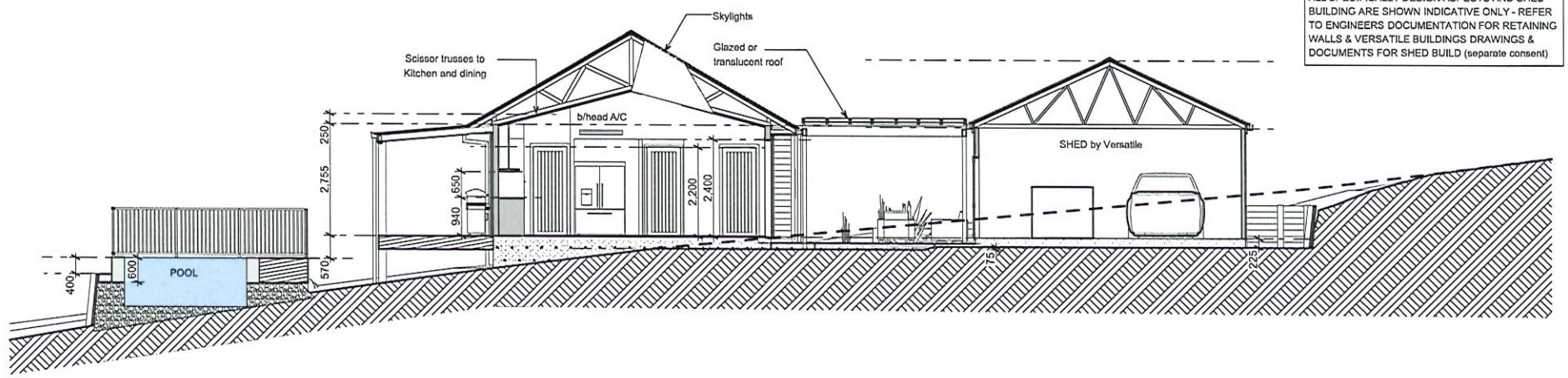
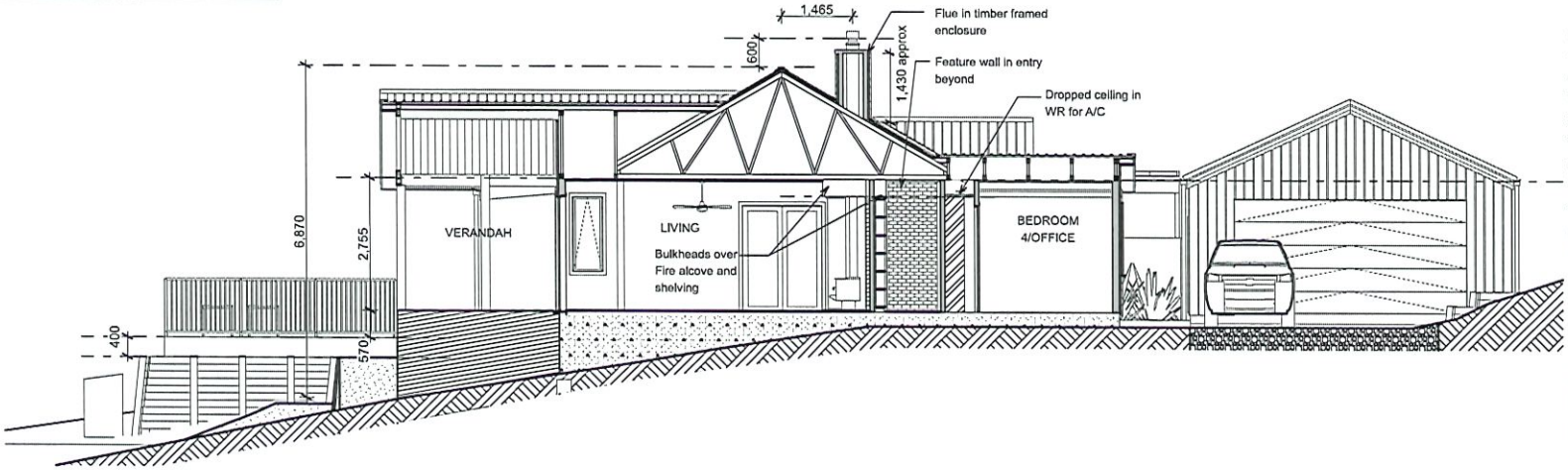
LBP: Design 2: 107526
ADNZ ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI,
LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD
Sheet: A01 OVERALL SITE & LOCATION PLAN
Date: Thursday, 11 September 2025 SCALE: 1:500

ALL SPECIFICALLY DESIGN ASPECTS AND SHED BUILDING ARE SHOWN INDICATIVE ONLY - REFER TO ENGINEERS DOCUMENTATION FOR RETAINING WALLS & VERSATILE BUILDINGS DRAWINGS & DOCUMENTS FOR SHED BUILD (separate consent)



1 Section thru Site 1:100



2 Section thru Site 1:100

NOTES:

1) All works to be done in accordance with NZS3604:2011 and the NZBC Acceptable solutions unless specifically designed or Alternative solution approved by BCA

2) Contractor to check all dimensions, existing drain & services locations prior to commencing works

3) All construction materials, fixing and fastenings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1

4) Do not build on uncertified fill

5) Remove all organic material, fill and topsoil from under pile footings/foundations

6) Engineer to inspect foundations and provide PS4 as required by BCA - refer to building consent Form 5 requirements

7) All timber to be SG8 unless specified otherwise

8) treatment to timber to be a minimum treatment of:
H5 for timber embedded in concrete or ground,
H4 for timber in contact with ground and
H3.2 for timber exposed to weather and
H1.2 for enclosed timber

Lindholmdesign ARCHITECTURAL SERVICES

P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

ADNZ ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A01a SITE SECTIONS

Date: Thursday, 11 September 2025 SCALE: 1:100

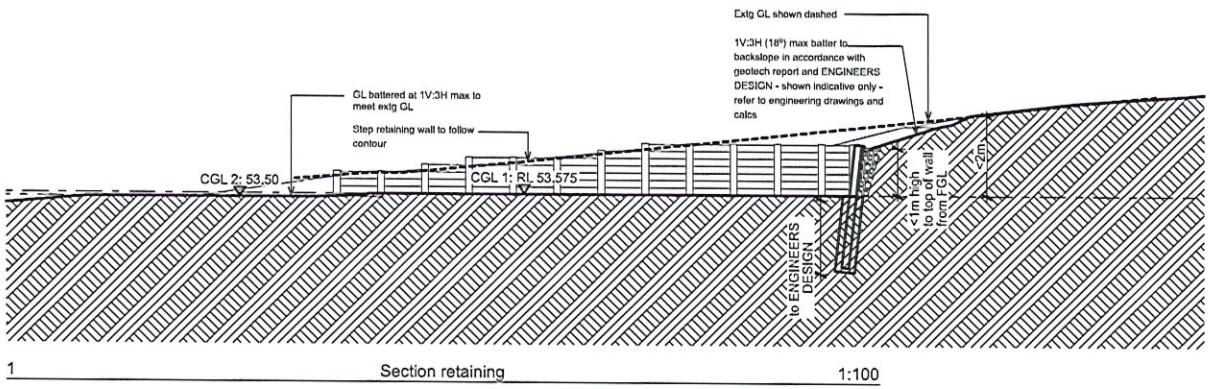
H 11/09/2025

CONCEPT

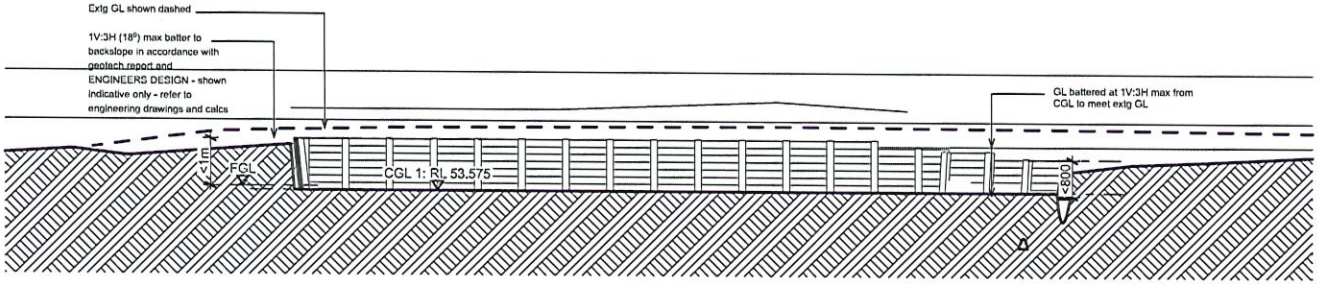
DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC

ALL SPECIFICALLY DESIGN ASPECTS ARE SHOWN INDICATIVE ONLY - REFER TO ENGINEERS DOCUMENTATION



1 Section retaining 1:100



2 Section Retaining 1:100

NOTES:

1) All works to be done in accordance with NZS3604:2011 and the NZBC Acceptable solutions unless specifically designed or Alternative solution approved by BCA

2) Contractor to check all dimensions, existing drain & services locations prior to commencing works

3) All construction materials, fixing and fastenings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1

4) Do not build on uncertified fill

5) Remove all organic material, fill and topsoil from under pile footings/foundations

6) Engineer to inspect foundations and provide PS4 as required by BCA - refer to building consent Form 5 requirements

7) All timber to be SG8 unless specified otherwise

8) treatment to timber to be a minimum treatment of:
H5 for timber embedded in concrete or ground,
H4 for timber in contact with ground and
H3.2 for timber exposed to weather and
H1.2 for enclosed timber

Lindholmdesign ARCHITECTURAL SERVICES

LICENSED BUILDING PRACTITIONER www.dbh.govt.nz BUILDING CONFIDENCE

P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

A D|N Z ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A01b SHED RETAINING ELEVATIONS

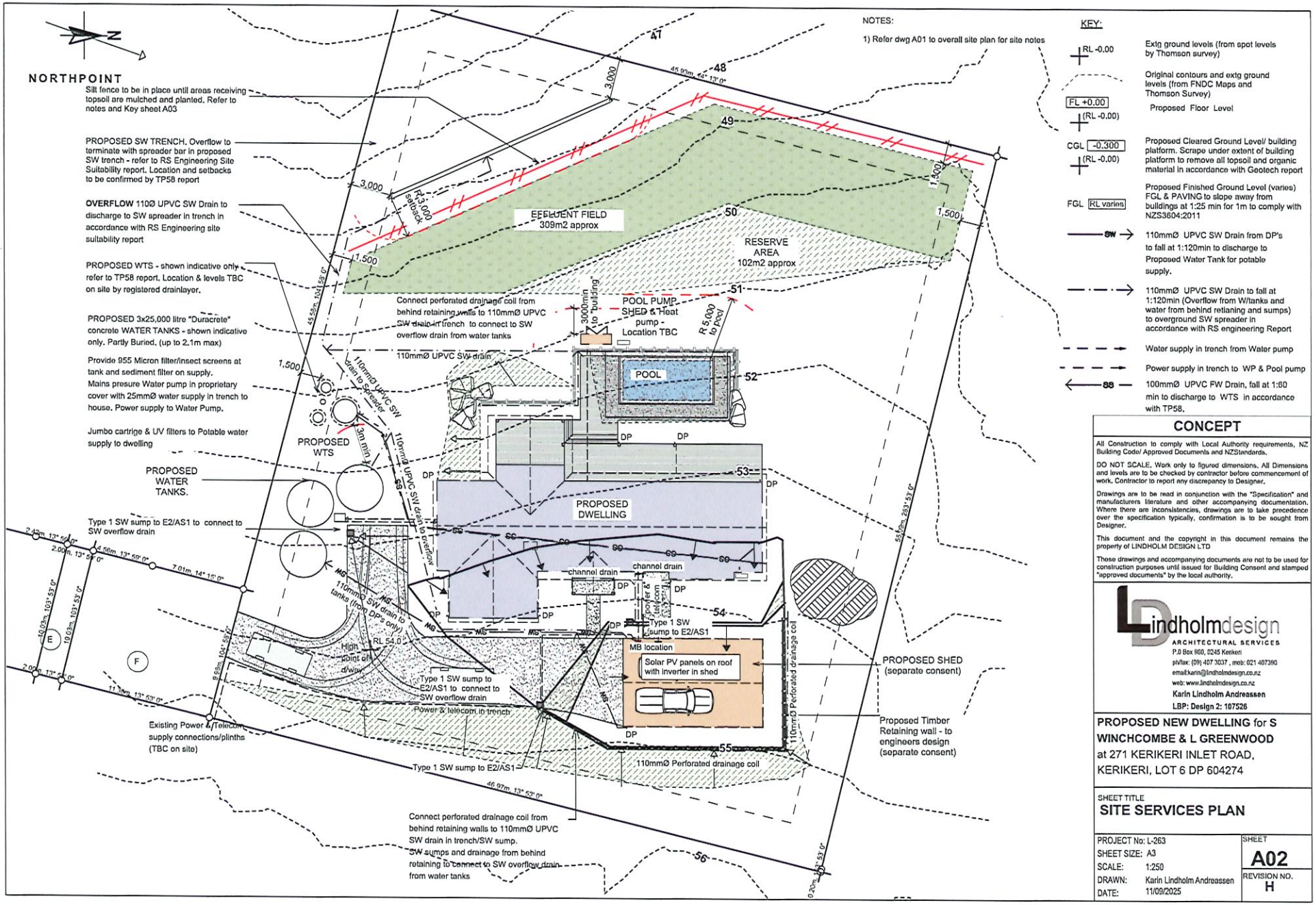
Date: Thursday, 11 September 2025 SCALE: 1:100

H 11/09/2025

CONCEPT

DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC



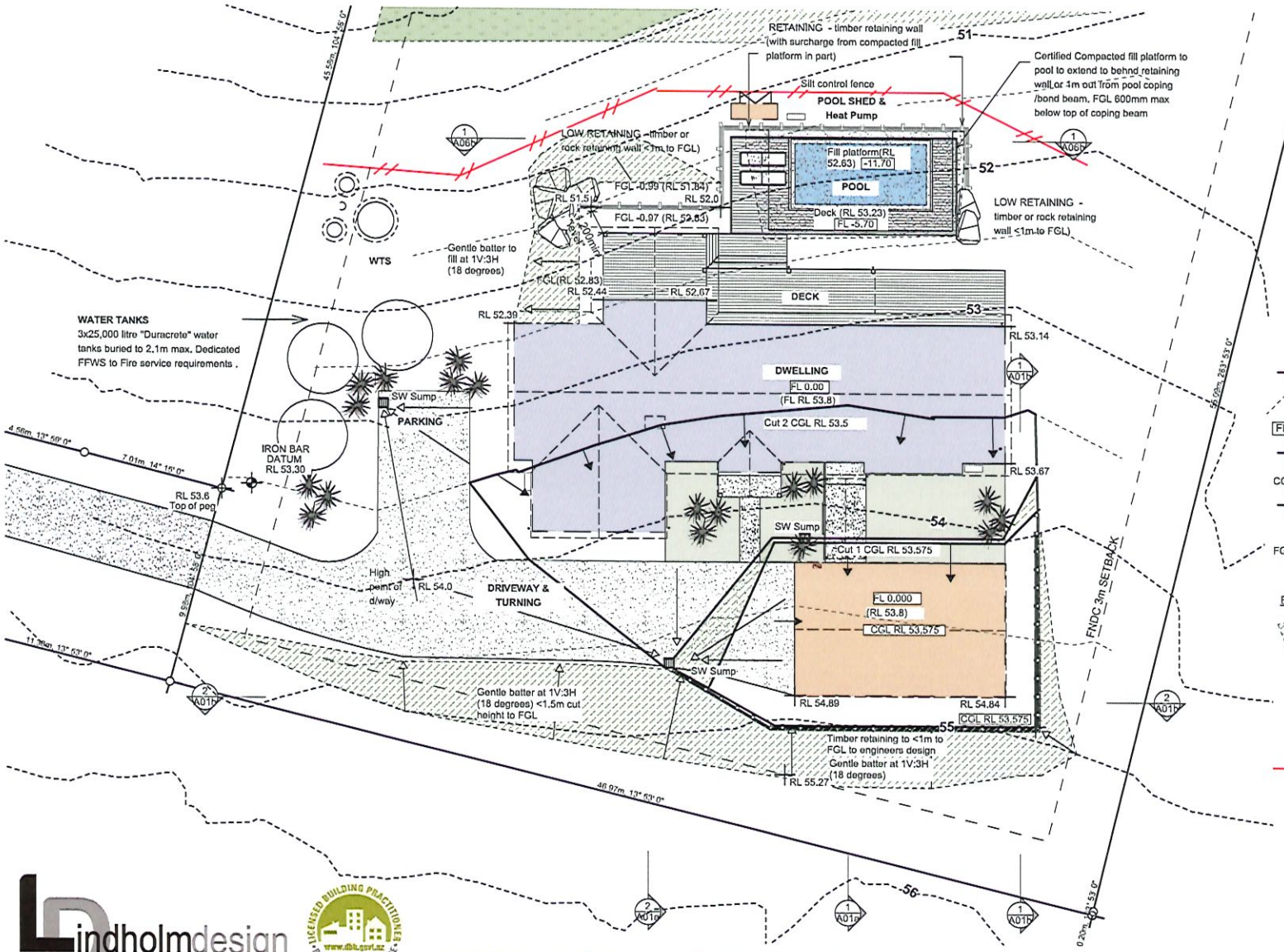
CONCEPT

Lindholmdesign
ARCHITECTURAL SERVICES
P.0 Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

PROPOSED NEW DWELLING for S **WINCHCOMBE & L GREENWOOD**
at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274

SHEET TITLE
SITE SERVICES PLAN

PROJECT No: L-263		SHEET	A02
SHEET SIZE: A3			
SCALE:	1:250	REVISION NO.	H
DRAWN:	Karin Lindholm Andreassen		
DATE:	11/09/2025		



NOTES:

1) Refer dwg A01 to overall site plan for site notes

NORTHPOINT

SITE DESCRIPTION:

LOT 6 DP 604274

SITE AREA: 3024m2

KEY:

- RL -0.00 — Exig ground levels (from spot levels by Thomson survey)
- Original contours and exig ground levels (from FNDC Maps and Thomson Survey)
- FL +0.00 (RL -0.00) — Proposed Floor Level
- CGL -0.300 (RL -0.00) — Proposed Cleared Ground Level/ building platform. Scrape under extent of building platform to remove all topsoil and organic material in accordance with Geotech report
- FGL RL varies — Proposed Finished Ground Level (varies) FGL & PAVING to slope away from buildings at 1:25 min for 1m to comply with NZS3604:2011

EARTHWORKS KEY:

- Cut or fill areas to Geotech engineers requirements. Soil fill at and cut 1V:3H max slope to meet exig. GL - refer to Geotechnical report.
- Temporary Topsoil and Spoil stock piles. Soil to be stockpiled for future distribution on site for gardens/ landscaping.
- Silt fence to comply with A01 Note 5 to extent of proposed earthworks as required. Silt fence to be maintained until exposed cut & fill areas are built over, grassed or planted and driveway gravelled. Retaining walls to act as silt fencing once in place.

Lindholmdesign ARCHITECTURAL SERVICES

P.O Box 980, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

LICENSED BUILDING PRACTITIONER www.dbh.govt.nz BUILDING CONFIDENCE

A D | N Z ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A03 PART SITE PLAN

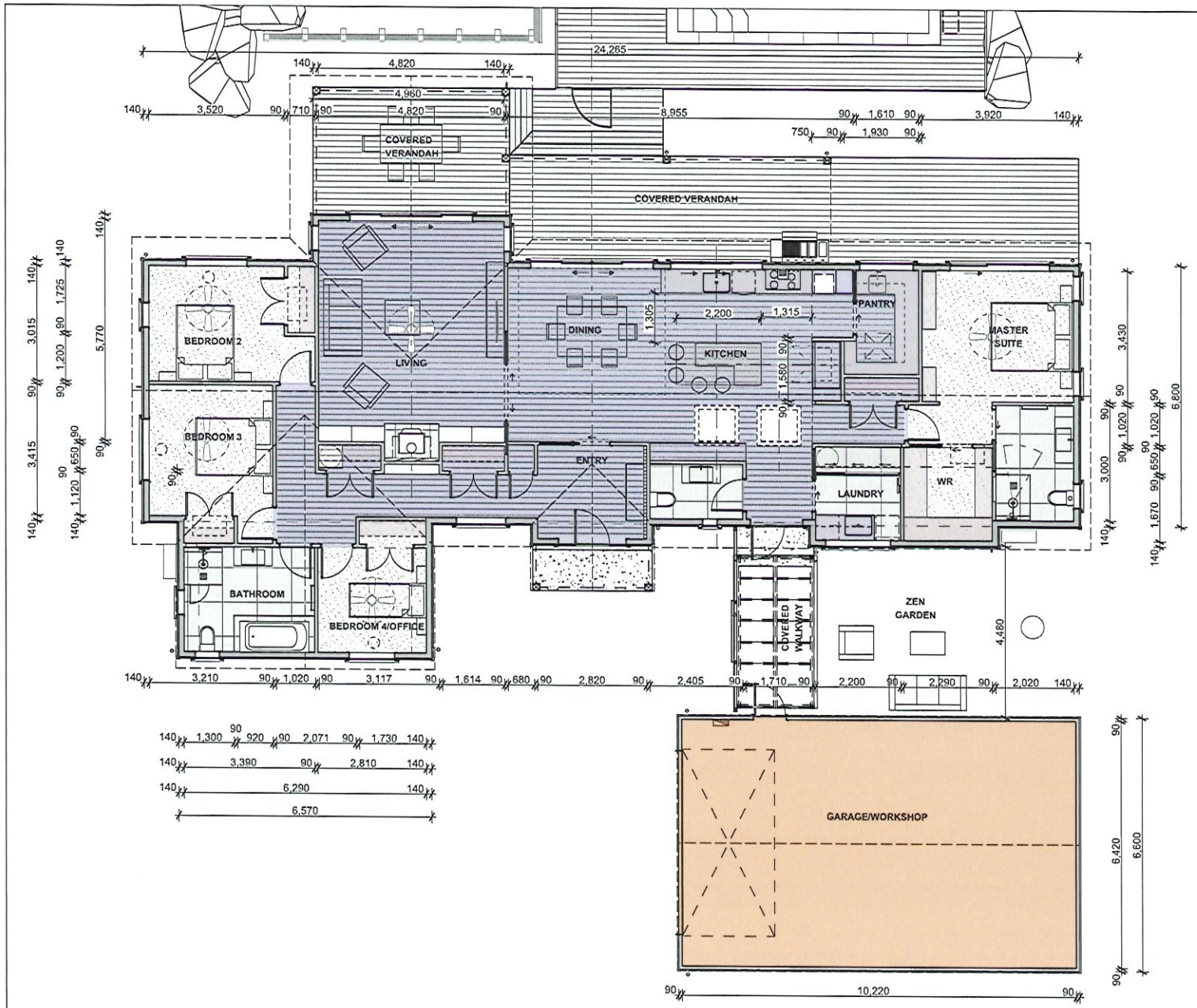
Date: Thursday, 11 September 2025 SCALE: 1:200

H 11/09/2025

CONCEPT

DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC



NOTES:

1) Refer to A05 for notes

CONCEPT

All Construction to comply with Local Authority requirements, NZ Building Code/ Approved Documents and NZSstandards.

DO NOT SCALE. Work only to figured dimensions. All Dimensions and levels are to be checked by contractor before commencement of work. Contractor to report any discrepancy to Designer.

Drawings are to be read in conjunction with the "Specification" and manufacturers literature and other accompanying documentation. Where there are inconsistencies, drawings are to take precedence over the specification typically, confirmation is to be sought from Designer.

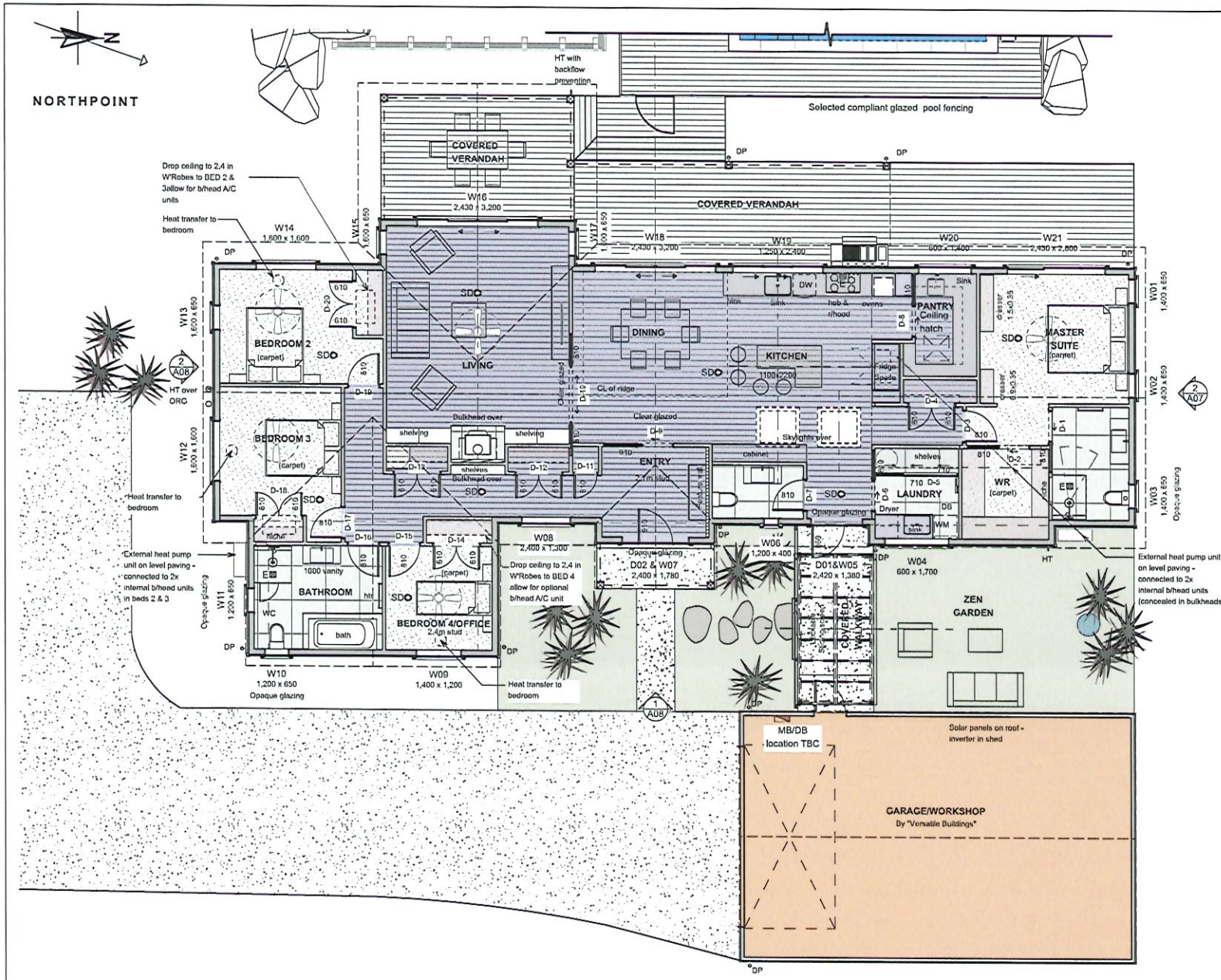
These drawings and accompanying documents are not to be used for construction purposes until issued for Building Consent and stamped "approved documents" by the local authority.

Lindholmdesign
ARCHITECTURAL SERVICES
P.0 Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

PROPOSED NEW DWELLING for **S WINCHCOMBE & L GREENWOOD**
at 271 KERIKERI INLET ROAD,
KERIKERI, LOT 6 DP 604274

SHEET TITLE
DIMENSIONED FLOOR PLAN

PROJECT No: L-263		SHEET	A04
SHEET SIZE: A3			
SCALE:	1:100	REVISION NO.	H
DRAWN:	Karin Lindholm Andreassen		
DATE:	11/09/2025		



NOTES:

1) All construction to be in accordance with NZS3604:2011 & the NZBC unless specifically designed.

2) Setout dimensions are to timber framing.

3) Timber wall framing to be H1.2 SG8 unless specified otherwise. Nogs at 800mm max ctrs typically unless required by cladding manufacturers specifications.

4) Where stud spacings exceed 450mm ctrs for cavity construction, builder to fix 'danband" or equiv polypropelene tape horizontally at 300mm ctrs over building wrap to comply with E2/AS1 9.1.8.5

5)Builder to fix additional nogging at framing stage for wall hung cabinetry, W'robe & fixed shelving, wall mounted rangehood, WC Cistern, towel rails, toilet roll holders, air conditioning units & Garage Door components as required

6)External window & Door dimensions are nominal frame sizes. Refer to joinery manufacturers schedule for trim sizes.

7) Internal Doors are leaf sizes. Framing to allow for door frame and tolerances.

8) Durability of fixings and materials to comply with NZS3604:2011 Section 4 and NZBC B2/AS1

PLAN AREAS:
SHED FLOOR AREA: 68.64m2 approx
HOUSE FLOOR AREA: 198.46m2 approx

CONCEPT

All Construction to comply with Local Authority requirements, NZ Building Code/ Approved Documents and NZStandards.

DO NOT SCALE. Work only to figured dimensions. All Dimensions and levels are to be checked by contractor before commencement of work. Contractor to report any discrepancy to Designer.

Drawings are to be read in conjunction with the "Specification" and manufacturers literature and other accompanying documentation. Where there are inconsistencies, drawings are to take precedence over the specification typically, confirmation is to be sought from Designer.

Lindholmdesign
ARCHITECTURAL SERVICES
P.0 Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407300
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

PROPOSED NEW DWELLING for S **WINCHCOMBE & L GREENWOOD** at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274

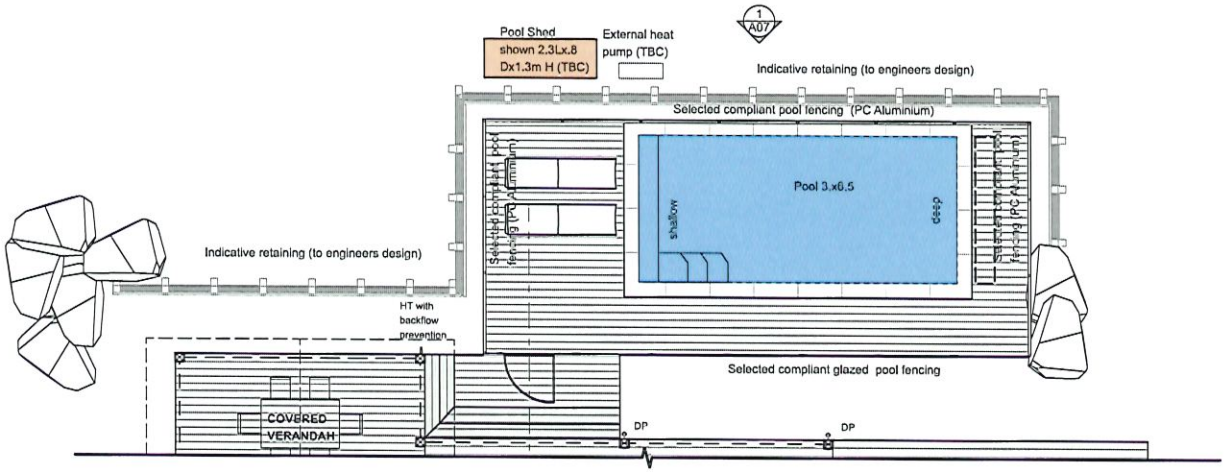
SHEET TITLE
REFERENCE FLOOR PLAN

PROJECT No:	L-263
SHEET SIZE:	A3
SCALE:	1:100, 1:200
DRAWN:	Karin Lindholm Andreassen
DATE:	11/09/2025

SHEET **A05**
REVISION NO. **H**

NOTES:

1) Refer to A05 for notes



KEY:

External Cladding to House: H3.2 (H3.1 min required) PQ timber bevelled back profiled weatherboard, with facings, planted sills and boxed corners on cavity over 7mm EcoPLY BARRIER

Timber framed walls: H1.2 SG8 timber framing.

W01/D01 Window/Door Reference. PC Aluminium joinery with IGU glazing (with LOW E coating) and Argon gas to comply with H1/AS1 and NZS4223:2013 Human impact safety requirements. Thermal break to units if required to meet R-values

Roof line

Selected tiles over waterproofing membrane to shower floor and walls to comply with E3/AS1 - setout by tiler (shower shown indicative), with toughened "EZYclean" or equiv glass screen to comply with NZS4223 Human impact safety requirements.

Selected overlay flooring
Note: Wet area membrane or impervious surfacing to all wet areas and within 1.5m of all sanitary fixtures including Sinks , D/Washer & W/Machine

SD Smoke Detectors to be provided to be interconnected (wireless or hard-wired) using either 10year life -long battery powered or 240v mains pwered alarms with 60 Second hush facility to be mounted within all bedrooms, living spaces, hallways and landings to comply with NZS4514:2021 NZBC C1/AS1 & F7/AS1

E Extract ducted to exterior - to soffits.
Mechanical extract fans (including associated ducting) must have a flowrate not less than 25l/s for shower space , 50l/s for Kitchen and 40l/s for laundry to comply with NZBC G4/AS1

INSULATION: to comply to with NZBC H1: 5th Edition (Refer to BRANZ Calculation Method) - refer to accompanying documents

Specified Insulation:
R4.5-R6.0min 165-245mm "Pink batts skillion/superbatts" insulation to roof space
R3.2 min "Pink Batts Ultra" insulation to 140mm exterior walls
R1.2 50mm "Expol" under slab

INTERIOR FINISHES: to comply with E3/AS1

a) Seal around all penetrations and at junctions of wall/floor finishes with approved mould resistant silicone sealant to all water splash areas and kitchen benches and between flooring finishes and pre-primed timber skirting or alternative.

b) "Watersplash" areas and surfaces adjacent to sanitary and facilities to be "impervious" to comply with NZBC E3/AS1 3.0

c) Impervious finish to lining to shower 1800mm min high, to extend 50mm above shower rose to E3/AS1.Shower lining to comply with B2/AS1

d) Bench/work surfaces used for food preparation to comply with G3/AS1

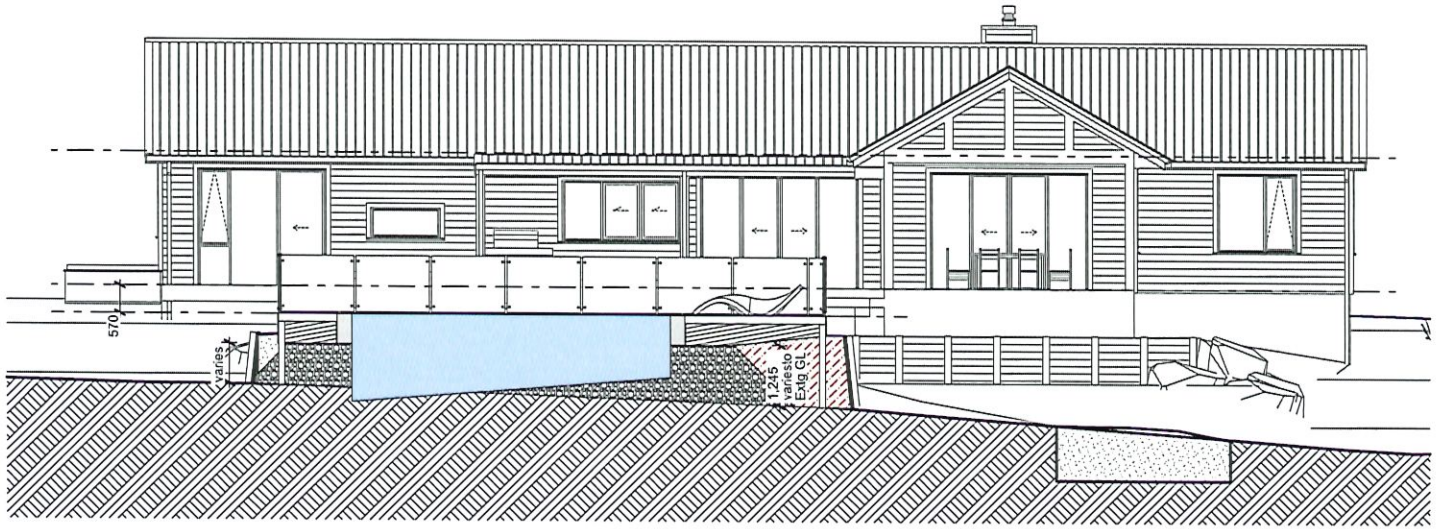
CONCEPT

Lindholmdesign
ARCHITECTURAL SERVICES
P.0 Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

PROPOSED NEW DWELLING for **S WINCHCOMBE & L GREENWOOD**
at 271 KERIKERI INLET ROAD,
KERIKERI, LOT 6 DP 604274

SHEET TITLE
POOL AREA , KEY & COMPLIANCE NOTES

PROJECT No: L-263	SHEET A06
SHEET SIZE: A3	
SCALE: 1:100	
DRAWN: Karin Lindholm Andreassen	REVISION NO. H
DATE: 11/09/2025	



1 Section pool 1:100

Lindholmdesign
ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
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LBP: Design 2: 107526

LICENSED BUILDING PRACTITIONER
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BUILDING CONFIDENCE

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ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI,
LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A06b POOL SECTION

Date: Thursday, 11 September 2025 SCALE: 1:100

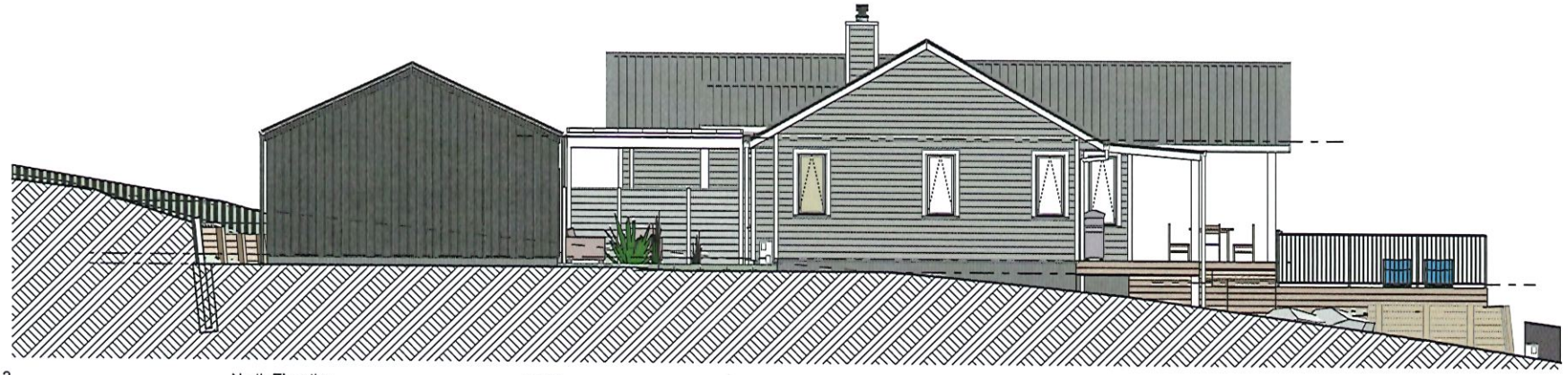
H 11/09/2025

CONCEPT

DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC

1 West Elevation 1:100



2 North Elevation 1:100

NOTES:

1) All construction to be in accordance with NZS3604:2011 the NZBC unless specifically designed.

2) Durability of fixings and materials to comply with NZS3604:2011 Section 4 and NZBC B2/AS1

3)External joinery shown indicative - refer to window manufacturers schedule for configurations.

4) Ground levels shown indicative

GENERAL NOTES:

PLANNING ZONE: RURAL LIVING
WIND ZONE: VERY HIGH - to NZS3604 5.2.3
EXPOSURE ZONE: Zone D
SUBSOIL CLASSIFICATION: C (from geotechnical report)
SOIL CLASS: M (from geotechnical report)
ROOF PITCH: 30 Degrees
ROOF WEIGHT:LIGHT
CLADDING WEIGHT: LIGHT

Lindholmdesign ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407390
email:Karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526
ADNZ ARCHITECTURAL DESIGNERS NZ

PROPOSED NEW DWELLING at 271 KERIKERI INLET ROAD, KERIKERI, LOT 6 DP 604274 for S WINCHCOMBE & L GREENWOOD

Sheet: A07 ELEVATIONS - SHEET 1

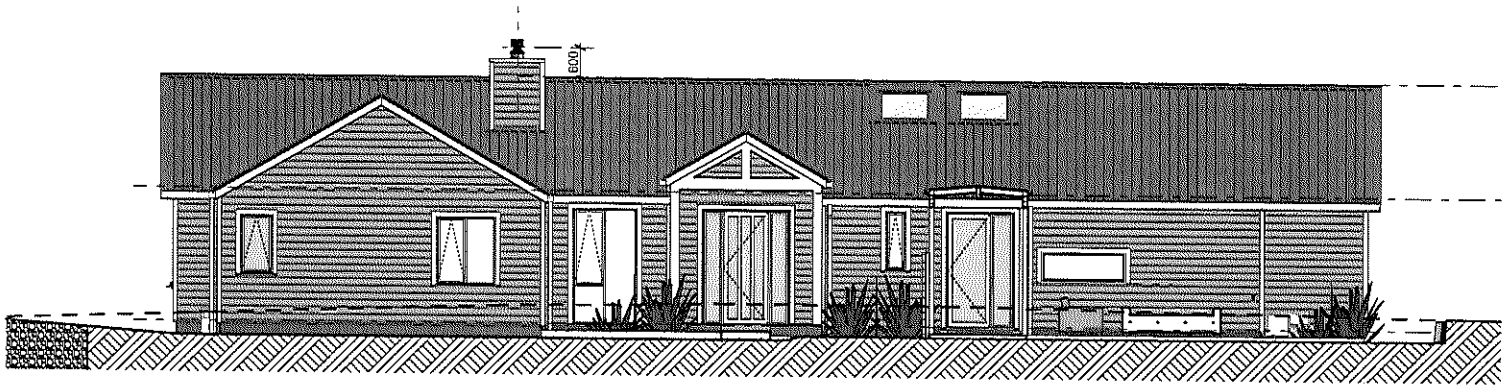
Date: Thursday, 11 September 2025 SCALE: 1:100

H 11/09/2025

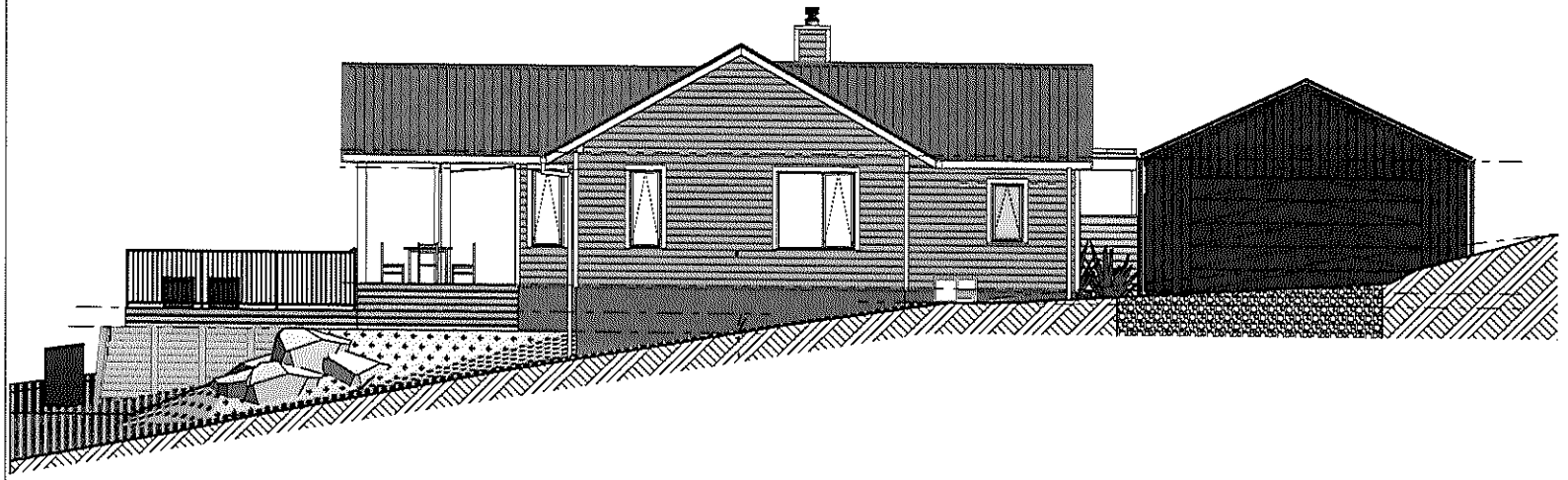
CONCEPT

DO NOT SCALE. Work only to figured dimensions. All dimensions are to be checked on site prior to commencing work. Any discrepancies are to be reported to designer prior to commencing work.

All construction to comply with NZS3604:2011 and the NZBC



1 East Elevation 1:100



2 South Elevation 1:100

NOTES:

1) All construction to be in accordance with NZS3604:2011 the NZBC unless specifically designed.

2) Durability of fixings and materials to comply with NZS3604:2011 Section 4 and NZBC B2/AS1

3)External joinery shown indicative - refer to window manufacturers schedule for configurations.

4) Ground levels shown indicative

GENERAL NOTES:

PLANNING ZONE: RURAL LIVING
WIND ZONE: VERY HIGH - to NZS3604 5.2.3
EXPOSURE ZONE: Zone D
SUBSOIL CLASSIFICATION: C (from geotechnical report)
SOIL CLASS: M (from geotechnical report)
ROOF PITCH: 30 Degrees
ROOF WEIGHT: LIGHT
CLADDING WEIGHT: LIGHT

CONCEPT

Lindholmdesign
ARCHITECTURAL SERVICES
P.O Box 960, 0245 Kerikeri
ph/fax: (09) 407 3037 , mob: 021 407380
email:karin@lindholmdesign.co.nz
web: www.lindholmdesign.co.nz
Karin Lindholm Andreassen
LBP: Design 2: 107526

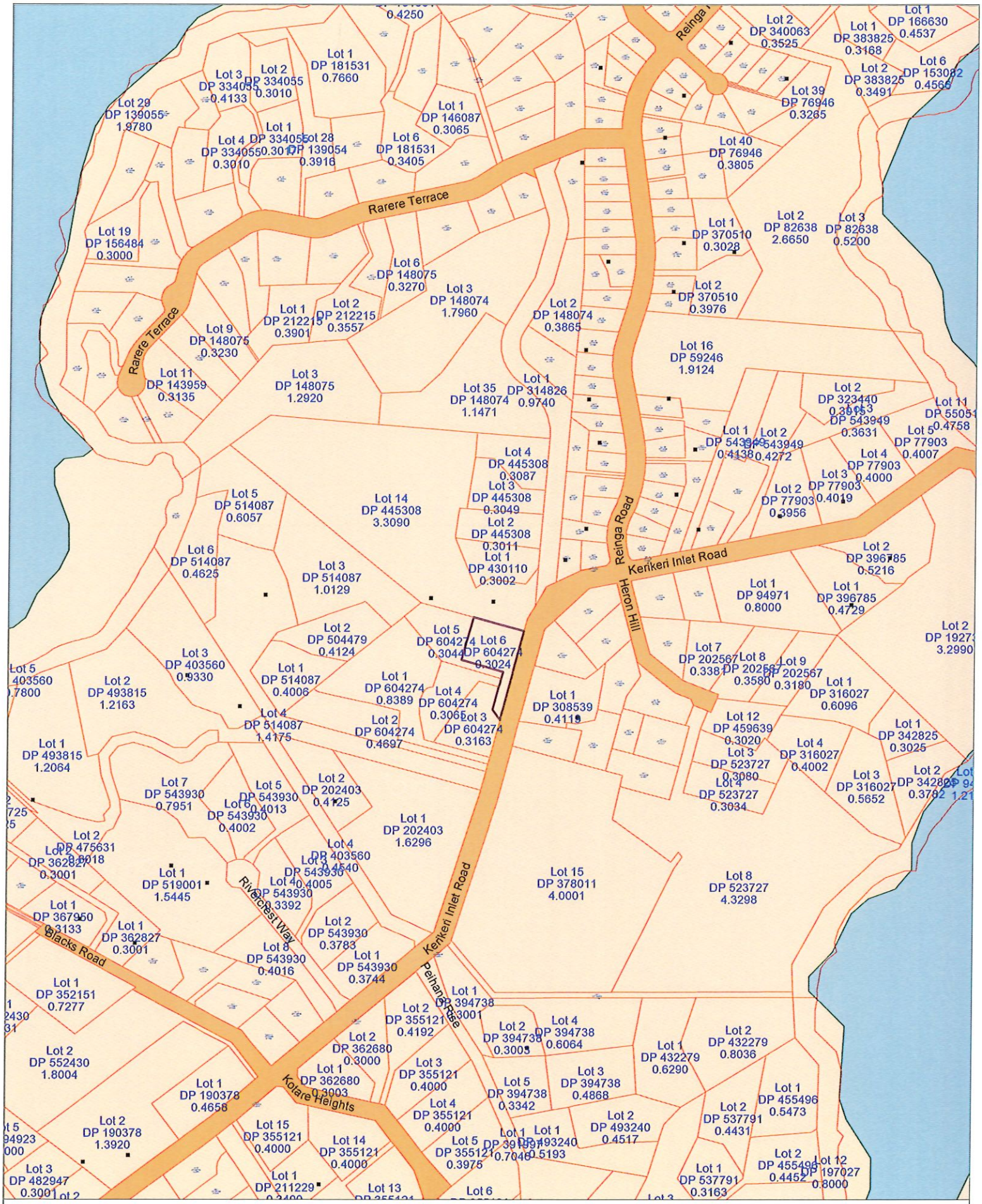
PROPOSED NEW DWELLING for S WINCHCOMBE & L GREENWOOD
at 271 KERIKERI INLET ROAD,
KERIKERI, LOT 6 DP 604274

SHEET TITLE
ELEVATIONS - SHEET 2

PROJECT No:	L-263	SHEET	A08
SHEET SIZE:	A3		
SCALE:	1:100	REVISION NO.	H
DRAWN:	Karin Lindholm Andreassen		
DATE:	11/09/2025		

Appendix 2

Location Map



QuickMap
Custom Software Ltd

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

Scale 1:5000 Topographical and Cadastral map derived from LINZ data. Printed: 15-Sept-2025 09:48.

Appendix 3

Record of Title & Easement Instruments

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**1183617**
Land Registration District	**North Auckland**
Date Issued	20 September 2024

Prior References
NA36C/435

Estate	Fee Simple
Area	3024 square metres more or less
Legal Description	Lot 6 Deposited Plan 604274
Registered Owners	

Stephen Gordon Winchcombe as to a 1/2 share

Leanne Joy Greenwood as to a 1/2 share

Interests

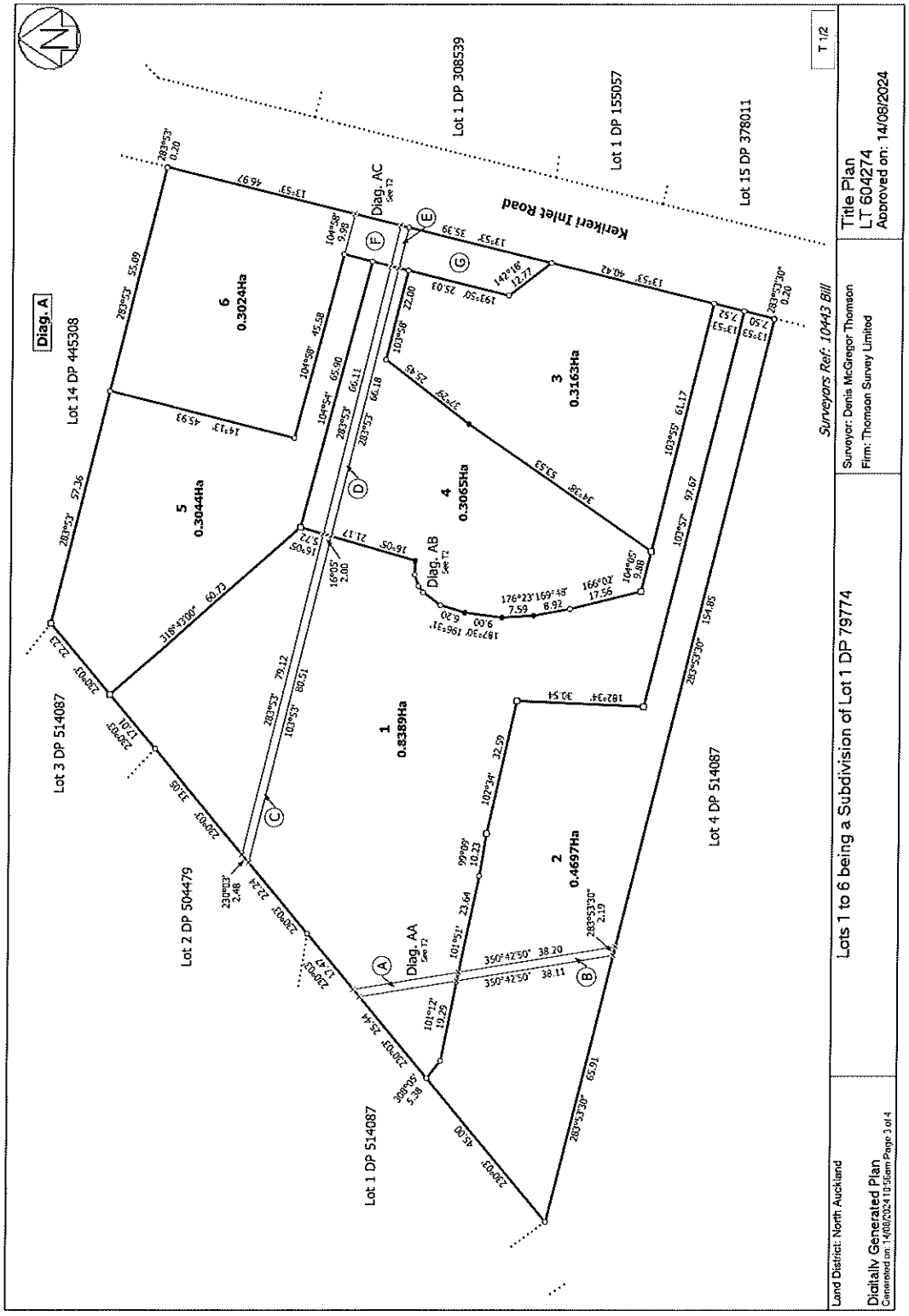
Subject to an electricity right over part marked E on DP 604274 specified in Easement Certificate 499495.1 - 8.8.1979 at 2.10 pm

13023580.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.9.2024 at 4:46 pm

Subject to a right of way and a right to convey electricity, telecommunications and water over parts marked E, F and G on DP 604274 created by Easement Instrument 13023580.5 - 20.9.2024 at 4:46 pm

The easements created by Easement Instrument 13023580.5 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Covenant Instrument 13023580.6 - 20.9.2024 at 4:46 pm (limited as to duration)


Lot 1 DP 308539
Lot 1 DP 155057
Lot 15 DP 378011
Kerikeri Inlet Road
Diag. A
Lot 14 DP 445308
Lot 3 DP 514087
Lot 2 DP 504479
Lot 1 DP 514087
Lot 4 DP 514087
1 0.8389Ha
2 0.4697Ha
3 0.3163Ha
4 0.3065Ha
5 0.3044Ha
6 0.3024Ha
Diag. AA
Diag. AB
Diag. AC
Lots 1 to 6 being a Subdivision of Lot 1 DP 79774
Surveyors Ref: 10443 Bill
Title Plan
LT 604274
Approved on: 14/08/2024
Surveyor: Denis McGregor Thomson
Firm: Thomson Survey Limited
Land District: North Auckland
Digitally Generated Plan
Generated on: 14/08/2024 10:56am Page 3 of 4
T 1/2

View Instrument Details

Instrument No	13023580.4
Status	Registered
Date & Time Lodged	20 September 2024 16:46
Lodged By	Thompson, Emma Jane
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Records of Title	Land District
1183612	North Auckland
1183613	North Auckland
1183614	North Auckland
1183615	North Auckland
1183616	North Auckland
1183617	North Auckland

Annexure Schedule Contains 2 Pages.

Signature

Signed by Emma Jane Thompson as Territorial Authority Representative on 20/09/2024 04:44 PM

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

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

HE ARA TĀMATA
CREATING GREAT PLACES
Supporting our people

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221: CONSENT NOTICE

REGARDING **RC-2240128-RMACOM**
Being the Subdivision of LOT 1 DP 79774
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

All Lots DP 604274

a) At the time of lodging an application for building consent on any of the lots the building applicant is to provide a report from a Chartered Professional Engineer with recognised competence in relevant geotechnical and structural matters, which addresses the site's investigation undertaken, sets out the specific design of the building's foundations. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).

b) In conjunction with the construction of any buildings and other impermeable surfaces, the lot owner shall install a stormwater retention tank/s with a flow-attenuated outlet/s. The system shall be designed such that the total stormwater discharged from the site, after development, is no greater than the predevelopment flow from the site for rainfall events up to a 10% AEP plus allowance for climate change, with overland/secondary flow paths able to accommodate a 1% AEP event. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).

Lots 2 to 6 DP 604274

c) 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 a 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.

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

HE ARA TĀMATA
CREATING GREAT PLACES
Supporting our people

d) In conjunction with the construction of any building which includes a wastewater treatment & effluent disposal system the applicant shall submit for Council approval a TP58 Report prepared by a Chartered Professional Engineer or an approved TP58 Report Writer. The report shall identify a suitable method of wastewater treatment for the proposed development along with an identified effluent disposal area plus a 100% reserve disposal area. The report shall confirm that all the treatment & disposal systems can be fully contained within the lot boundary and comply with the Regional Water & Soil Plan Permitted Activity Standards.

e) In conjunction with the construction of a future dwelling on the Lot owner shall obtain a building consent and install an on-site wastewater treatment and effluent disposal system on the Lot. The system shall be designed by a Chartered Professional Engineer or registered drainlayer in accordance with ARC TP 58 requirements and shall reference the recommendations of the RS Eng Subdivision Assessment dated 6 September 2023 and submitted with the building consent application.

f) In conjunction with the construction of any building requiring a potable water supply, a water collection system with sufficient supply for firefighting purposes shall be provided by way of tanks or other approved means and are to be positioned so that it is safely accessible for this purpose within the Lot. These provisions shall be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509:2008. Alternative firefighting water supplies shall be specifically approved by an authorized representative of Fire and Emergency NZ.

SIGNED:

Ms Patricia (Trish) Routley - Authorised Officer
By the FAR NORTH DISTRICT COUNCIL
Under delegated authority:
MANAGER – RESOURCE CONSENTS

DATED at **KERIKERI** this 5th day of June 2024.

Appendix 4

Site Suitability Report

SUITABILITY REPORT

271 Kerikeri Inlet Road

Kerikeri

Lot 6 DP 604274

RS Eng Ltd • 2 Seaview Road, Whangarei 0110 • **09 438 3273** • **office@RSEng.co.nz**
Consulting Engineers

SUITABILITY REPORT

271 Kerikeri Inlet Road

Kerikeri

Lot 6 DP 604274

Report prepared for: S Winchcombe & L Greenwood

Report reference: 19533

Date: 25 August 2025

Revision: 1

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
25/08/2025	1	Building Consent Issue	M McClure	S Scott Compton	M Jacobson

ace new zealand

association of consulting and engineering

Contents

Appendices

File: 19533
25 August 2025
Revision: 1

SUITABILITY REPORT

271 Kerikeri Inlet Road, Kerikeri

Lot 6 DP 604274

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by Steve Winchcombe & Leanne Greenwood, to investigate the suitability of their property Lot 6 DP 604274 for residential construction. The purpose of this report is to assess the suitability of the building site making foundation and earthworks recommendations and detail the design of a stormwater attenuation system.

The client proposes to construct a single-level, timber framed dwelling with a perimeter block wall with timber decking. The client also proposes to construct a new garage founded on a concrete slab.

2.0 Site Description

The 3024m^2 is located on the western side of Kerikeri Inlet Road. The property is located amongst gentle topography (5°-12°), sloping down to the west. Ground coverage is mainly grass and hedging.

Figure 1: Lot 6 DP 604274 *(north facing).*

3.0 Desk Study

3.1 Referenced/Reviewed Documents

The following documents have been referenced in this report:

- GNS – Geology Of The Whangarei Area – Edbrooke & Brook – 2009.
- Property Consent Notice.
- RS Eng Ltd – "*Subdivision Assessment, 263 Kerikeri Inlet Road, Kerikeri"* – 6 September 2023.

3.2 Site Geology

The GNS 1:250,000 scale New Zealand Geology Web Map shows that the property is located within an area underlain by Kerikeri Volcanics, which has been described as follows: *"Basalt lava, volcanic plugs and minor tuff."*

3.3 Aerial Photography

Historical aerial imagery on Retrolens was reviewed as part of our assessment, specifically two images from 1972 and 1980. See figure 2 for the 1980 image with the property marked by the yellow arrow. There is no visual evidence of slope instability on or surrounding this site.

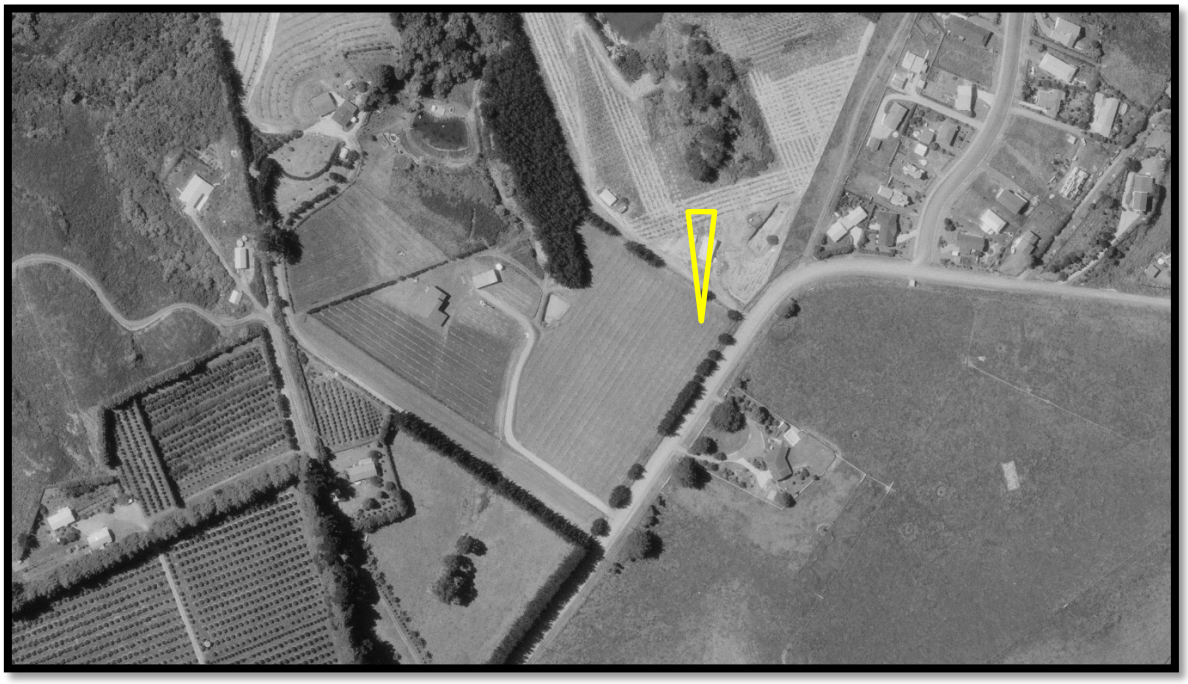


Figure 2: 1980 Aerial Image – property marked by yellow marker *(Source: www.retrolens.nz).*

3.4 Subdivision Report

The underlying subdivision was reported on by RS Eng Ltd in a report entitled *"Subdivision Assessment, 263 Kerikeri Inlet Road, Kerikeri"* dated *6 September 2023.* The following recommendations were made in relation to the property in question:

- *Subsoil investigations encountered very stiff residual soils overlying completely weathered basalt with no signs of slope instability observed across the property or at adjacent properties. RS Eng consider the risk of slope instability to be low.*
- *Based on the silty soils encountered during the subsurface investigations and results of previous laboratory testing of similar geology and terrain, RS Eng Ltd considers the soils as being Class M (Moderately Expansive) as per AS2870.*

3.5 Natural Hazards

The Far North District Council has not designated an instability hazard zone on this property. Given the underlying geology and low slope angle we consider that the building areas a subject to a low instability hazard based on the assessment outlined in Section 6.1 of the RS Eng subdivision report.

The Northland Regional Council has not mapped this property within a flood susceptibility zone.

4.0 Field Investigation

A Technician from this office visited the property on 14 July 2025 to undertake a walkover inspection and three hand augers.

The walkover inspection did not observe any signs of concern at the building site in relation to the proposal.

The hand augers were dug to a maximum depth of 1.2m below ground level (BGL). Shear Vane readings were taken at regular intervals throughout the hand augers. Soil and rock descriptions are in general accordance with the New Zealand Geotechnical Society guideline.

5.0 Subsoil Conditions

Interpretation of the subsurface conditions is based on the investigations shown on the drawings in Appendix A. The conditions are summarised below.

- Topsoil was encountered to depths of 0.2m.
- Residual soils of Kerikeri Volcanic Group consisted of stiff gravelly silt extended to depths of 0.4m-0.7mBGL overlying completely weathered basalt. In-situ Undrained Shear Strengths exceeded 219kPa.
- Completely weathered basalt was encountered beneath the residual soils, consisting of silt with some clay, sand, and gravels. In-situ Undrained Shear Strengths exceeded 219kPa.
- Groundwater was not encountered during the investigation. Based on the elevation of the site, static ground water is inferred to be greater than 5mBGL.

6.0 Geotechnical Assessment

6.1 Slope Stability

Given the inherent stability of the Kerikeri Volcanic basalt rock mass, and lack of evidence of historic or recent slope instability, provided site development proceeds in accordance with the recommendations of this report, Rs Eng consider the risk of slope instability to the proposed building to be low.

6.2 Liquefaction

The proposal is positioned on land underlain by the Kerikeri Volcanic group, consisting of soils that are cohesive in nature and therefore unlikely to liquefy when subjected to seismic shaking. RS Eng considers the risk of liquefaction to be low.

6.3 Expansive Soils

The clayey soils encountered on-site are likely to be subject to volumetric change with seasonal changes in moisture content (wet winters / dry summers); this is known as expansive or reactive soils. Apart from seasonal changes in moisture content other factors that can influence soil moisture content at the include:

- Influence of garden watering and site drainage.
- The presence of large trees close to buildings. Large trees can cause variation in the soil moisture content for a distance of up to 1.5 times their mature height.
- Initial soil moisture conditions during construction, especially during summer and more so during a drought. Building platforms that have dried out after initial excavation should be thoroughly wet prior to any floor slabs being poured.
- Plumbing leaks.

Based on the visual tactile assessment and laboratory testing in similar material, RS Eng considers the soils as being Class M (Moderately expansive) as per AS 2870.

7.0 Stormwater Assessment

7.1 Attenuation

The Consent Notice requires attenuation of stormwater runoff from any increase in impervious areas so that post-development peak flows are less than pre-development for the 10% Annual Exceedance Probability (AEP) event plus climate change.

The new dwelling is proposed to have a roof area of 270m^2, driveway area of 184m^2 and shed roof area of 70m^2, respectively. Impervious surfaces allow little or no infiltration of stormwater into the ground, causing a greater volume and peak flow of rainfall runoff. As a result, attenuation

of the stormwater runoff is required. This minimises any potential adverse effects on downstream properties and council assets.

It is proposed to direct stormwater runoff from the roof of the new dwelling and shed into rainwater storage tanks with a restricted outlet which reduces the peak flows to predevelopment levels. The attenuation tank restricts stormwater runoff from the roof sufficiently to compensate for the increased flows from the paved area.

The pre-development and post-development runoff flows were modelled using HydroCAD. The United States Department of Agriculture Technical Release 55 (TR55) Type 1A method was adopted for calculating the run-off flow, using rainfall depths from HIRDS 4 (High Intensity Rainfall Design System, NIWA) including an additional 20% rainfall depth to account for climate change. The subsoils have been assessed as silts, designated as Group C soils with good grass cover.

Table 3: Stormwater Attenuation Design Summary.

	Pre-development	**Post-development**
Permeable Area (m^2) Grassed	540	_
Impervious Area (m^2) Dwelling Roof Shed Roof Driveway	 - - -	 270 70 184
Peak flow l/s From surfaces **Total attenuated flows** Tank storage required	10% AEP 3.21	10% AEP +20% 6.83 3.19 19.6m^3
Attenuation Tank Summary		
Tank	3/ 25000L Duracrete Tanks or similar	
Tank Diameter	3.6m	
	Diameter	**Depth from Overflow**
Primary Orifice	24mm	0.64m

8.0 Engineering Recommendations

8.1 Site Subsoil Class

In accordance with NZS 1170.5:2004, Section 3.12.3 the site has been assessed for its Site Subsoil Class. Based on the observations listed above RS Eng considers the site soils lie within Site Class C *"Shallow soil sites."*

8.2 Earthworks

To form level access to and create a building platform for the proposed buildings, earthworks are proposed. To suitably develop the building areas, RS Eng recommend as follows.

- Cut and fill is limited to 2.0m and 2.5m without further geotechnical review.
- Retaining walls are required where cuts and fills exceed 2.0m.
- Cut and fill batters should be sloped at angles less than 1V to 3H.
- Site works shall generally be completed in accordance with NZS 4431.

Temporary excavation batters shall be formed no steeper than 1V to 0.5H, to a maximum height of 1.5m, or shall be subject to specific assessment by a suitably experienced Chartered Professional Engineer. Steep temporary excavations should not be left unsupported with impending bad weather or for extended periods of time, typically less than 3 days.

8.3 Shallow Foundations

It is proposed to construct a timber framed type dwelling with a block perimeter wall and garage on a concrete slab. To suitably found the proposed buildings, RS Eng make the following recommendations.

- If a RibRaft slab is proposed, this shall be specifically designed for Class M soil and be placed on a minimum of 150mm compacted granular hardfill extending 1.0m beyond the building envelope.
- If a conventional concrete slab on grade is proposed, foundations shall be in accordance with NZS 3604 and NZS 4229 and shall extend to a minimum depth of 0.6m below clear ground level.
- Isolated standard NZS 3604 type pile foundations supporting decks, verandas, or similar shall extend to a minimum depth of 0.6m below cleared ground level.

Notwithstanding the recommendations of this report, for the specific design of shallow foundations, RS Eng has assessed the following.

- 300kPa Ultimate Bearing Capacity (Geotechnical Ultimate).
- 150kPa Dependable Bearing Capacity (Ultimate Limit State).

- 100kPa Allowable Bearing Capacity (Serviceability Limit State).

8.4 Retaining Walls

Retaining walls shall be specifically designed by a suitably experienced Chartered Professional Engineer familiar with the contents of this report, using the assessed soil parameters presented in 4. Retaining walls shall be designed for at rest earth pressures.

Where retaining walls are incorporated in buildings or located adjacent to buildings and property boundaries, the effects of deformation should be considered.

Table 2: Assessed Retaining Wall Design Parameters.

Parameter	Residual Soil	Completely Weathered Basalt
Soil Density (kN/m³)	18	19
Friction Angle (°)	28	30
Drained Cohesion, (kPa)	0	0
Undrained Shear Strength (kPa)	60	80

A strength reduction factor of 0.45 shall be adopted for limit state design of the lateral capacity of cantilever retaining wall pile foundations.

8.5 Stormwater Disposal

Uncontrolled and concentrated stormwater discharges can result in erosion and slope instability. All stormwater should be collected from roofs and paved surfaces and discharged in a controlled manner. RS Eng recommends stormwater is discharged to an 18m long dispersal trench laid parallel to the contour.

9.0 Construction Monitoring and Producer Statements

RS Eng recommends a suitably experienced Chartered Professional Engineer monitor the construction of the following works to confirm if the geotechnical conditions are consistent with that outlined in this report.

- Stripped site.
- Fill compaction.
- Retaining wall excavations to confirm the design soil parameters.

Any works not inspected will be excluded from future producer statements (PS4) to be issued by RS Eng. In any event, where doubt exists regarding inspections, this office should be contacted for advice and provided with reasonable notice of inspections.

10.0 Conclusions

It is the conclusion of RS Eng Ltd that the building area is suitable for the proposal provided the recommendations and limitations stated within this report are adhered to.

RS Eng Ltd also concludes that subject to the recommendations of this report, in terms of Section 72 of the Building Act 2004;

(a) the building work to which an application for a building consent relates will not accelerate, worsen, or result in slippage or subsidence on the land on which the building work is to be carried out or any other property; and

(b) the land is neither subject to nor likely to be subject to slippage or subsidence.

11.0 Limitations

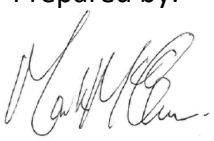
This report has been prepared solely for the benefit of our client. The purpose is to determine the engineering suitability of the proposed dwelling and garage, in relation to the material covered by the report. The reliance by other parties on the information, opinions or recommendations contained therein shall, without our prior review and agreement in writing, do so at their own risk.

Recommendations and opinions in this report are based on data obtained as previously detailed. The nature and continuity of subsoil conditions away from the test locations are inferred and it should be appreciated that actual conditions could vary from those assumed. If during the construction process, conditions are encountered that differ from the inferred conditions on which the report has been based, RS Eng should be contacted immediately.

Construction site safety is the responsibility of the builder/contractor. The recommendations included herein should not be construed as direction of the contractor's methods, construction sequencing or procedures. RS Eng can provide recommendations if specifically engaged to, upon request.

This report does not address matters relating to the National Environmental Standard for Contaminated Sites, and if applicable separate advice should be sought on this matter from a suitably qualified person.

Prepared by:



Mark McClure
Technician

Reviewed by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

Approved by:

Matthew Jacobson
Director
NZDE(Civil), BE(Hons)(Civil), CPEng, CMEngNZ

RS Eng Ltd

Appendix A

Drawings

NOTES:

- If any part of these documents are unclear, please contact RSEng Ltd.
- This plan is copyright to RSEng Ltd and should not be reproduced without prior permission.

LEGEND

- Hand Auger Location
- Proposed Dwelling & Shed
- Proposed Driveway
- Proposed Deck
- Proposed Pool

Contour Interval:	0.5m
Vertical Datum:	NZVD2016
Survey Data Source:	LiDAR (2018)

0 5 10
PLAN 1:500

WORK IN PROGRESS

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

PROPOSED DWELLING
SITE PLAN
SITE INVESTIGATIONS

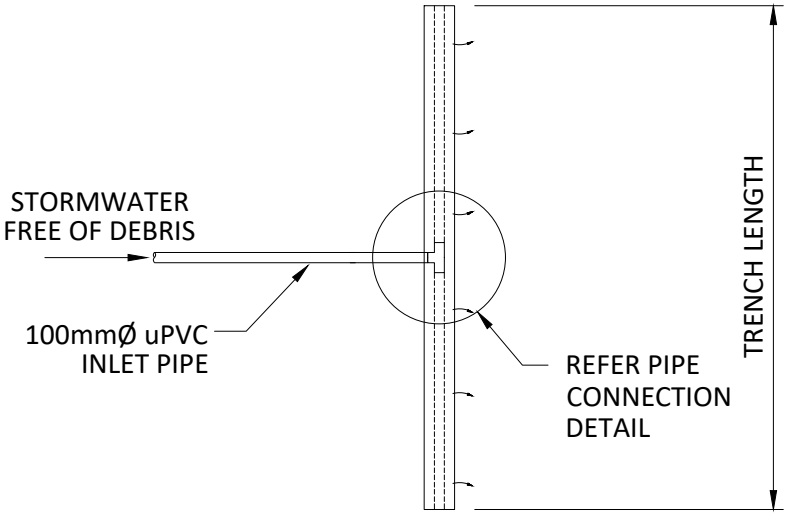
Client: STEVE WINCHCOMBE & LEANNE GREENWOOD

Location: LOT 6, 271 KERIKERI INLET ROAD
KERIKERI

Date	Rev	Notes
15/08/2025	A	Original Issue

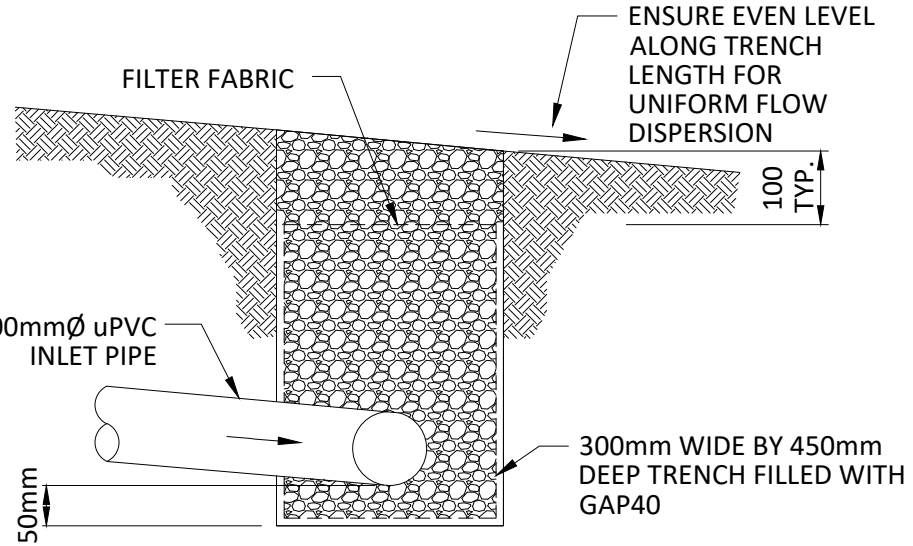
Drawn by: LMC | Reviewed by: SSC | Approved by: MJ

Scale	1:250
Original	A3
Job No.	19533
Rev No.	A
Sheet No.	C01

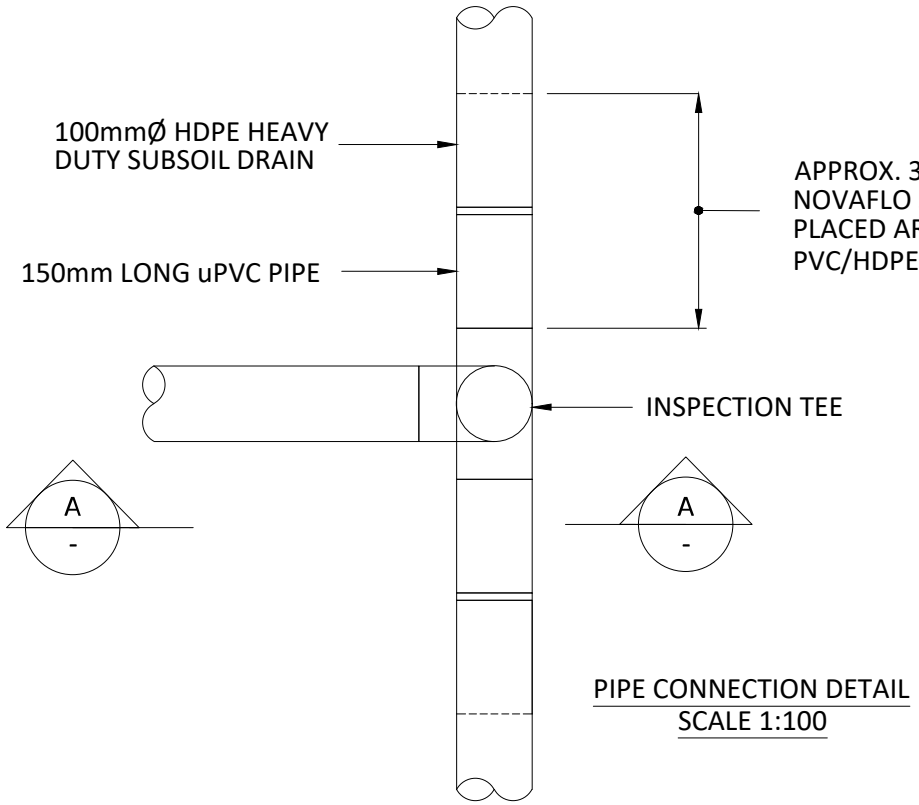


PLAN SCALE: 1:75

(KEEP DISPERSAL TRENCH 3.0m CLEAR OF PROPERTY BOUNDARY)



A - SECTION SCALE 1:100



PIPE CONNECTION DETAIL
SCALE 1:100

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

Title
STANDARD DISPERSAL DRAIN
TYPICAL DETAIL

Client

Location

Date	Rev	Notes
12/12/17	A	Original Issue

Scale	Original	Rev
As Shown	A4	

Drawn by	Approved by	File	Sheet
NW	ST		1

Appendix B

Subsurface Investigations

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA01

CLIENT: S & L Winchcombe
PROJECT: Geotechnical Investigations
JOB NO.: 19533

SITE LOCATION: 271 Kerikeri Inlet Road
CO-ORDINATES: 1689044mE, 6102312mN
ELEVATION: 54.1m
START DATE: 14/08/2025
END DATE: 14/08/2025
LOGGED BY: MM

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: DR5050	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Kerikeri Volcanics	Gravelly SILT, with some clay; brown / some orange. Stiff; moist; low plasticity; gravel, fine to coarse.		0.2				
	Completely weathered; BASALT. - -. Gravelly SILT, with some clay; brown / grey. Stiff; moist; low plasticity; gravel, fine to coarse.		0.4			UTP	
			0.6			-	
			0.8				
			1.0			UTP	
			1.2			-	
	EOB - Unable to penetrate. End Of Hole: 1.20m		1.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA02

CLIENT: S & L Winchcombe
PROJECT: Geotechnical Investigations

JOB NO.: 19533

SITE LOCATION: 271 Kerikeri Inlet Road
CO-ORDINATES: 1689029mE, 6102310mN
ELEVATION: 52.5m

START DATE: 14/08/2025
END DATE: 14/08/2025
LOGGED BY: MM

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: DR5050	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Kerikeri Volcanics	Gravelly SILT, with some clay; brown / orange. Very stiff; moist; low plasticity.		0.2				
	Completely weathered; BASALT. - -. SILT, with some sand, with minor clay; grey . Very stiff; moist; non-plastic.		0.4			219 -	
	EOB - Spinning. End Of Hole: 0.60m		0.6				
			0.8				
			1.0				
			1.2				
			1.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA03

CLIENT: S & L Winchcombe
PROJECT: Geotechnical Investigations

JOB NO.: 19533

SITE LOCATION: 271 Kerikeri Inlet Road
CO-ORDINATES: 1689035mE, 6102303mN
ELEVATION: 52.7m

START DATE: 14/08/2025
END DATE: 14/08/2025
LOGGED BY: MM

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND
TS	TOPSOIL.		0.0	TS
Kerikeri Volcanics	SILT, with some gravel, with minor clay; brown / orange. Very stiff; moist; low plasticity; gravel, subround.		0.2	
	Completely weathered; BASALT. - -. SILT, with minor clay; brown / grey. Very stiff; moist; non-plastic.		0.8	
	EOB - Spinning. End Of Hole: 1.10m		1.1	

SCALA PENETROMETER (Blows / 0mm): 2, 4, 6, 8, 10, 12, 14, 16, 18

VANE SHEAR STRENGTH (kPa) Vane: DR5050: 50, 100, 150, 200

Values	WATER
219	Groundwater Not Encountered
-	
219	
-	

PHOTO(S)

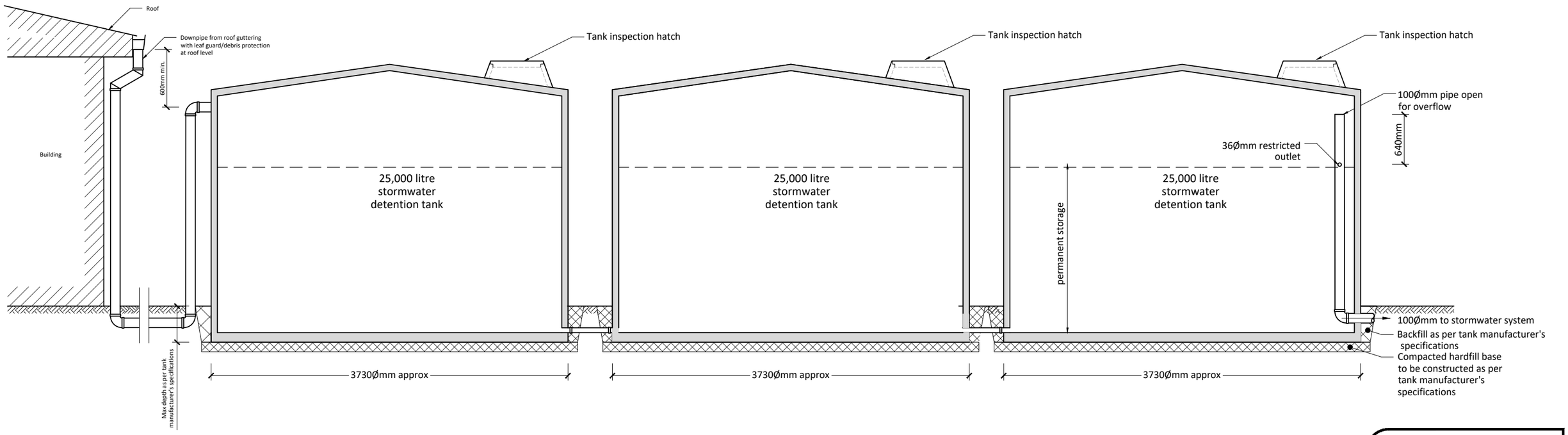
REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

Appendix C

Stormwater Attenuation Design and Details



STORMWATER ATTENUATION 3/25,000L CONCRETE TANK DETAIL

1:25

NOTES:

- All services should be located on-site prior to commencement of works.
- All works to comply with all relevant local authority by-laws and council regulations where applicable.
- Contractors to confirm all dimensions on site prior to commencing any work.
- Do not scale off drawings.
- These drawings are to be read in conjunction with specifications - plans take precedence.
- If any part of these documents are unclear, please contact RSEng Ltd.
- This plan is copyright to RSEng Ltd and should not be reproduced without prior permission.

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

Title
STORMWATER ATTENUATION CONCRETE TANK DETAIL

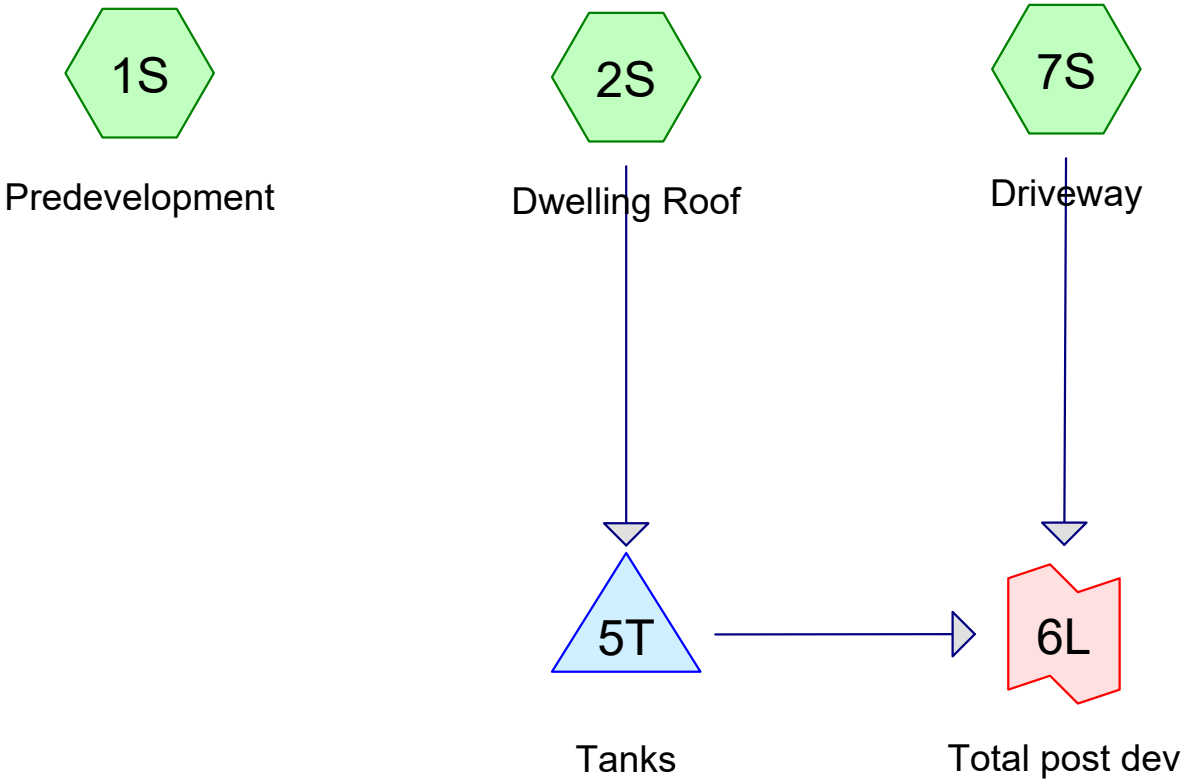
Client

Location

Date	Rev	Notes
23/12/2021	A	Original Issue

Scale	Original	Rev
1:25	A3	A

Drawn	Approved	File #	Sheet
MYH	MJ		1



Subcat Reach Pond Link

Routing Diagram for 19533 Stormwater Attenuation
Prepared by {enter your company name here}, Printed 15/08/2025

Summary for Subcatchment 1S: Predevelopment

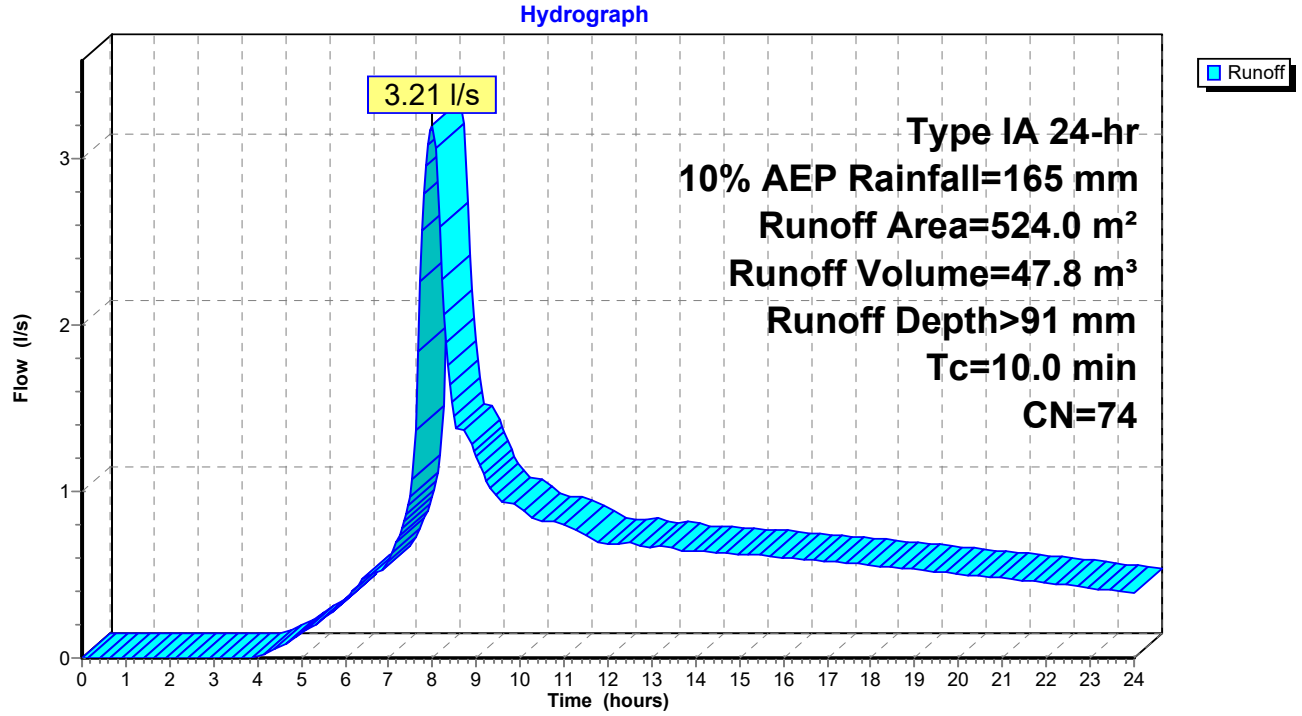
Runoff = 3.21 l/s @ 8.00 hrs, Volume= 47.8 m³, Depth> 91 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10% AEP Rainfall=165 mm

Area (m²)	CN	Description
524.0	74	>75% Grass cover, Good, HSG C
524.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Predevelopment



Summary for Subcatchment 2S: Dwelling Roof

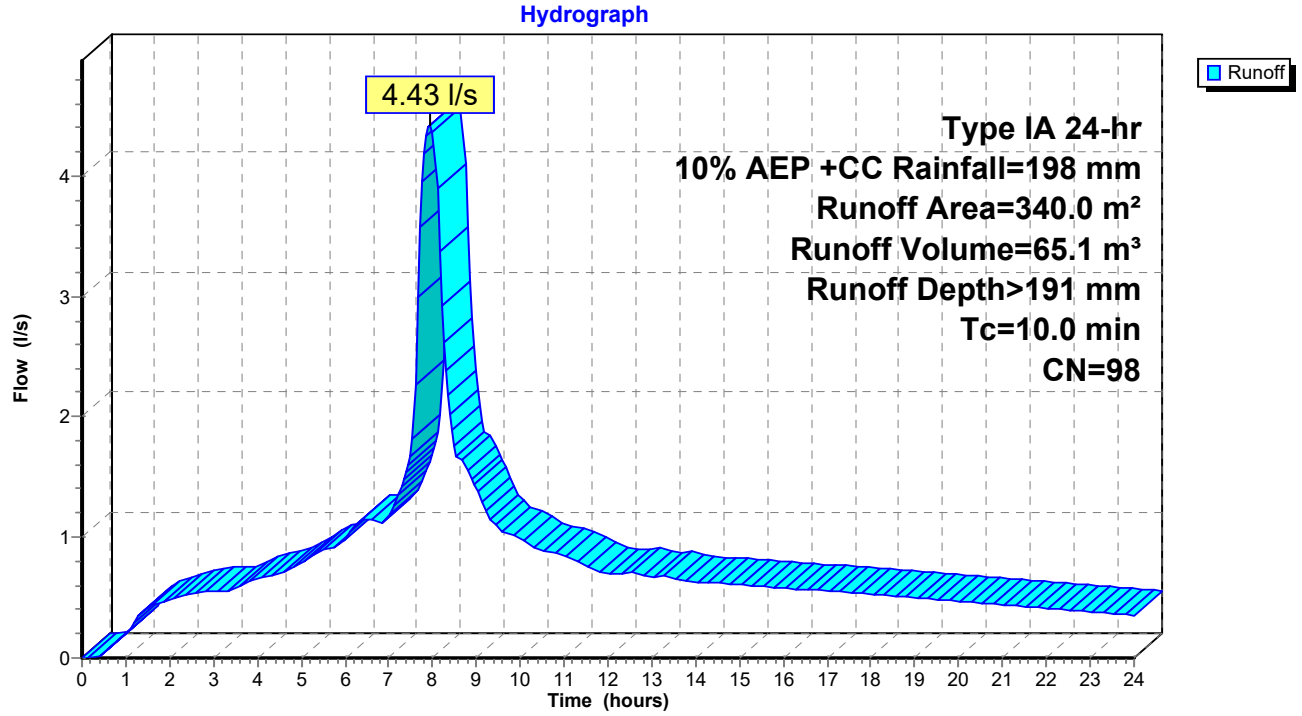
Runoff = 4.43 l/s @ 7.94 hrs, Volume= 65.1 m³, Depth> 191 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10% AEP +CC Rainfall=198 mm

	Area (m²)	CN	Description
*	340.0	98	House roof
	340.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Dwelling Roof



Summary for Subcatchment 7S: Driveway

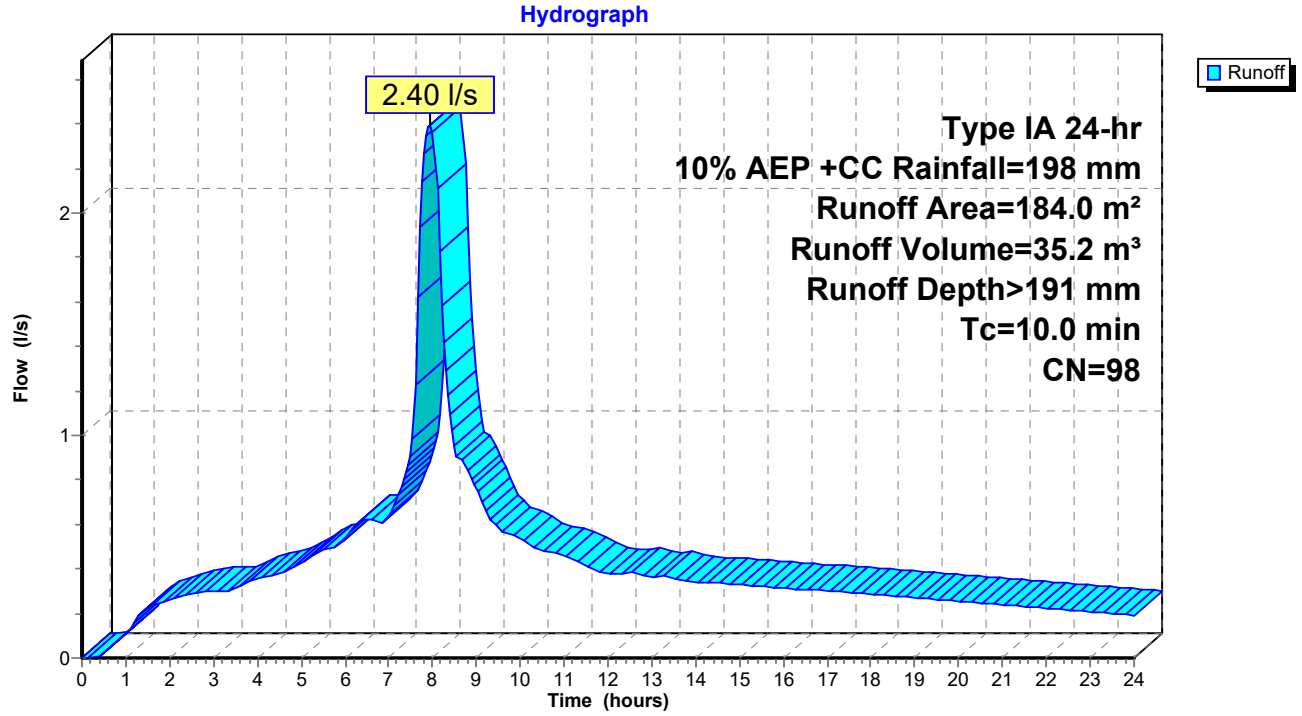
Runoff = 2.40 l/s @ 7.94 hrs, Volume= 35.2 m³, Depth> 191 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10% AEP +CC Rainfall=198 mm

	Area (m²)	CN	Description
*	184.0	98	House roof
	184.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 7S: Driveway



Summary for Pond 5T: Tanks

Inflow Area = 340.0 m²,100.00% Impervious, Inflow Depth > 191 mm for 10% AEP +CC event
Inflow = 4.43 l/s @ 7.94 hrs, Volume= 65.1 m³
Outflow = 0.95 l/s @ 10.12 hrs, Volume= 57.2 m³, Atten= 78%, Lag= 131.1 min
Primary = 0.95 l/s @ 10.12 hrs, Volume= 57.2 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 0.642 m @ 10.12 hrs Surf.Area= 30.5 m² Storage= 19.6 m³

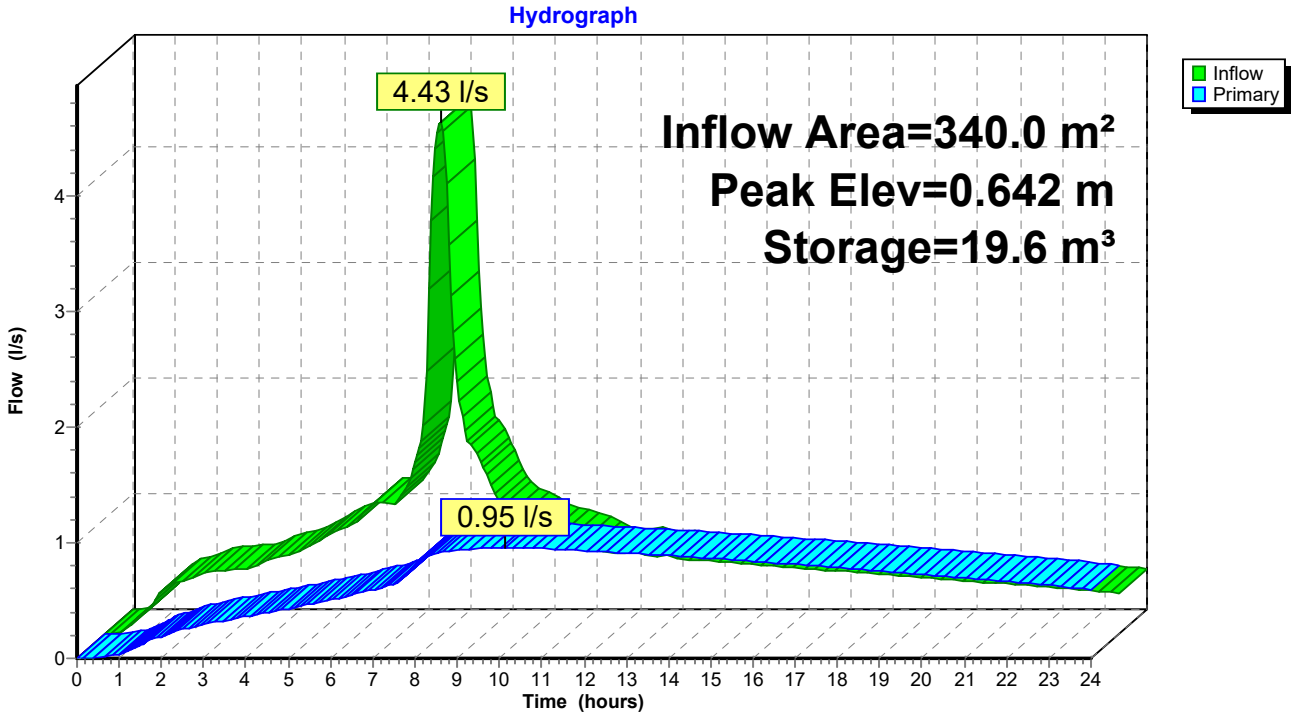
Plug-Flow detention time= 257.5 min calculated for 57.2 m³ (88% of inflow)
Center-of-Mass det. time= 170.5 min (819.7 - 649.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	76.3 m³	**3.60 mD x 2.50 mH Vertical Cone/Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**24 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.95 l/s @ 10.12 hrs HW=0.642 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.95 l/s @ 2.11 m/s)

Pond 5T: Tanks

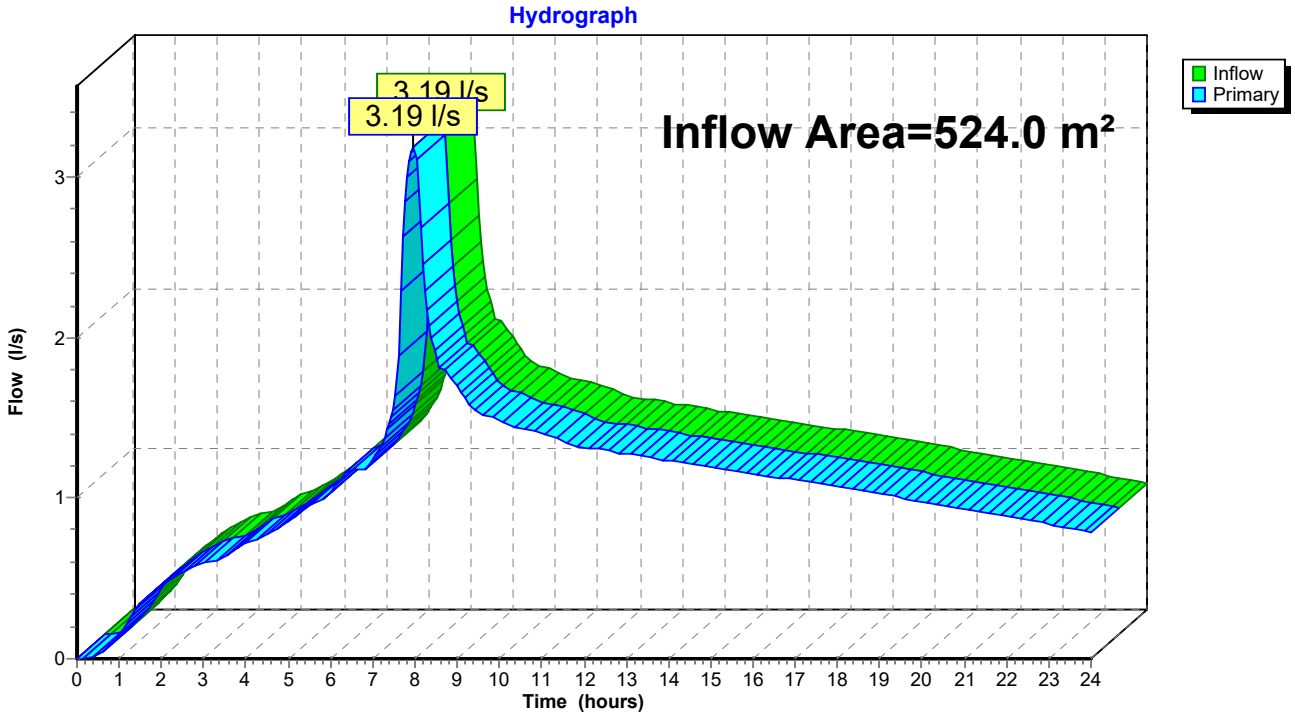


Summary for Link 6L: Total post dev

Inflow Area = 524.0 m²,100.00% Impervious, Inflow Depth > 176 mm for 10% AEP +CC event
Inflow = 3.19 l/s @ 7.97 hrs, Volume= 92.4 m³
Primary = 3.19 l/s @ 7.97 hrs, Volume= 92.4 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

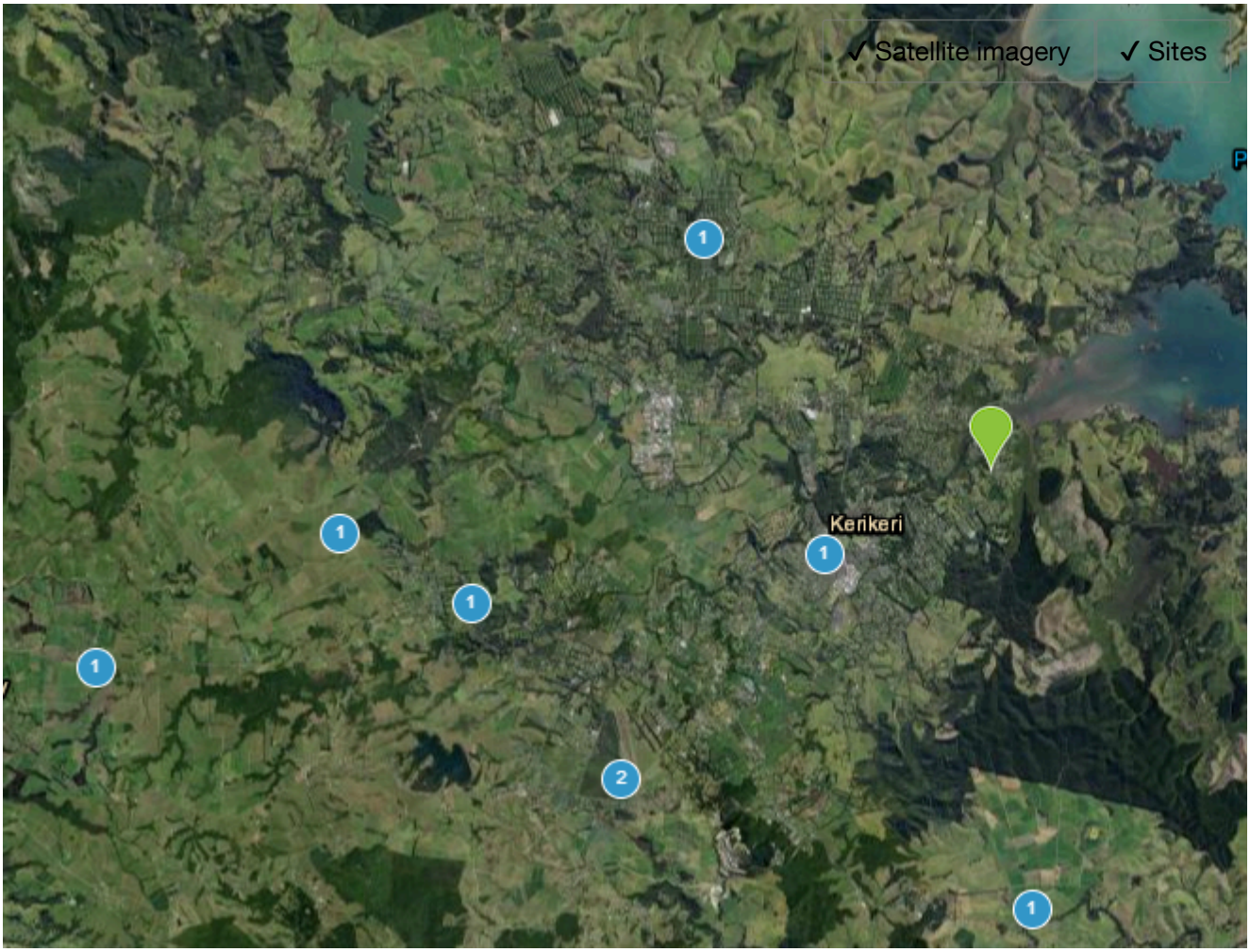
Link 6L: Total post dev



Location

Address search	263 kerikeri inlet road

Address not found



Site Information

To generate a set of results, either click on an existing data point, or a new location and enter a site name, then press the Generate Report button.

Latitude	-35.21826523356557

Longitude	173.97833377743905

Site Name	Custom Location

Site Id	

Output Table Format

- (●) Depth - Duration - Frequency
- ( ) Intensity - Duration - Frequency

Generate Report

Results Spreadsheet Download

Site Details | Historical Data | RCP2.6 Scenario | RCP4.5 Scenario | RCP6.0 Scenario | RCP8.5 Scenario

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	10.2	14.6	18.0	25.6	36.0	58.9	77.2	97.1	116	126	132	136
2	0.500	11.1	16.0	19.7	28.1	39.5	64.7	84.8	107	128	139	145	150
5	0.200	14.4	20.7	25.6	36.6	51.5	84.6	111	140	168	183	192	197
10	0.100	16.8	24.2	30.0	42.8	60.4	99.4	131	165	199	216	226	233
20	0.050	19.3	27.8	34.4	49.2	69.4	114	151	190	230	250	262	269
30	0.033	20.7	29.9	37.0	53.0	74.8	123	163	206	248	270	283	291
40	0.025	21.8	31.4	38.9	55.7	78.7	130	171	217	261	285	298	307
50	0.020	22.6	32.5	40.3	57.8	81.7	135	178	225	272	296	310	320
60	0.017	23.2	33.5	41.5	59.5	84.1	139	183	232	281	305	320	330
80	0.013	24.3	35.0	43.4	62.2	88.0	146	192	244	294	320	336	346
100	0.010	25.0	36.2	44.8	64.3	91.0	151	199	252	305	332	348	359
250	0.004	28.2	40.8	50.6	72.8	103	171	226	287	348	379	398	410

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.3	1.7	1.8	2.5	3.6	6.7	9.6	15	19	20	22	23
2	0.500	1.4	1.8	1.9	2.7	3.9	7.4	11	16	21	22	24	26
5	0.200	1.9	2.5	2.8	3.9	5.6	10	15	22	28	30	33	35

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
10	0.100	2.4	3.3	3.6	5.0	7.2	13	18	27	33	36	40	42
20	0.050	3.0	4.3	4.8	6.5	9.5	16	24	32	39	42	48	50
30	0.033	3.5	5.0	5.5	7.6	11	19	27	35	43	46	52	55
40	0.025	3.8	5.6	6.2	8.5	12	21	31	38	46	49	56	59
50	0.020	4.1	6.1	6.7	9.2	13	23	33	40	48	52	59	62
60	0.017	4.4	6.5	7.2	9.9	14	25	36	41	50	54	62	65
80	0.013	4.8	7.2	8.0	11	16	27	40	44	53	58	66	69
100	0.010	5.2	7.8	8.6	12	18	30	44	47	56	61	70	73
250	0.004	7.0	11	12	17	25	43	62	58	68	75	86	90

Appendix 5

RC 2240128-RMACOM

Far North District Council

DECISION ON COMBINED RESOURCE CONSENT APPLICATION UNDER THE RESOURCE MANAGEMENT ACT 1991

Decision

Pursuant to section 34(1) and sections 104, 104B, 106 and Part 2 of the Resource Management Act 1991 (the Act), the Far North District Council **grants** land use and subdivision resource consent for a Discretionary Activity, subject to the conditions listed below to:

Applicant: Parvus Holding Ltd

Council Reference: 2240128-RMACOM

Property Address: 263 Kerikeri Ilet Road, Kerikeri

Legal Description: LOT 1 DP 79774

The activities to which this decision relates are listed below:

Activity A – Subdivision:

To create six lots in the Rural Living Zone with lot sizes ranging between 8400 m^2 and 3008 m^2.

Activity B – Land Use:

Land use consent is sought for Lots 2, 4, 5 and 6 to exceed the 12.5% impermeable surface area threshold associated with the Stormwater Management rule. This is sought due to the subdivision configuration involving long driveways which will increase impermeable surface areas on these lots.

Activity C – NES-CS:

Additionally, consent for a controlled activity is required under the NES-CS as the property is an identified HAIL site.

Conditions

Decision A - Subdivision

Pursuant to sections 108 and 220 of the Act, this subdivision consent is granted subject to the following conditions:

1. The activity shall be carried out in accordance with the approved Subdivision Scheme Plan - "Proposed Subdivision of Lot 1 DP 79774" by Thomson Survey Ltd. (Ref. No.: 10443 Rev. PJH dt. 26/04/2023) attached to this consent with Councils "Approved Stamp" affixed to it.

Survey plan approval (s223) conditions

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) Provide to Council written confirmation from a Licenced Cadastral Surveyor that the access carriageway is fully contained within the easements provided for access.

Section 224(c) compliance conditions

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

a) Upgrade the existing vehicle crossing A to a shared double width (6.0m) entrance to the shared ROW to the lots 3, 4, 5 & 6, which complies with the Council's Engineering Standard FNDC/S/6 & 6B for a residential vehicle crossing of the Engineering standards and NZS4404:2004. Seal the crossing plus splays for a minimum distance of [6m] from the existing edge. Culverts should be a minimum of 300 mm RCP if required.

[Lots 3, 4, 5 and 6]

b) Upgrade the existing vehicle crossing B to a shared double width (6.0m) entrance to the internal access ways of lots 1 & 2, which complies with the Council's Engineering Standard FNDC/S/6 & 6B for a residential vehicle crossing of the Engineering standards and NZS4404:200. or the relevant standard in any FNDC Engineering Standard which supersedes this document. Concrete the crossing plus splays for a minimum distance of 6m from the existing edge. Culverts should be a minimum of 300 mm RCP, if required.

[Lots 1 and 2]

c) The private access ROW E, F & G shall be upgraded in accordance with Appendix 3B-1 Standards for Private Access with a 3.0 m width carriageway & legal width of 7.5 m, which is mentioned for 3-4 Household Equivalents to comply with Rule 15.1.6C.1 of the FNDC Plan. The formation is to consist of a minimum of 200mm of compacted hard fill plus a GAP30 or GAP40 running course and is to include a water table drain as required to direct and control stormwater runoff.

[Lots 4, 5, and 6]

d) The intersections between the vehicle crossings and Kerikeri Inlet Road are to be constructed to include signage and marking in accordance with New Zealand Transport Agency Manual of Traffic Signs and Marking requirements.

e) Upon completion of the works specified in condition(s) 3(a) to (d) above, provide certification of the work from a certified contractor that all work has been completed in accordance with the FNDC Engineering Standards (PS3).

Section 221 consent notice

4. Pursuant to Section 221 of the Resource Management Act 1991, a consent notice must be prepared and be registered on the Computer Freehold Register of Lots 1-6 at the consent holder's expense, containing the following conditions which are to be complied with on a continuing basis by the subdividing owner and subsequent owners:

a) At the time of lodging an application for building consent on any of the lots the building applicant is to provide a report from a Chartered Professional Engineer with recognised competence in relevant geotechnical and structural matters, which addresses the site's investigation undertaken, sets out the specific design of the building's foundations. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).

[All Lots]

b) In conjunction with the construction of any buildings and other impermeable surfaces, the lot owner shall install a stormwater retention tank/s with a flow-attenuated outlet/s. The system shall be designed such that the total stormwater discharged from the site, after development, is no greater than the predevelopment flow from the site for rainfall events up to a 10% AEP plus allowance for climate change, with overland/secondary flow paths able to accommodate a 1% AEP event. This shall be in accordance with the recommendation given in the Subdivision Assessment by RS Eng Ltd. (Report Ref.: 18729 Rev. 1 dt. 06/09/2023).

[All Lots]

c) 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 a 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.

[Lots 2-6]

d) In conjunction with the construction of any building which includes a wastewater treatment & effluent disposal system the applicant shall submit for Council approval a TP58 Report prepared by a Chartered Professional Engineer or an approved TP58 Report Writer. The report shall identify a suitable method of wastewater treatment for the proposed development along with an identified effluent disposal area plus a 100% reserve disposal area. The report shall confirm that all the treatment & disposal systems can be fully contained within the lot boundary and comply with the Regional Water & Soil Plan Permitted Activity Standards.

[Lots 2-6]

e) In conjunction with the construction of a future dwelling on the Lot owner shall obtain a building consent and install an on-site wastewater treatment and effluent disposal system on the Lot. The system shall be designed by a Chartered Professional Engineer or registered drainlayer in accordance with ARC TP 58 requirements and shall reference the recommendations of the RS Eng Subdivision Assessment dated 6 September 2023 and submitted with the building consent application.

[Lots 2-6]

f) In conjunction with the construction of any building requiring a potable water supply, a water collection system with sufficient supply for firefighting purposes shall be provided by way of tanks or other approved means and are to be positioned so that it is safely accessible for this purpose within the Lot. These provisions shall be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509:2008.

Alternative firefighting water supplies shall be specifically approved by an authorized representative of Fire and Emergency NZ.

[Lots 2-6]

5. Ensure that all earthwork operations and silt control measures are in place in accordance with the Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) prior to the commencement of earthworks related to the construction works. Photographic evidence of Erosion and Sediment Control measures in place is to be emailed to FNDC Team Leader Monitoring and Compliance RCmonitoring@fndc.govt.nz referencing RC 2240128 - RMACOM.

Activity B – Land use

Pursuant to sections 108 and 220 of the Act, this subdivision consent is granted subject to the following conditions:

1. The activity shall be carried out in accordance with the approved Subdivision Scheme Plan - "Proposed Subdivision of Lot 1 DP 79774" by Thomson Survey Ltd. (Ref. No.: 10443 Rev. PJH dt. 26/04/2023) attached to this consent with Councils "Approved Stamp" affixed to it.

Activity C – NES-CS

The NES-CS consent has been addressed in conjunction with the conditions above.

Advice Notes

Lapsing of Consent

1. *Pursuant to section 125 of the Act, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;*
   a) *A survey plan is submitted to Council for approval under section 223 of the RMA before the lapse date, and that plan is deposited within three years of the date of approval of the survey plan in accordance with section 224(h) of the RMA; or*
   b) *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 Act.*

General

2. *This consent has been granted on the basis of all the documents and information provided by the consent holder, demonstrating that the new lot(s) can be appropriately serviced (infrastructure and access).*

Right of Objection

3. *If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Act) 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.*

Archaeological Sites

4. *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.*

Roading

5. *The consent holder will be responsible for the repair and reinstatement of the public roads and carriageway to the satisfaction of the Council Roading Manager if damaged as a result of the works and building operations.*

6. *Any encroachment of the road onto private property shall be surveyed off and vested in Council, such that the legal road boundary along the road frontage of the subject site is at least 6m from the centreline of the carriageway or 2m from the edge of the carriageway (Whichever is the greater).*

Utilities

7. *The consent holder is responsible for arranging for buried services to be located and marked prior to commencing earthworks and is also responsible for the repair and reinstatement of any underground services damaged as a result of the earthworks.*

Earthworks

8. *Any debris deposited on the public road as a result of the earthworks shall be removed by or at the expense of the applicant. All debris is to be cleaned off the road at the end of each working day.*

Reports

9. *TP58 Reports must be prepared be a person who is on a list of approved TP58 writers maintained by Far North District Council. Persons on the approved list must be either a Chartered Professional Engineer or a Registered Drainlayer who has attended and passed a TP 58 writers course approved by Far North District Council.*

Reasons for the Decision

1. By way of an earlier report that is contained within the electronic file of this consent, it was determined that pursuant to sections 95A and 95B of the Act the activity will not have, and is not likely to have, adverse effects on the environment that are more than minor, there are no affected persons and no special circumstances exist. Therefore, under delegated authority, it was determined that the application be processed without notification.

2. The application is for a Discretionary Activity resource consent as such under section 104 the Council can consider all relevant matters. In particular, the District Plan rules affected are:

Rule Number and Name	Non-Compliance Aspect	Activity Status
13.7.2.1(iv) – Discretionary Activity	The minimum lot size is 3,008 m^2	Discretionary Activity
13.7.2.2 - Allotment Dimensions	Proposed new lots 2 and 4 will not accommodate a 30 m x 30 m square building within the boundary setbacks of these lots.	Discretionary Activity
8.7.5.2.2 – Stormwater Management	The maximum proportion or amount of the gross site area covered by buildings and other Impermeable Surfaces shall be 20% or 3300 m^2, whichever is the lesser.	Controlled Activity

Adverse effects will be less than minor:

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

4. In regard to section 104(1)(ab) of the Act there are no offsetting or environmental compensation measures proposed or agreed to by the applicant for the activity.

5. In regard to section 104(1)(b) of the Act the following statutory documents are considered to be relevant to the application:

   a. Northland Regional Policy Statement 2018,
   b. Operative Far North District Plan 2009,
   c. Proposed Far North District Plan 2022

Northland Regional Policy Statement

The activity is consistent with the relevant objectives, policies and assessment criteria of the Northland Regional Policy Statement due to the following:

- The subdivision will be consistent with the objectives and policies relating to Regional Form (3.11) as it will be effectively integrated within the environment in regard to design, land use and levels of amenity.
- The layout and size of the new lots will be consistent with object 3.14 as it will not negatively impact natural character, outstanding natural features, outstanding natural landscapes and historic heritage.

Operative Far North District Plan

The following objectives and policies of the District Plan have been considered:

- The objectives and policies relating to subdivision and infrastructure, specifically those relating to support subdivision that is consistent with the purpose and character of the zone surrounding area. Additionally, the proposal has addressed the appropriate infrastructure required to service the new lots in accordance with objective 13.3.5.
- The objectives and policies of the rural environment, and more specifically the Rural Living zone which seeks to support the semi-urban character, where more intensive development would result in adverse effects. This is achieved by only

allowing appropriate development which recognises the context of development and is designed appropriately. This activity has been designed in a manner which is consistent with these goals, particularly through the use of existing vehicle entrances.

- The subdivision will be undertaken in accordance with Policy 8.4.8, the scale and intensity of the subdivision will have any adverse effects on the wider rural environment, and is located in an area this level of subdivision is provided for.

Proposed Far North District Plan

The following objectives and policies of the Proposed District Plan have been considered:

- RRZ-O2 the character and amenity of the rural residential zone is maintained which includes peri-urban scale residential activities and smaller lots.
- RRZ-P2 Activities which are incompatible with the character and amenity of the zone are avoided including activities which are contradictory to the anticipated density.
- SUB-O1 Subdivision resulting in the efficient use of land, including being consistent with the relevant zone, avoids reverse sensitivity and does not increase the risk of natural hazards.
- SUB-P11 Managing the effects of subdivision to ensure consistency with the scale, density, design and character of the environment and purpose of the zone.

The activity is consistent with the relevant objectives and policies of the Proposed District Plan as the subdivision is consistent with the expected use and character of the rural residential zone.

For this resource consent application, the relevant provisions of both an operative and any proposed plan must be considered. Weighting is relevant if different outcomes arise from assessments of objectives and policies under both the operative and proposed plans.

The PDP has only been recently notified and as such there is potential for change as the plan goes through the statutory process. None of the relevant rules or objects are legally active. As such the PDP has not been deemed relevant to this application.

6. In regard to section 104(1)(c) of the Act there are no other matters relevant and reasonably necessary to determine the application.

7. In terms of s106 of the RMA, no natural hazard risks have been identified on the property. The new Lot sizes are not considered to give rise to significant risk from natural hazards, and sufficient provision has been made for legal and physical access to the proposed allotments. Accordingly, Council is able to grant this subdivision consent subject to the conditions above.

8. Based on the assessment above the activity will be consistent with Part 2 of the Act. The activity will avoid, remedy or mitigate any potential adverse effects on the environment while providing for the sustainable management of natural and physical resources and is therefore in keeping with the Purpose and Principles of the Act. There are no matters under section 6 that are relevant to the application. The proposal is an

efficient use and development of the site that will maintain existing amenity values without compromising the quality of the environment. The activity is not considered to raise any issues in regard to Te Tiriti o Waitangi.

9. Overall, for the reasons above it is appropriate for consent to be granted subject to the imposed conditions.

Approval

This resource consent has been prepared by Sydney Harris, Consultant Resource Planner. I have reviewed this and the associated information (including the application and electronic file material) and for the reasons and subject to the conditions above, and under delegated authority, grant this resource consent.

Trish Routley

Date: 21 November 2023

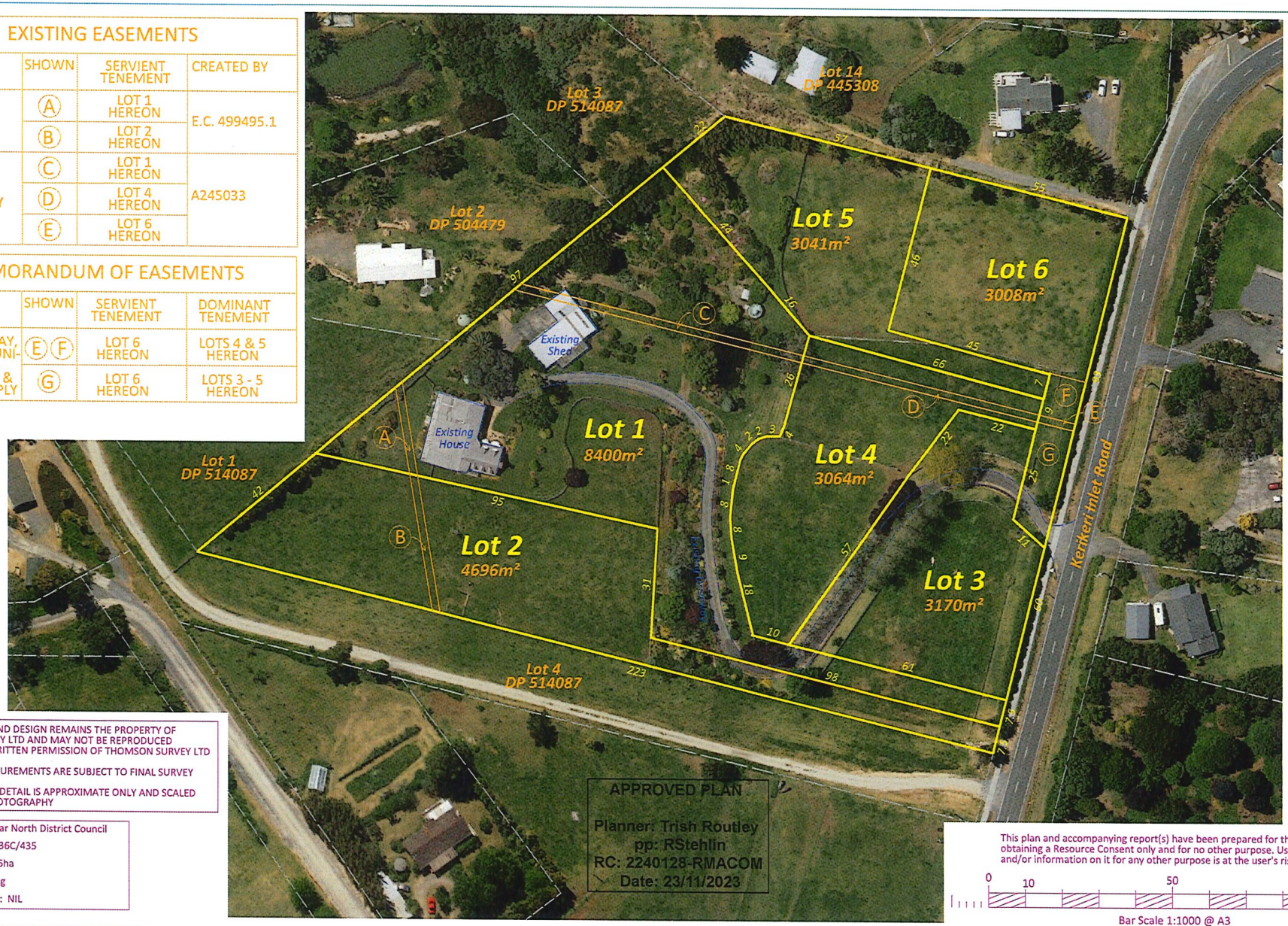
Manager Resource Consents

EXISTING EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
CONVEY WATER	A	LOT 1 HEREON	E.C. 499495.1
	B	LOT 2 HEREON	
CONVEY ELECTRICITY	C	LOT 1 HEREON	A245033
	D	LOT 4 HEREON	
	E	LOT 6 HEREON	

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS, ELECTRICITY & WATER SUPPLY	E F	LOT 6 HEREON	LOTS 4 & 5 HEREON
	G	LOT 6 HEREON	LOTS 3 - 5 HEREON



Local Authority: Far North District Council
Comprised in: NA36C/435
Total Area: 2.5376ha
Zoning: Rural Living
Resource features: NIL

APPROVED PLAN

Planner: Trish Routley
pp: RStehlin
RC: 2240128-RMACOM
Date: 23/11/2023

0 10 50 100m

Bar Scale 1:1000 @ 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 1 DP 79774

263 KERIKERI INLET ROAD, KERIKERI

PREPARED FOR: G. BILL

	Name	Date
Survey		
Design		
Drawn	KY	20.12.22
Approved		
Rev	PJH	26.04.23

ORIGINAL
SCALE 1:1000
SHEET SIZE A3

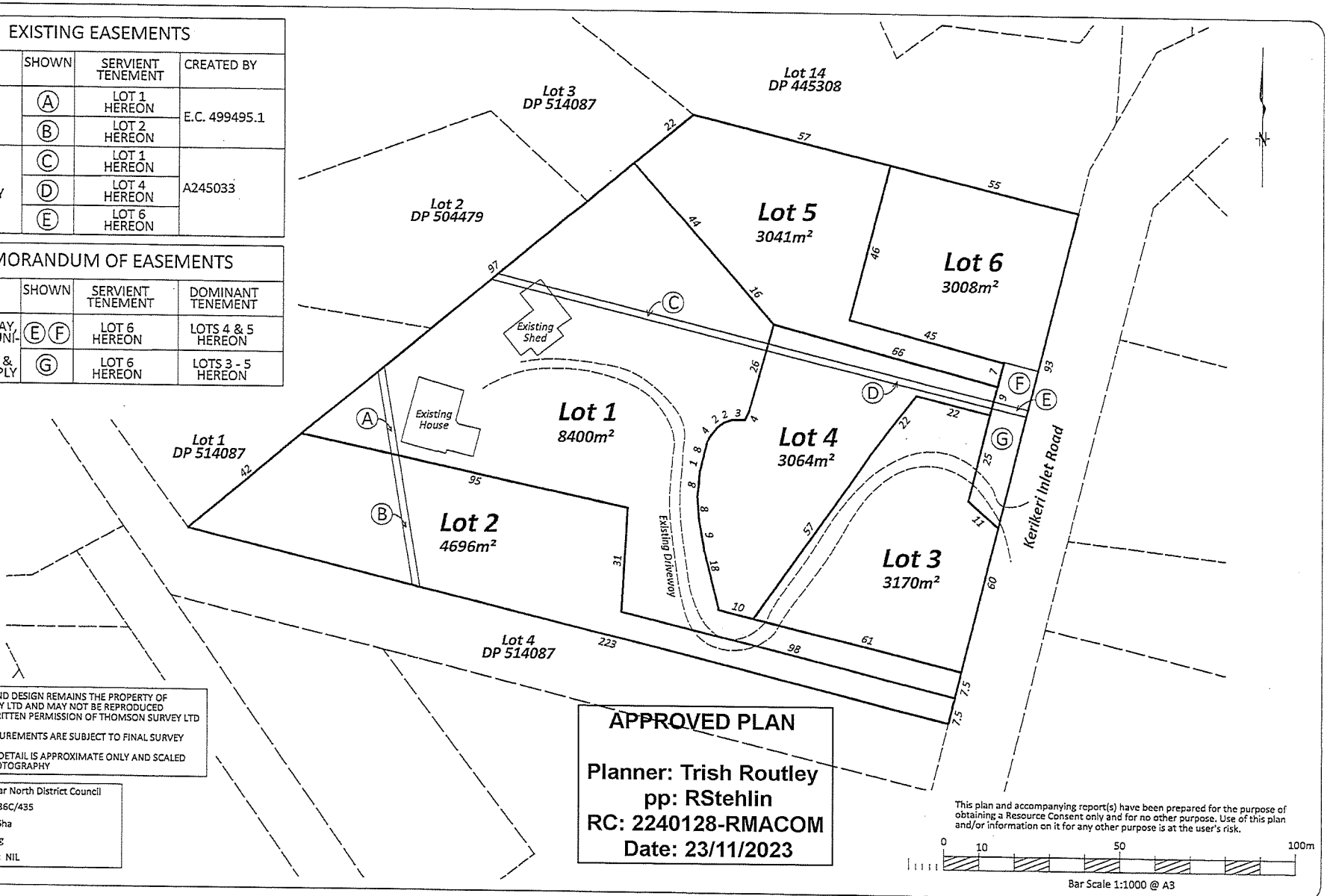
10443 Scheme 20230426.

Surveyors Ref. No: 10443

Sheet 1 of 1

EXISTING EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
CONVEY WATER	(A)	LOT 1 HEREON	E.C. 499495.1
	(B)	LOT 2 HEREON	
CONVEY ELECTRICITY	(C)	LOT 1 HEREON	A245033
	(D)	LOT 4 HEREON	
	(E)	LOT 6 HEREON	

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS, ELECTRICITY & WATER SUPPLY	(E) (F)	LOT 6 HEREON	LOTS 4 & 5 HEREON
	(G)	LOT 6 HEREON	LOTS 3 - 5 HEREON



Local Authority: Far North District Council
Comprised in: NA36C/435
Total Area: 2.5376ha
Zoning: Rural Living
Resource features: NIL

APPROVED PLAN

Planner: Trish Routley
pp: RStehlin
RC: 2240128-RMACOM
Date: 23/11/2023

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 10 50 100m

Bar Scale 1:1000 @ 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 1 DP 79774

263 KERIKERI INLET ROAD, KERIKERI

PREPARED FOR: G. BILL

	Name	Date
Survey		
Design		
Drawn	KY	20.12.22
Approved		
Rev	PJH	26.04.23

10443 Scheme 20230426.

ORIGINAL
SCALE 1:1000
SHEET SIZE A3

Surveyors Ref. No: 10443

Sheet 1 of 1

Appendix 6

DSI for RC 2240128

NZ Environmental Management

263 KEIRKERI INLET ROAD, KERIKERI

LOT 1 DP 79774

DETAILED SITE INVESTIGATION

Job number 2023 12

Consultation

HAIL Reports

Ecological Assessments

Resource Consent Applications

Compliance Monitoring

Water Quality Monitoring

Environmental Management

Pest Reduction Advice

Enrichment Planting

Restoration Advice

Prepared for

GRANT BILL

NZEM Quality System:

Document Reference	:	HAIL Projects/ 2023/ 2023 12 DSI 263 Kerikeri Inlet Road
Report Revision	:	1
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Prepared by	:	H Windsor (CEnvP)
Reviewed by	:	D Richards
Approved by	:	T Scott (CEnvP)
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350 Kerikeri Road, Kerikeri 0230
m 027 277 0544 t 09 407 3938 www.nzenvironmental.co.nz

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SECTIONS

APPENDICES:

Content	Required	Required if relied on*
Introduction	✓	
- Investigation objectives	✓	
- Site Identification	✓	
- Proposed site use	✓	
Site Description	✓	
- Environmental setting	✓	
- Site layout	✓	
- Current site uses	✓	
- Surrounding land uses	✓	
- Site inspection		✓
Historical Site use	✓	
- Summary of site history	✓	
review of exisiting investigation reports		✓
review of council records		✓
review of aerial photographs		✓
- Preliminary sampling if carried out		✓
Sampling and Analysis Plan (can be appended)	✓	
- Contaminants of potential concern and/or analyte selection	✓	
- Media to be sampled	✓	
- Background concentration levels if relevant, contaminant standard and/or envronmental guideline value calculation[#] or selection[^]	✓	
- Sample design	✓	
- Number of samples, including justification for number selected and potential limitations of methodology adopted in the context of investigation objectives	✓	
- Sample depth	✓	
- Composite samples		✓
- Field sampling technique	✓	
- Quality Assurance/ Quality control	✓	
Sampling Results	✓	
- Summary of work undertaken with rationale for any departure from, or addition to sampling and analysis plan	✓	
- Field observations	✓	
- Evaluation of analytical laboratory results with comparison to background concentrations if relevant contamianant standards and or environmental guideline values	✓	
- Results of field and laboratory sample quality assurance/quality control	✓	
- Statistical analysis of results		✓
Disposal of Soil	✓	
Risk Assessment	✓	
- Conceptual Site model	✓	
- Evaluate the probability contamination exists on the site	✓	
- Characterise the source through adequate delineation of contamination horizontally and vertically and assessment of contaminat concentrations	✓	
- Identify and characterise potential pathways and receptors or each exposure area through relevant site properties (eg geology, building construction, site use)	✓	
- Determine the likelihood the contamination poses a risk to identified receptors including potential receptors	✓	
- Evaluate the level of that risk pursuant to regulation 9(1)(b) and or regulation 9 (3)(b) - *it is demonstrated that soil contamination does not exceed the applicable standard in regulation 7*	✓	
-Describe limitations of data collected and the assumptions and uncertainties inherent in the data and models used	✓	
Discussion	✓	
Conclusion	✓	
Report Limitations	✓	
SQEP Certificate of Report	✓	
References	✓	

AUTHORS:

Danette Richards – Environmental Geologist

Danette holds a BSc (Geology) and an MSc (Hons) in Environmental Science. Danette had seven years' experience in exploration mining for base metals in Western Australia prior to returning to New Zealand in 2000 and studying for her Masters (Environmental Science). Her contaminated site investigations work since 2003 includes petroleum storage facilities, timber treatment plants, landfills, agricultural chemical stores, horticultural and agricultural sites. Danette has been working with the current National Environmental Standards (NESCS) since their inception in January 2011.

Heather Windsor – Earth Scientist (CEnvP)

Heather holds a BSc in Earth Sciences and Biology and is a Certified Environmental Practitioner. Heather has more than 20 years' experience with work including testing for contaminants in ground and surface waters, coastal, riverine and ground water quality sampling and data processing. Heather's work includes monitoring of groundwater, geothermal, lakes, springs and rivers, as well as soil and vegetation sampling for hydrocarbon, heavy metals and other contaminants. Heather has been working in the assessment and remediation of soils on HAIL or contaminated sites since the inception of the current National Environmental Standards (NESCS) in January 2011 undertaking assessments on a wide variety of sites, including orchards, commercial and industrial sites. Heather is a member of WasteMINZ and ALGA and holds a Contaminated Site Safety Certificate.

Tricia Scott – Environmental Biologist (CEnvP)

Tricia holds a BSc (Biology) and an NZCS (Paramedical). Tricia is a Certified Environmental Practitioner. Tricia has more than 20 years' experience testing and assessing habitats, and physical and chemical parameters in water, soils, air, and biological material. Tricia has been working in the assessment and remediation of soils on HAIL or contaminated sites since the inception of the current National Environmental Standards (NESCS) in January 2011. Tricia is a member of WasteMINZ and ALGA and holds a Contaminated Site Safety Certificate.

EXECUTIVE SUMMARY

The property is located at 263 Kerikeri Inlet Road, Kerikeri and has legal description of Lot 1 DP 79774.

It is planned to subdivide the existing lot into six new lots.

The property has a land use history of pastoral use and kiwifruit orcharding. Approximately seventy-five percent of the property would be assessed as the 'Piece of Land'.

The applicable HAIL categories considered were:

> *A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds,* and *I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.*
>
> *I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.*

The Piece of Land over which the HAIL activities have been carried out covers ~19,000 m^2.

Following a desktop study of the property, a site visit with preliminary soil sampling was carried out in December 2022. This sampling was carried out as part of a due diligence assessment informing a sale and purchase agreement for the property.

A follow-on Detailed Site Investigation was carried out between March-May 2023 in support of a subdivision application. Systematic sampling was undertaken across the historic orchard area, with targeted sampling around an area with elevated concentrations of contaminants identified during the preliminary sampling.

All sampling results reported the concentration of the identified contaminants of interest below the applicable soil guideline value for Residential (10%) use, except for arsenic in soils located near the existing shed/glass house. This area was noted as an Area of Interest[1] and systematic sampling was carried out to characterise the arsenic concentration(s). Statistical analysis on the results indicated that the arsenic is not considered to exceed the applicable standard for NESCS purposes.

A review of conceptual site model indicates the source – pathway – receptor linkages are incomplete as source contamination in the soil is not considered to be present.

The results of this DSI indicate that soils at Lot 1 DP 79774 are highly unlikely to pose a risk to human health if the proposed subdivision, and soil disturbance as part of the proposed residential use (as permitted under soil regulation 8(3)) is undertaken.

Pursuant to regulation 9 (3)(b) - it is demonstrated that soil contamination does not exceed the applicable standard in regulation 7 and as such the activity can be undertaken as a controlled activity.

[1] Area of Interest An area or target within the piece of land identified as having hazardous substances on or in it at elevated levels or above background. Reported concentrations are at or below the soil contaminant standards for the applicable land use scenario with in-situ soils unlikely to pose a risk to human health.

1. INTRODUCTION

1.1 INVESTIGATION OBJECTIVES

NZ Environmental Management Ltd (NZEM) was engaged by Grant Bill to undertake a Detailed Site Investigation (DSI) on Lot 1 DP 79774, located at 263 Kerikeri Inlet Road, Kerikeri hereon referred to as the 'Site'. The DSI was undertaken in accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, 2011 (NESCS). The investigation serves in support of a subdivision for future residential use of the Lots, by assessing whether there is any risk to human health on the property if change in land use occurs. The DSI provides information on:

a) Site information (history and use),

b) Any likely contaminants from current and historical chemical use, and

c) Information concerning the location, nature, level and extent of any contamination (i.e. site characterisation).

Information gathered as part of this DSI found that Lot 1 DP 79774 comprises a 2.5376 ha site, listed by the FNDC as having rural living zoning (with the proposed district plan zoning identified as rural residential).

The property has a history of orchard use. The HAIL categories considered were:

A10 - Chemical manufacture, application, and bulk storage – Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds.

I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

1.2 SITE IDENTIFICATION

Lot 1 DP 79774 is located at 263 Kerikeri Inlet Road, Kerikeri (-35.218879 173.978392).

The Site is located on the west side of Kerikeri Inlet Road, Kerikeri approximately 250m north of Peihana Rise.

Aerial photographs are included in Appendix E.

Certificate of Title is given in Appendix C.

1.3 PROPOSED SITE USE

It is proposed to subdivide the existing Lot into six new residential Lots; Proposed Lots 1 to Proposed Lot 6 (Appendix A 1).

Proposed Lot 1 (8,749 m^2). Located in the mid-west of the Site this proposed Lot contains the existing residence, shed, glass house and pond. Approximately 60% of this proposed Lot would be considered a Piece of Land.

Proposed Lot 2 (4,412 m^2). Located in the south-west of the Site, this proposed Lot is currently in pasture with some ornamental planting. Most of this proposed Lot would be considered a Piece of Land, excluding the driveway area.

Proposed Lot 3 (3,158 m^2). Located in the south-east of the Site, this proposed Lot is currently in pasture and driveway. All of this proposed Lot would be considered a Piece of Land.

Proposed Lot 4 (3,064 m^2). Located in the middle of the Site, this proposed Lot is currently in pasture. All of this proposed Lot would be considered a Piece of Land.

Proposed Lot 5 (3,001 m^2) Located in the north-west of the Site, this proposed Lot is currently partially in pasture with the remainder in riparian planting and home orchard. Approximately 80% of this proposed Lot would be considered a Piece of Land.

Proposed Lot 6 (3,002 m^2). Located in the north-east corner of the Site, this proposed Lot is currently in pasture. All of this proposed Lot would be considered a Piece of Land.

2. SITE DESCRIPTION

2.1 ENVIRONMENTAL SETTING

2.1.1 GEOLOGY AND HYDROLOGY

Soil onsite is an Orthic Oxidic [2] soil which is mapped as Kerikeri Friable Clay and Kerikeri Friable Clay with boulders [3]. These soils form over basalt lava (Kerikeri Volcanic Group Late Miocene basalt of Kaikohe - Bay of Islands Volcanic Field[4]). They are friable and granular on top with clay at depth. Kerikeri friable clay soils are well drained and consequently are drought prone (NRC Soil Fact sheets 8.1.2).

The contour is moderate to moderately steep sloping with the surface drainage patterns over the Lot shown in Appendix E 10.

Drinking water is derived from rainwater.

The property is located over the Wairoa Aquifer[5] in the Bay of Islands Coast catchment. The nearest groundwater bore is located 20 m to the west (LOC.209476)[8]. This bore was drilled in 2005 to 90 m depth. At that time, the static water level was 22.5 m bgl. Five additional bores are located within 500 m of the site. Static groundwater information is available in four of these ranging from 2.5 m bgl to 13.7 m bgl.

The Pickmere Channel of the Kerikeri Inlet is located ~400 m to the west of the property. A small pond is located on site and a dam is located ~110m to the north. According to the NRC and FNDC flood mapping, the property will not be impacted by a 1:100 flood event[6] (Appendix A 2)

2.2 SITE INSPECTION

A Site inspection (walkover) was carried out by H. Windsor on 20 December 2022. Weather conditions at the time of inspection were sunny and dry. Photographs were taken and shown in Appendix D.

A plan showing the contemporary site layout is given in Appendix A 1.

2.2.1 SITE LAYOUT

Lot 1 DP 79774 is an irregularly shaped property which slopes moderately steeply to the west from the eastern Kerikeri Inlet Road boundary toward mid site, before sloping up again to a flatter area on the western side (Appendix E 10). The existing residence is in the mid-western area. A shed, with paving on the western side is located north of the residence. A glasshouse structure is located on the south-east side of the shed.

2.2.2 CURRENT SITE USES

The property is currently a lifestyle property. Until recently the residence has been used as a homestay with the pasture grazed by horses.

[2] https://soils-maps.landcareresearch.co.nz/
[3] https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=fd6bac88893049e1beae97c3467408a9
[4] https://data.gns.cri.nz/geology/
[5] https://localmaps.nrc.govt.nz/localmapsviewer/?map=b1bce4c2e2f940288c1f7f679b2ac7b7
[6] https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=81b958563a2c40ec89f2f60efc99b13b

2.2.3 SITE CONDITION AND SURROUNDING ENVIRONMENT

The property is a five-sided property with Kerikeri Inlet Road on the east boundary. The bulk of the Site is divided by post and rail fences into five paddocks which are used for horse grazing (Appendix F 1- F 2 & F 7)[7]. The fences were old but mostly sound and a mix of timber posts and top rails and steel lower rails. Some of the gates were in disrepair (Appendix F 2). The fenced driveway winds through the Site from the road entrance to the house and shed which are located near the west boundary mid Lot (Appendix F 1). The driveway is landscaped with trees and shrub species and the grass around the house is mown.

The shed is paved on the west side (Appendix F 5) with paving also outside a roller door located on the east side (Appendix F 4). A domestic garden glasshouse is attached to the east side of the shed (Appendix F 4). A few citrus trees are planted in rows to the east of the shed (Appendix F 6).

A small pond and gazebo are in a valley area east of the driveway, down gradient of the most northern horse pastures (Appendix F 3). At the time of the site visits, the horse pastures were a mix of well grazed and taller pasture dependent on grazing rotation.

No staining or odour was noted during the site visits in December 2022, and March, April and May 2023.

Surrounding land use is residential and lifestyle living. According to NRC maps the land is not erosion prone[8].

[7] Some of fencing removed early May 2023
[8] https://localmaps.nrc.govt.nz/localmapsviewer/?map=79f54a18dcae4fbd9e1cf774aa2de871#

3. HISTORICAL SITE USE

3.1 SUMMARY OF SITE HISTORY

The history of the land was obtained by reviewing council property files, aerial photographs, and title information and from discussion with the current landowner.

Information regarding the title information is summarised in Appendix I 4. Aerial photographs are provided in Appendix E with summary table in Appendix E 11.

The rohe map on Te Puni Kokiri show the location of the property as being within the Ngāpuhi rohe.

Aerial photographs dated 1951, 1965 and 1972 show the location of the Site in pastoral land use (Appendix E 1- E 3). In 1976 the property was subdivided off from a larger Lot and the residence and implement shed were permitted in 1979. The occupation of the landowner at that time (1979 – 1984) was recorded as orchardist, and aerial photographs taken in 1980 and 1981 show young orchard planting on the Site (Appendix E 4 – E 5). In the 1980 photograph the pond is newly dug and empty, and in 1981 it is water filled.

It is the understanding of the current landowner that the orcharding was largely kiwifruit although no orchard maps were identified to confirm this, and the aerial photographs are not sufficient as to the type of orcharding undertaken[9].

In the 1980's until 1992 kiwifruit vines in New Zealand were generally sprayed throughout the season as required to manage pests and disease. Sprays were generally hydrogen cyanamide type sprays such as Hi-Cane to promote budbreak, with some use of organophosphate pesticides. General application over this period may also have included fertilisers such as manganese sulphate, Calmag, sulphate of potash, CAN (calcium ammonium nitrate) and superphosphate. After 1992 spray regimes were less rigorous[10].

There was a downturn in the kiwifruit industry in the late 1990's (~1997) when many kiwifruit orchards were disestablished, and aerial photographs show that by 2000 most of the orchard has been removed apart from a small area of citrus (Appendix E 6). A sub-division scheme plan dated 2004 shows three rows of citrus located to the south-east of the implement shed (Appendix E 12), some of those trees are still present. The remainder of Site at that date had been returned to pastoral land use (Appendix E 6 – E10) and has been maintained by horse grazing with the landowner from 1984 to 2006 is well known locally for his draught (Shire) horses.

From 2007 until recently the property has been run as a homestay with the pasture grazed by horses.

The Site is not listed on the NRC selected land use register. Two incidents are lodged against the Site in the property files (Appendix D). Both incidents relate to burning and smoke nuisance. It is unclear from the records whether the incidents were located on the Site, aerial photographs taken in 2009 and 2013 do not show any indication of fire areas.

A summary of land use history is shown in Appendix I 5. A summary of information obtained from FNDC property file is tabled in Appendix I 3.

[9] Landowner (1984 – 2006) not interviewed at request of current landowner for confidentiality reasons.
[10] Information collected from long term Kerikeri kiwifruit grower - collected as part of DSI investigation NZE Report # 2015 118

3.1.1 Previous Investigation

No previous investigations were identified.

3.1.2 Preliminary Sampling

Preliminary soil sampling was carried out by NZ Environmental Management in December 2022 as part of due diligence for the sale and purchase agreement for the property.

- Eleven samples were collected over the Piece of Land targeting the orchard and shed areas. Sample locations were primarily systematic with two targeted samples.
- Five composite soil samples (of two samples) were analysed by Hill Laboratories for heavy metals. Subsequently all samples were analysed individually for arsenic. A Site plan showing sample locations is given in Appendix A 6.
- One composite soil sample (of 4 samples) was analysed by Hill Laboratories for organochlorine pesticides.
- The returned results for all heavy metal analytes were within the applicable Residential with 10% produce land use scenario guideline values except for one sample (572001) which returned a result for arsenic above the guideline value. This sample targeted the glass and shed house door area.
- The reported concentrations for multi residue pesticides were below laboratory detection limits.
- A summary of results is shown in Table 1. Full lab results are shown in Appendix H.

Table 1 Preliminary sampling results

20/12/2022	Total Recoverable Arsenic	Total Recoverable Cadmium	Total Recoverable Chromium	Total Recoverable Copper	Total Recoverable Lead	Dieldrin	Total Reported DDT Isomers
	As	Cd	Cr	Cu	Pb	PBT	DDT
All values reported as dry weight	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Detection limit	2	0.1	0.4	2	0.4	0.10	0.03
Composite 572001, 572002	18	0.13	28	33	16		
Composite 572003, 572004	4	0.45	31	33	6		
Composite 572005, 572006	3	0.24	28	28	6		
Composite 572007, 572008	5	0.50	32	36	7		
Compoiste 572009, 572010	3	0.32	31	28	6		
572001	27						
572002	4						
572003	5						
572004	2						
572005	4						
572006	<2						
572007	6						
572008	4						
572009	4						
572010	3						
572011	5						
Composite 572001, 572003, 572007, 572010						<0.015	<0.09
NES Soil Guideline Values April 2012							
Residential 10% produce	**20**	**3.0**	**460**	**>10000**	**210**	**3**	**70**
Background Auckland Volcanic Soils	0.4 - 12	<0.1 - 0.65	3 - 125	20 - 90	<1.5 - 65		

4. SAMPLING AND ANALYSIS PLAN SUMMARY

4.1 STAGE ONE SAMPLING DESIGN PLAN

The 'Piece of Land' identified in this investigation covers ~70% of the Site excluding the area around the residence (Appendix A 5). DSI level sampling was stratified[11].

Sampling and analysis (of the identified contaminants of concern) was undertaken as part of the DSI. The aim of the sampling is to:

- determine the presence of and/or general extent of any soil contamination and the potential adverse impact of such contamination on human health, and
- obtain sufficient information to make an estimate of risk posed by contamination to human health.

As per NESCS 2012 requirements, standards only need to be developed for the contaminants of interest (COI) for the piece of land, given the activities and industries that have occurred or likely to have occurred. Based on the known land use and preliminary sampling carried out in December 2022, the following NESCS priority contaminants were considered as potential COI for 263 Kerikeri Inlet Road, Kerikeri:

- Arsenic
- Organochlorine Pesticides (OCP's)

There were no indications of likely fuel storage in or around the Lot and as such hydrocarbons were not considered COI's [12].

NZEM utilise a qualitative screening approach to the selection of the COI that although does not guarantee that other hazardous substances are not present in the land, it does indicate a lower probability that those contaminants will occur in the soil (MfE 2011).

The land-use history obtained as part of this investigation indicates that potential contaminants would likely be confined to the area of use.

- Systematic sampling was utilised to inform the Conceptual Site Model (CSM) and the risk assessment.
- The Stage One sampling scheme over the historic orchard area took into account sampling already undertaken during preliminary sampling utilising a grid designed to identify a hotspot with radius of 22m.
- A smaller grid of 1.5m spacing was utilised to characterise any contamination within the identified Area of Interest by the glasshouse door.
- The Sampling and Analysis Plan is shown in Appendix G.
- Sampling was carried out using a stainless-steel spade (grab technique) for surface samples and auger for any depth samples.
- Surface samples were collected from a depth of between 0-150mm.

[11] Method of sampling where samples are divided into sub-groups.

[12] Other potential COI such as BaP, dioxins and PCP were not considered applicable as orchards are not considered as one of the hazardous activities or industries such as timber treatment, coal fired power generation, chemical manufacture etc that are more normally associated with BaP, dioxins and PCP.

- Depth samples were collected at 300mm.
- Field screening techniques were not utilised.
- Background samples were not collected.

4.2 FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

To avoid cross contamination, disposable nitrile gloves were worn during sampling and changed between every sample. Sampling equipment was cleaned between each sample as per section 5.3 of MfE 2021, Contaminated Land Management Guidelines No 5.

The labelled samples were couriered to Hill Laboratories under chain of custody documentation (Appendix H). As per the contaminants of interest identified as part of the DSI, the laboratory was instructed, where applicable, to analyse the sample for COI.

- Nineteen Stage One field samples were analysed for arsenic.
- Three samples were composited and analysed for OCP's to inform the Conceptual Site Model. OCP samples were collected from within each of the proposed Lots including the samples collected during preliminary sampling. Further OCP samples were not collected due to the identified low risk[13].
- Two duplicates were collected as part of the Stage One Investigation and one set was collected during preliminary sampling. The field duplicates were collected at the same time as the primary soil samples using the same procedures.
- Quality assurance (QA) soil sample 572011 was collected as a duplicate of soil sample 572003. Quality assurance (QA) soil sample 1230 was collected as a duplicate of individual soil sample 1213 and Quality assurance (QA) soil sample 1229 was collected as a duplicate of individual soil sample 1225.

All samples are kept in storage for two months by the laboratory in case re-analysis of the samples is required.

Laboratory testing was carried out by Hills Laboratories Ltd. The lab is an NZS/ISO/IEC 17025:2005 accredited laboratory which incorporates the aspects of ISO 9000 relevant to testing laboratories. Original laboratory transcripts are attached to this report (Appendix H).

[13] Since the inception of the NESCS (2011) NZ Environmental has undertaken more than 700 tests for OCP's in Northland on a variety of land uses including pastoral, orchards, stock yards, market gardens and around farm sheds. Only one of those tests returned concentration of OCP above guideline values and very few were above laboratory detection limits. The one elevated result for OCP's was confined to the door area of a chemical storage shed located on land with a long-term market gardening land use history.

5. SAMPLING RESULTS – STAGE ONE

5.1 SOIL SAMPLING

A total of nineteen samples were collected over the site during Stage One sampling which was undertaken on 23 March 2023 by H. Windsor. Samples were collected as stratified samples as per Sampling and Analysis Plan (Appendix G).

- Soils were collected as per the plan using one grid designed to identify a 22m radius hotspot over the general orchard area, and a second 1.5m grid around the shed / glass house door area.
- Sampling data including soil descriptions is given in Appendix I 1.
- A plan showing Sampling locations over the orchard area is shown in Appendix A 7.

5.2 FIELD OBSERVATIONS

A table showing the GPS location and log of sampled soils is shown in Appendix I 1 and I 2.

5.3 BASIS FOR GUIDELINE VALUES

The laboratory results are compared to the Soil Contaminant Standards, ($SCSs_{health}$), at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor. The $SCSs_{health}$, have been calculated for five generic land-use exposure types to reflect different land use scenarios.

The scenario used for assessing $SCSs_{health}$ in this DSI was: Residential Standard residential lot, for single dwelling sites with gardens, including homegrown produce consumption (10 per cent).

$SCSs_{(health)}$, have two functions:

1) Health-based trigger values - $SCSs_{health}$, represent a human health risk threshold above which:
   a) The effects on human health may be unacceptable over time,
   b) Further assessment of a site is required to be undertaken.
2) Remediation targets - $SCSs_{health}$, represent the maximum concentrations of contaminants at or beneath which land is considered 'safe for human use' and the risk to people is considered to be acceptable.

5.4 BACKGROUND CONCENTRATIONS

Predicted Background Concentration (PBC) estimates of the background concentration (mg/kg) of arsenic, cadmium, chromium, copper, lead, nickel and zinc across New Zealand are available by Landcare Research on the Land Resource Information Systems portal NZ[14]. The effective median, and 95th quantile is calculated based on geological unit classification (Appendix A 3). For Northland, however the numbers of samples these values are based on are limited and it is our understanding that the FNDC do not accept these background figures currently.

[14] https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/

More statistically robust background concentrations are available for volcanic soils for the Auckland region, and these are shown in Appendix A 4 and Tables 1 & 2.

5.5 RESULTS – PRELIMINARY & STAGE ONE SAMPLES ORCHARD AREA

The laboratory tests undertaken show the concentrations of the selected NESCS analytes. The results are summarised in Table 2. All values are mg/kg dry weight. The laboratory report is given in Appendix H.

The laboratory results were compared to the NESCS 2012 soil contaminant guideline values, at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor.

- A total of sixteen systematic samples were collected across the Site in the general orchard area (preliminary and Stage One samples), including two duplicates. One target area was also sampled where collated information showed historic land use may have been different from the remainder of the lot (sample 1203).

- When compared to the NESCS applicable standard residential lot 10% produce (2012), soil chemistry showed all results for well below the applicable guideline value for COI.

Table 2 – Preliminary and Stage One Laboratory Results Historic Orchard Area

General Orchard Area Results all proposed Lots (20/12/22 & 23/03/23)	Total Recoverable Arsenic
	As
All values reported as dry weight	mg/kg
Detection limit	2
572002	4
572003 (not systematic)	5
572004	2
572005	4
572006	<2
572007	6
572008	4
572009	4
572010	3
572011 (dup)	5
1212	3
1213	7
1214	4
1215	4
1216	6
1217	5
1230 (dup)	6
95% UCL (n=14)*#	5
Standard Deviation	1
Maximum	7
Mean*	4
Minimum*	<2
* calculated using nearest w hole number	
NES Soil Guideline Values April 2012	
Residential 10% produce	**20**
Background Auckland Volcanic Soils	0.4 - 12

ProUCL output shown in Appendix I 7

5.5.1 Quality Assurance Orchard Area

- Quality assurance (QA) soil sample 572011 was collected as a duplicate of soil sample 572003. Quality assurance (QA) soil sample 1230 was collected as a duplicate of individual soil sample 1213.

- Quality assurance sampling showed the percentage variability between all samples ranged from 0% - 15%. Variability of less than 30-50% would be considered acceptable with the noted variability between all samples within this range.

5.6 RESULTS – PRELIMINARY & STAGE ONE SAMPLES ARSENIC HOTSPOT

The results are summarised in Table 3. All values are mg/kg dry weight. The laboratory report is given in Appendix H.

The laboratory results were compared to the NESCS 2012 soil contaminant standard values, at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor.

- A total of eleven systematic samples were collected in a 1.5m grid around the location of the door of the glass house / side door of shed, the location of preliminary sample 572001 (including one duplicate).

- When compared to the NESCS applicable standard residential lot 10% produce (NES 2012), soil chemistry showed nine results for systematic samples below the applicable guideline value for arsenic, and two results above the guideline value of 20 mg/kg.

- The extent of the arsenic hotspot area of interest was not fully delineated by Stage One sampling, so additional Stage Two sampling was subsequently carried out.

Table 3 – Preliminary and Stage One Sampling results - Area of Interest

Hotspot arsenic results 20/12/22 & 23/3/23	Total Recoverable Arsenic
	As
All values reported as dry weight	mg/kg
Detection limit	2
1218	10
1219	29
1220	30
1222	12
1223	10
1224	17
1225	16
1226	5
1227	6
1228	7
1229 (dup)	17
NES Soil Guideline Values April 2012	
Rural residential/lifestyle block 25% produce	17
Residential 10% produce	**20**
Background Auckland Volcanic Soils	0.4 - 12

6. STAGE TWO - AREA OF INTEREST

6.1 STAGE TWO SOIL SAMPLING

A total of thirty-one additional samples were collected in the vicinity of the arsenic Area of Interest) during Stage Two sampling which was undertaken on 14 April and 1 May 2023.

- Soils were collected as per the plan using 1.5m grid around the shed / glass house door area.
- Sampling data including soil descriptions is given in Appendix I 1.
- A plan showing sample locations over the arsenic hotspot area of interest is shown in Appendix A 8 (Stage One and Stage Two samples).

6.2 FIELD OBSERVATIONS

A table showing the GPS location and log of sampled soils is shown in Appendix I 1 and I 2.

6.3 RESULTS –STAGE TWO SAMPLES

The laboratory tests undertaken show the concentrations of arsenic in the soil. The results are summarised in Table 4. All values are mg/kg dry weight. The laboratory report is given in Appendix H. The location is shown in Appendix F 8.

The laboratory results were compared to the NESCS 2012 soil contaminant standard values, at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor.

- A total of thirty-one additional systematic samples were collected in the Area of Interest (including three duplicates and five depth samples).
- The laboratory was requested to analyse twenty-two of the samples with the rest held pending results.
- When compared to the NESCS applicable standard residential lot 10% produce (2012), soil chemistry reported all results for Stage Two samples below the applicable guideline value except for arsenic in six samples.
- Stage Two sampling characterised the extent of the arsenic hotspot to an ~6 m x 7 m area proximate to the door of the shed and northern end of the glass house. The depth of the hotspot was confined to <0.4m depth (Appendix A 8)

Table 4 –Stage Two Laboratory Results Arsenic Hotspot Area

Hotspot arsenic results 23/3/23 & 1/5/23	Total Recoverable Arsenic
	As
All values reported as dry weight	mg/kg
Detection limit	2
1231	9
1232 (dup)	25
1233	10
1234	40
1235	10
1236	33
1237	18
1238	29
1239	10
1240 (dup)	26
1241 (0.3 depth)	28
1242 (0.4 depth)	4
1244 (0.4 depth)	4
1246	4
1247	5
1248	8
1249	4
1250	5
1251	5
1252 (dup)	2
1253	2
1261 (dup)	3
NES Soil Guideline Values April 2012	
Residential 10% produce	**20**
Background Auckland Volcanic Soils	0.4 - 12

6.3.1 Statistical Analysis of Results & Quality Assurance

Twenty-eight of the returned results from the systematic sampling undertaken in preliminary sampling, Stage One and Stage Two sampling were used to calculate the mean, standard deviation and 95% concentration of arsenic in the soil in arsenic hotspot Area of Interest (duplicate and depth samples not included). Full results are shown in Table 5.

- The Soil Guideline Value (NESCS 2012) applicable to the residential 10% land use guideline for arsenic is 20 mg/kg.
- The highest concentration of arsenic was 40 mg/kg (sample 1230), not more than two times the applicable guideline value.
- The 95% confidence level was 18 mg/kg, below the applicable SGV of 20 mg/kg.
- Quality assurance sampling showed the percentage variability between duplicate samples was 6% - 40%[15]. Variability of less than 30-50% would be considered acceptable with the noted variability between duplicate samples within this range.

[15] 40% variance between value of 2mg/kg and 3mg/kg. Variance appears elevated due to relative 'smallness' of the reported concentrations which are at or close to the laboratory detection limit of 2mg/kg.

Table 5 –Full results for Arsenic Hotspot Area of Interest

Hotspot arsenic results 20/12/22, 23/3/23, 14/4/23 & 1/5/23	Total Recoverable Arsenic
	As
All values reported as dry weight	mg/kg
Detection limit	2
572001 (preliminary sample 20/12/22)	27
1218	10
1219	29
1220	30
1222	12
1223	10
1224	17
1225	16
1226	5
1227	6
1228	7
1229 (dup)	17
1231	9
1232 (dup)	25
1233	10
1234	40
1235	10
1236	33
1237	18
1238	29
1239	10
1240 (dup)	26
1241 (0.3 depth)	28
1242 (0.4 depth)	4
1244 (0.4 depth)	4
1246	4
1247	5
1248	8
1249	4
1250	5
1251	5
1252 (dup)	2
1253	2
1261 (dup)	3
95% UCL (n=28)#	18
Standard Deviation	11
Maximum	40
Mean*	14
Minimum	2
NES Soil Guideline Values April 2012	
Residential 10% produce	**20**
Background Auckland Volcanic Soils	0.4 - 12

ProUCL results shown in Appendix I 8

7. SOIL DISTURBANCE

Soil Regulation 8(3) of the NESCS does allow for relatively small-scale soil disturbance that may occur on land, such as minor landscaping, foundation excavations, and replacement of underground services, to occur without the need for resource consent (MfE 2011). Providing the requirements around controlling exposure and disposal are met, the disturbance and removal of lower volumes of soil is considered a low-risk activity.

The NESCS requires that:

a) Controls are in place to minimise people's contact (for example, in dust or water) with the soil and kept in place until soil is reinstated.

b) Soil reinstated to erosion resistant state within 1 month (for example, foundations laid, access metalled, grass sown or garden mulched).

c) Integrity of soil containing structures are not compromised.

d) Soil taken to authorised facility regulation 8(3e). The closest is Puwera Landfill.

e) Soil disturbed is less than 25 m^3 (in-situ volume) per 500 m^2 of land per year (not including samples for lab testing).

f) Soil removed is less than 5 m^3 (in-situ volume) per 500 m^2 of land per year.

g) Activity duration less than 2 months.

For this Site:

- Earthworks have not yet been calculated.
- Calculated allowable earthworks volumes as per e) and f) above are tabled in Appendix I 5.
- The 'piece of land' identified as HAIL site under category A.10 comprises 19,000 m2. As such 950 m3 of soil disturbance and 190 m3 of soil removal is permitted per year to meet the requirements of regulation 8(3).
- An estimate for earth disturbance to establish driveway areas to 0.1m depth and 5m width to all proposed Lots comes to ~125 m^3. This is well below the maximum annual allowable volume under regulation 8(3).
- A septic system or septic tank will need to be installed on proposed Lots 2 – 6 if dwellings are established in the future; this may involve ~ 6-8m^3 of earthwork disturbance per Lot (pers. comm., Waipapa Tanks).
- A Site Management Plan is not required.

8. RISK ASSESSMENT

The NESCS identifies contaminants as a problem when the contaminants are at a concentration and a place where they have, or are reasonably likely to have, an adverse effect on human health and the environment (NESCS 2012). The NESCS 2012 further states that a key decider under the NESCS is whether, under the intended land-use, the exposure to soil is reasonably likely to harm human health.

8.1 CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) was developed and shown in Appendix B.

The CSM for 263 Kerikeri Inlet Road, Kerikeri was based on a review of available title information, aerial photographs, the site history, council records, a site inspection and soil sampling results.

Land use on area of investigation at 263 Kerikeri Inlet Road, Kerikeri comprises:

a) Pre 1979	natural or pastoral	-	Consider fertiliser and pesticide use A10.
b) ~1979 - ~1997	Orchard, likely kiwifruit	-	Consider fertiliser and pesticide use A10. Leaching from timber infrastructure I
c) 1997 - present	Pastoral, home citrus orchard and small glasshouse	-	Consider fertiliser and pesticide use A10. Leaching from timber infrastructure or stored timber I

The current potential pathways and/or receptors identified include direct dermal contact with chemicals in soil through play or contact with soil during maintenance, crop uptake of chemicals from soil leading to ingestion and dermal contact or dust inhalation associated with earthworks (Appendix B).

No priority pathways were identified such as pipelines. A pond is present, but it does not drain off the property.

8.2 CONTAMINANT CHARACTERISATION

This DSI was undertaken to characterise the extent of any elevated COI within the soil on Lot 1 DP 79774. Soil sampling across the historic orchard area returned results well within the applicable residential 10% guidelines indicating that the soil would not be considered as contaminated from past HAIL land use under the NESCS (Table 2). This covers locations of proposed Lots 2, 3, 4, 5 & 6.

It was assessed that the likelihood of a contaminant source on proposed Lots 2, 3, 4, 5 & 6 is low and any consequence minor. As such it was assessed that the likelihood that any contaminant poses a risk to any receptor is low.

Soil sampling carried out in a grassed-lawn area in the vicinity of the glass house door / shed door on proposed Lot 1 returned some results for arsenic above the applicable residential 10% guideline value (Table 5). A maximum area of 42 m^2 of elevated arsenic, confined to within 0.4m of the surface was characterised. This area was conservatively measured to the nearest clear samples. The heterogeneous nature of the arsenic in this

area and variable depth suggest it is likely sourced from imported material rather than from leaching from material stacked on the surface or escaped from glass house or shed. An aerial photograph taken in 2009 shows some pale material in that vicinity which may be the source material (Appendix E 8), however this was not further investigated.

The Area of Interest (elevated arsenic) is situated well away from the existing residence on proposed Lot 1 and is located in grassed lawn between the shed and some citrus trees. A study carried out for the US National Library of Medicine in 2020 on the uptake of heavy metals including arsenic in crops including citrus found that " *for the tree species analyzed, we found that the edible fruit tissue did not accumulate heavy metals and arsenic …. which is consistent with other studies' [16]*.

Statistical analysis of the arsenic results in the hotspot area of interest indicate that the soil would not be considered as contaminated from past HAIL land use under the NESCS[17] (Appendix I 8).

The contaminants are not at a concentration and a place where they have, or are reasonably likely to have, an adverse effect on human health and as such it was assessed that the likelihood that any contaminant poses a risk to any receptor is low.

8.3 RISK SUMMARY

The risk to human health at 263 Kerikeri Inlet Road (Lot 1 DP 79774) is assessed in the context of the proposed site use; that of residential land use.

- Soils disturbance volumes associated with the subdivision are below the regulation 8(3) requirements.
- The concentrations of COI are not considered to exceed the applicable guideline values under the NESCS regulations.
- A review of the Conceptual site model shows there is no source contamination and as such the source – receptor - pathway linkages are incomplete.
- Pursuant to regulation 9 (3)(b) - *it is demonstrated that soil contamination does not exceed the applicable standard in regulation 7*.

[16] Cooper et al, 2020 – Monitoring and Mitigation of toxic heavy metals and arsenic accumulation in food crops: A case study of an urban community garden.
[17] Contaminated land management guidelines No 5: Site investigation and analysis of soils, section 7.4.2

9. DISCUSSION

This DSI was undertaken to determine if soil within the identified 'Piece of Land' at 263 Kerikeri Inlet Road (Lot 1 DP 79774) is contaminated, and information contained within this report is considered appropriate to the nature of the proposed activity, the level of certainty and availability of information about the past use of the land, the contaminants present (or potentially present), and the level of risk posed.

The information collated in this DSI indicates the following results:

- The land has a history of pastoral use and orcharding (likely kiwifruit).
- The Site is not listed on the NRC Selected Land Use Register.
- The HAIL category on the Piece of Land were identified as *A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.*
- Category *I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment* was not considered applicable as HAIL category A10 applies and contaminants on the land and soil are not considered to be above the applicable soil contaminant standard and guideline value for the land[18].
- The 'Piece of Land' identified as HAIL site under category A.10 comprises 19,000 m^2. As such 950 m^3 of soil disturbance and 190 m^3 of soil removal is permitted per year to meet the requirements of Section 6 above (regulation 8(3)).
- Earthworks disturbance volumes as part of the subdivision have not been calculated but an estimated 125 m^3 could be required over the whole Site to form driveways to 0.1 m depth[19] and 5 m width as per site plan (Appendix A 1). This is well below the regulation 8(3) volume for the existing Lot. Soil will not be removed from the Site.
- During Preliminary and Stage One sampling a total of thirty samples were collected in soils at the Site. As per the identified contaminants of interest, metals and pesticides were analysed by Hill Laboratories.
- An additional thirty samples were collected in soils during Stage Two sampling with nine held pending results. Total recoverable arsenic was analysed by Hill Laboratories.
- The applicable standard is Residential. Standard residential lot, for single dwelling sites with gardens, including homegrown produce consumption (10 per cent).
- The soil chemistry analyses show all individual results to be below the applicable guideline value except for arsenic in nine samples located in an area of interest (arsenic hotspot) near the existing shed / glass house.
- Statistical analysis of the results of soil samples located in area of interest show the concentrations of arsenic is not considered to exceed the applicable guideline values for NESCS purposes.

[18] Hazardous Activity and Industries List guidance; Identifying HAIL Land, page 279.
[19] BRANZ recommended depth for concrete driveway.

- A review of the conceptual site model following this investigation shows that the source – exposure – receptor linkages are incomplete, and no source contamination is considered to be present under the NESCS.

10. CONCLUSIONS

A study of the history of the land, including sampling and analysis of the soils, on 263 Kerikeri Inlet Road (Lot 1 DP 79774) was undertaken in December 2022 and March, April and May 2023.

- The data set is appropriate for statistical calculations as per Contaminated Land Management Guideline No.5 (2021) Appendix G.
- The 95% upper confidence limit of the data set is below the guideline value.
- No individual result in the data set is more than twice the applicable standard.
- The QA/QC replicate assessment indicates the data is suitable for the purposes of the investigation.

As such soil contamination does not exceed the applicable standard for NESCS purposes (Contaminated Land Management Guidelines No.5, (2021) 7.4.2).

As per regulation 9 (3)(b) - *it is demonstrated that soil contamination does not exceed the applicable standard in NESCS regulation 7.*

- Therefore, it is highly unlikely that the proposed subdivision and associated soil disturbance undertaken (within permitted guidelines) as part of the proposed residential use of 263 Kerikeri Inlet Road (Lot 1 DP 79774) poses a risk to human health.
- The proposed subdivision can be assessed as a Controlled Activity.

11. REPORT LIMITATIONS

This DSI report was carried out to characterise soil chemistry on 263 Kerikeri Inlet Road (Lot 1 DP 79774) was as per subdivision plan (Appendix A 1).

The laboratory test results provide an approximation of the concentration of the analytes tested in the soil and are subject to the limitations inherent to the laboratory techniques used.

The information in this document is based on publicly available documents which were presumed to be accurate. Past landowners were not interviewed as the most recent owners had passed away and the client asked that the previous owner not be interviewed for privacy reasons.

With time the site conditions and applicable environmental standards may change and as such the report conclusions may not apply at a future date.

Any future land use change on the area of existing Lot 1 DP 79774 may require further investigation.

NZ Environmental Management will not be held liable for any future discovery of isolated hot spots or discharge unknown at the time of sampling, such as buried drums of chemicals.

12. SQEP CERTIFICATE OF REPORT

DETAILED SITE INVESTIGATION CERTIFYING STATEMENT

I, Tricia Scott of NZ Environmental Management Ltd, certify that:

1. This Detailed Site Investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the NESCS) because it has been:

- done by a suitably qualified and experienced practitioner, and
- done in accordance with the current edition of Contaminated land management guidelines No 5 – Site investigation and analysis of soils, and
- reported on in accordance with the current edition of Contaminated land management guidelines No 1 – Reporting on contaminated sites in New Zealand, and
- the report is certified by a suitably qualified and experienced practitioner.

2. This detailed site investigation concludes that:

> For activities under R9 of the NESCS (controlled activity)] does not exceed the applicable standard in Regulation 7 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and certified this report is appended to this detailed site investigation report (Appendix J).

Signed and dated:  19 May 2023

13. BIBLIOGRAPHY & REFERENCES

ARC Technical Publication #153, 2001. Background Concentrations of Inorganic Elements in Soils from the Auckland Region.

Cooper AM, Felix D, Alcantara F, Zaslavsky I, Work A, Watson PL, Pezzoli K, Yu Q, Zhu D, Scavo AJ, Zarabi Y, Schroeder JI, 2020. Monitoring and mitigation of toxic heavy metals and arsenic accumulation in food crops: A case study of an urban community garden.

Gaw SK, Kim ND, Wilkin AL and Palmer GT, 2013. Contaminated Horticultural Land, a Developing Issue for New Zealand. Joint publication by Auckland District Health Board, University of Waikato, Environment Waikato.

Far North District Council Maps. https://www.fndc.govt.nz/Our-Services/Online-maps/Far-North-Maps

GNS Science Te Pū Ao, New Zealand Geology Web Map. https://data.gns.cri.nz/geology/

Land Resource Information Portal (LRIS). https://lris.scinfo.org.nz/

Manaaki Whenua Landcare Research. New Zealand Soil Classification. https://soils-maps.landcareresearch.co.nz/

Ministry for the Environment, 2011. Hazardous Activities and Industries List (HAIL). 2011. Ministry for the Environment, Wellington.

Ministry for the Environment, 2021. Contaminated Land Management Guidelines No. 5. Site Investigation and Analysis of Soils (Revised 2021). Wellington. Ministry for the Environment,

Ministry for the Environment. April 2012. Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.

Ministry for the Environment. April 2011. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Wellington: Ministry for the Environment.

Ministry for the Environment, 2021. Contaminated Land Management Guidelines No. 1. Reporting on Contaminated Sites in New Zealand (Revised 2021). Wellington: Ministry for the Environment.

Ministry for the Environment, 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.

Ministry for the Environment, 2011. Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Revised 2011). Module 4 Tier 1 soil acceptance criteria. Wellington: Ministry for the Environment.

Ministry for the Environment. 2023. Hazardous Activities and Industries List guidance: Identifying HAIL land. Wellington: Ministry for the Environment.

Northland Regional Council Local Maps. https://localmaps.nrc.govt.nz/LocalMapsGallery/

NSW Environmental Protection Agency, 1995. Contaminated Sites. Sampling Design Guidelines.

Northland Regional Council, Managing Northland Soils factsheet viewer. https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=fd6bac88893049e1beae97c3467408a9

Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to protect Human Health) Regulations 2011. Order In Council, 2011. Wellington.

Pattle Delamore Partners Ltd, 2007. Contamination of Horticultural Land in Canterbury – A Scoping Study. Retrieved from: www.ecan.govt.nz/publications/Reports/contamination_horticultural_land_scoping_study_U0680.pdf

Begbie M, Wright J, Rait, R, 2018. Waikato Regional Council Technical Report 2018/11. Making good decisions; Risk characterisation and management of CCA post hotspots at vineyards and kiwifruit orchards.

14. GLOSSARY

Area of Interest — An area or target within the piece of land identified as having hazardous substances on or in it at elevated levels or above background. Reported concentrations are at or below the soil contaminant standards for the applicable land use scenario with in-situ soils unlikely to pose a risk to human health. May require further investigation, management, or remediation for more conservative land use scenarios (largely applicable to soil removal offsite).

Area of Investigation — Location within a Piece of Land upon which there is a proposed change in land use.

Control Area — An investigated and defined area of contaminated soil on a piece of land, with hazardous substances in or on it that are above the soil contaminant standards for the applicable land use scenario and where the contaminants are reasonably likely to have adverse effects on the human health. The control area is reported as an area requiring remediation or management.

COI — Contaminants of Interest

CSM — Conceptual Site Model

DOC — Department of Conservation

DSI — Detailed Site Investigation

FNDC — Far North District Council

HAIL — Hazardous Activities and Industries List

mg/kg — Milligrams per kilogram

NES — National Environmental Standard

NESCS — Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

NZKGI — New Zealand Kiwifruit Growers Incorporated

NZMS — New Zealand Map Series

NRC — Northland Regional Council

OCP — Organochlorine Pesticides

Piece of Land — The NESCS applies to any “piece of land” on which an activity or industry described in the current edition of the Hazardous Activities and Industries List (HAIL) is being undertaken, has been undertaken or is more likely than not to have been undertaken (see regulation 5(7)).

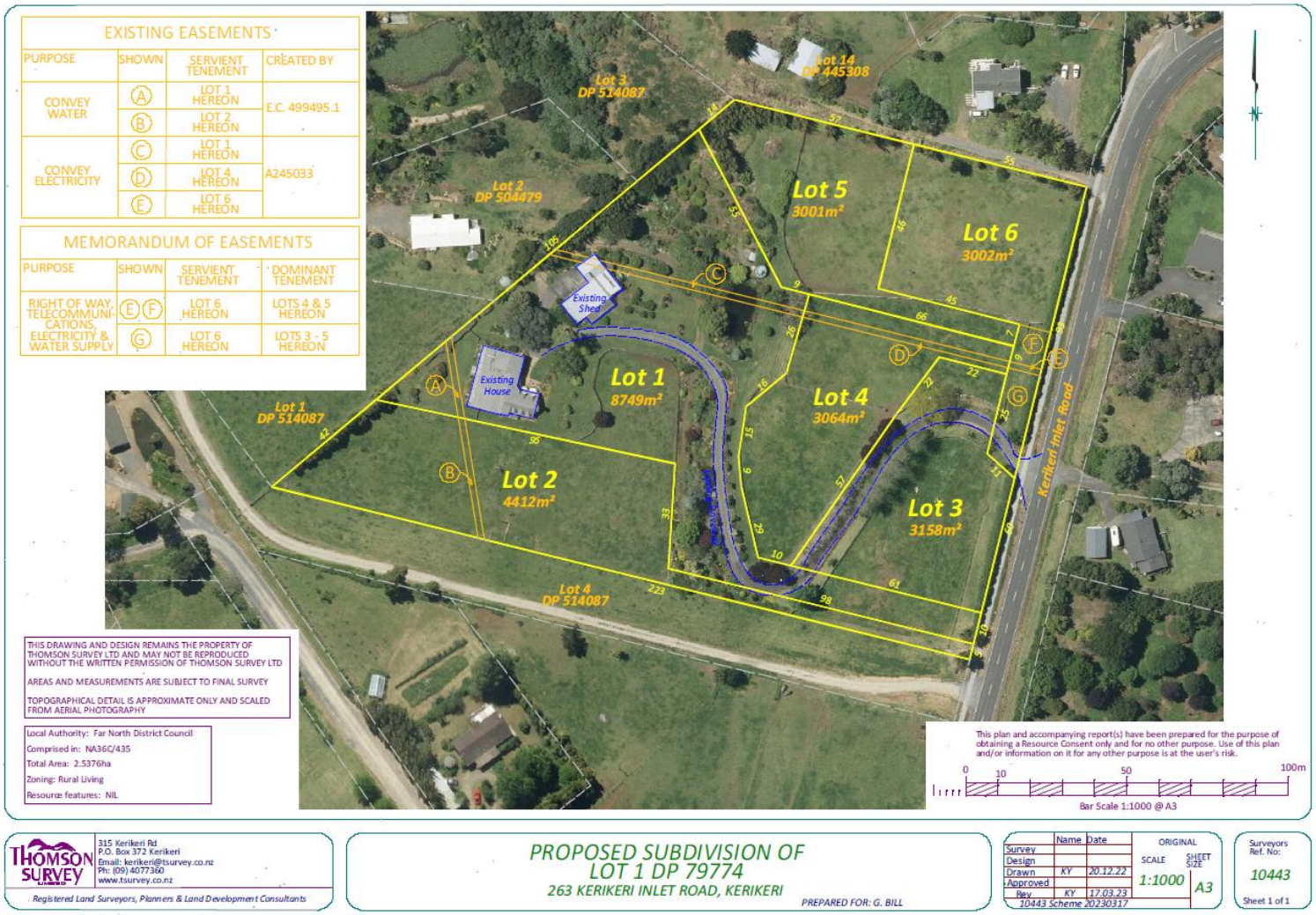
PSI — Preliminary Site Investigation

ppm — Parts per million

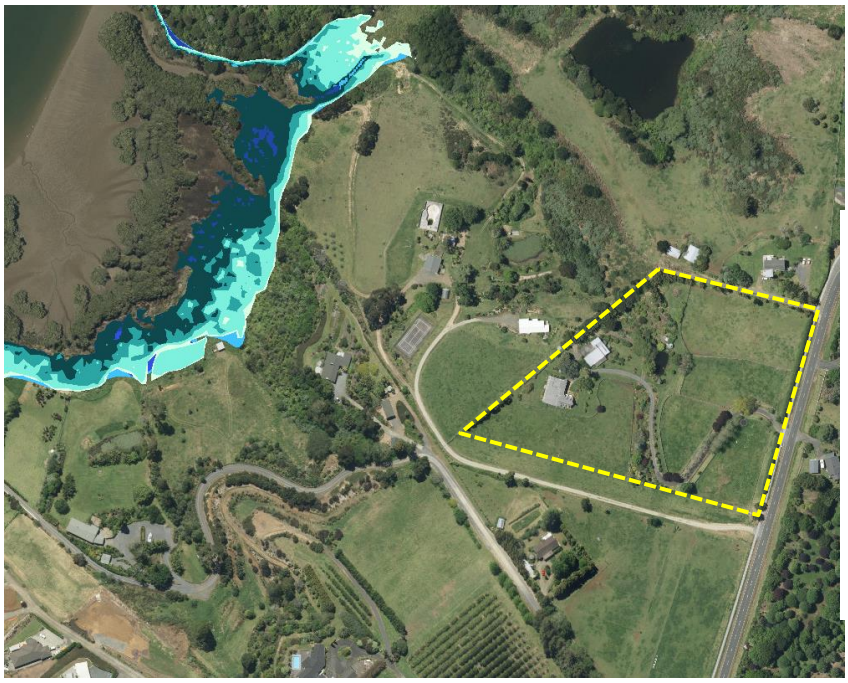
ppb — Parts per billion

RAP	Remediation Action Plan
SVR	Site Validation Report
Target Area	An area or target within the piece of land identified as potentially having hazardous activities or industries resulting in contaminants to be present at elevated levels or above background.
UCL	Upper Confidence Limit

APPENDIX A
Figures



A 1 – Subdivision Scheme Plan



River Flood Hazard Zone 1 - one-in-10-year flood extent: an area with a 10% chance of flooding annually

River Flood Hazard Zone 2 - one-in-50-year flood extent: an area with a 2% chance of flooding annually

River Flood Hazard Zone 3 - one-in-100-year flood extent: an area with a 1% chance of flooding annually

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

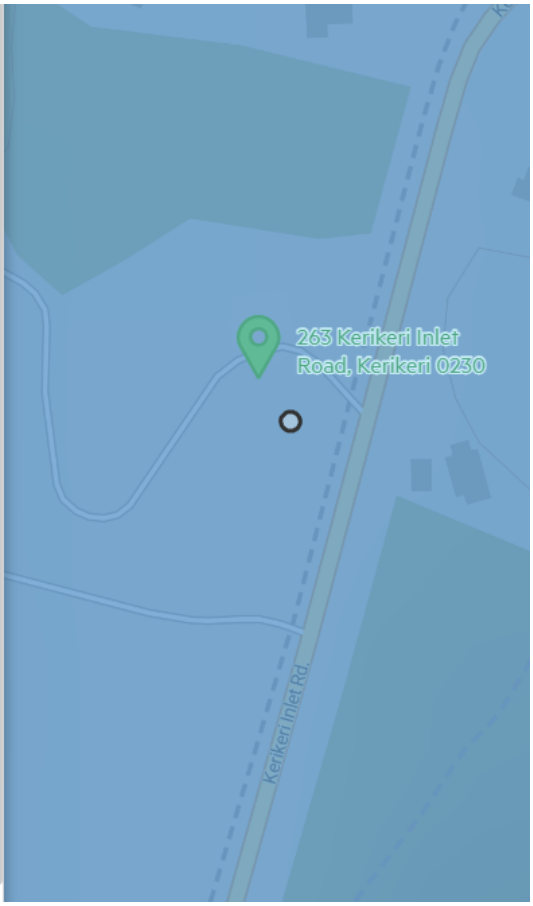
Coastal Flood Hazard Zone 1 - an area susceptible to coastal inundation (flooding by the sea) in a 1-in-50 year storm event, taking into account projected sea-level rise over the next 50 years

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

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

A 2 – NRC flood map

Chemical4a	basalt
Area_km2	5339.104805
As_n	41
As_Medpred	2.12
As_U95pred	8.87
Cd_n	18
Cd_Medpred	0.101
Cd_U95pred	0.51
Cu_n	35
Cu_Medpred	25.27
Cu_U95pred	108.3
Cr_n	76
Cr_Medpred	26.56
Cr_U95pred	128.5
Pb_n	52
Pb_Medpred	15.5
Pb_U95pred	56.34
Ni_n	72
Ni_Medpred	13.74
Ni_U95pred	77.43
Zn_n	20
Zn_Medpred	71.29
Zn_U95pred	295.8



A 3 – Predicted Background Soil Concentrations – Basalt Soil

Element (Total Recoverable)	Non-Volcanic Range	Volcanic Range
Arsenic (As)	0.4 – 12	
Barium (Ba)	8 – 350	
Boron (B)	2 - 45	<2 – 260
Cadmium (Cd)	< 0.1 – 0.65	
Chromium (Cr)	2 – 55	3 – 125*
Cobalt (Co)	0.2 – 35	10 – 170
Copper (Cu)	1 – 45	20 – 90
Lead (Pb)	< 1.5 – 65*	
Magnesium (Mg)	470 – 10,300	190 – 76,600
Manganese (Mn)	10 – 2,500*	
Mercury (Hg)	<0.03 – 0.45	
Nickel (Ni)	0.9 – 35	4 – 320
Nitrogen (total, N)	300 – 8,500	
Phosphorus (P)	75 – 1,220	245 – 3,730
Potassium (K)	220 – 3,660	
Sulphur (S)	85 – 2,300	
Tin (Sn)	< 0.7 – 4*	
Vanadium (V)	8 – 160*	15 – 370
Zinc (Zn)	9 – 180	54 – 1,160
Total Organic Carbon (TOC)	0.6 – 14%	

Notes:
1. Background ranges for major elements (N, P, S, TOC) include statistical outlier and extreme values outside the non-outlier volcanic soil range. All other elements do not include values obtained that were statistical outliers or extremes outside the non-outlier volcanic soil range.
2. *Work suggests special cases have been found to apply for Tl Point Basalts (Cr), Mt Smart Volcanics (Pb, Sn), Franklin Basalts (Sn), and Awhitu-type Mineral Sands (Mn, V) and as such these lithologies need to be considered individually.

A 4 – Background Soil Concentrations – Volcanic Soil in Auckland Region (Table 3 from ARC technical publication No. 153, October 2001).

A 5 – Piece of Land outlined in red

A 6 GPS located preliminary sampling (Dec 2022)

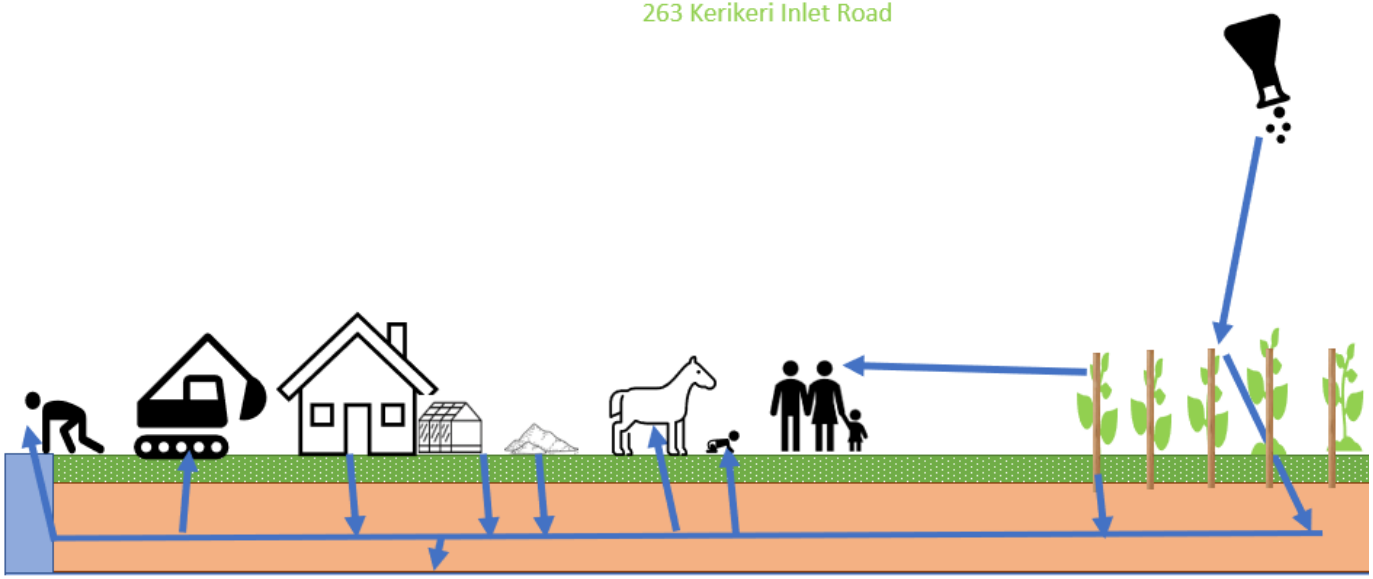
A 7 GPS located Stage One sampling locations (Dec 2022 and March 2023) - excluding arsenic hotspot area of interest

A 8 GPS located sampling locations arsenic area of interest

APPENDIX B
Conceptual Site Model

Conceptual Model contemporary & historic land-use (pre-investigation)

263 Kerikeri Inlet Road



- Historic use of chemical sprays and fertiliser to kiwifruit crop to soil or groundwater
- Historic leaching from kiwifruit infrastructure to soil or groundwater
- Uptake of COI in ground by crops => ingestion
- Accidental ingestion of COI from soil during play or maintenance
- Dermal contact with COI from soil during play or maintenance
- Dermal contact or ingestion with COI in pond water (sourced from soil)
- Inhalation of COI in dust associated with earthworks
- Use of chemical within glasshouse leaching to soil or groundwater
- Accidental release of COI to ground from imported material or from within shed

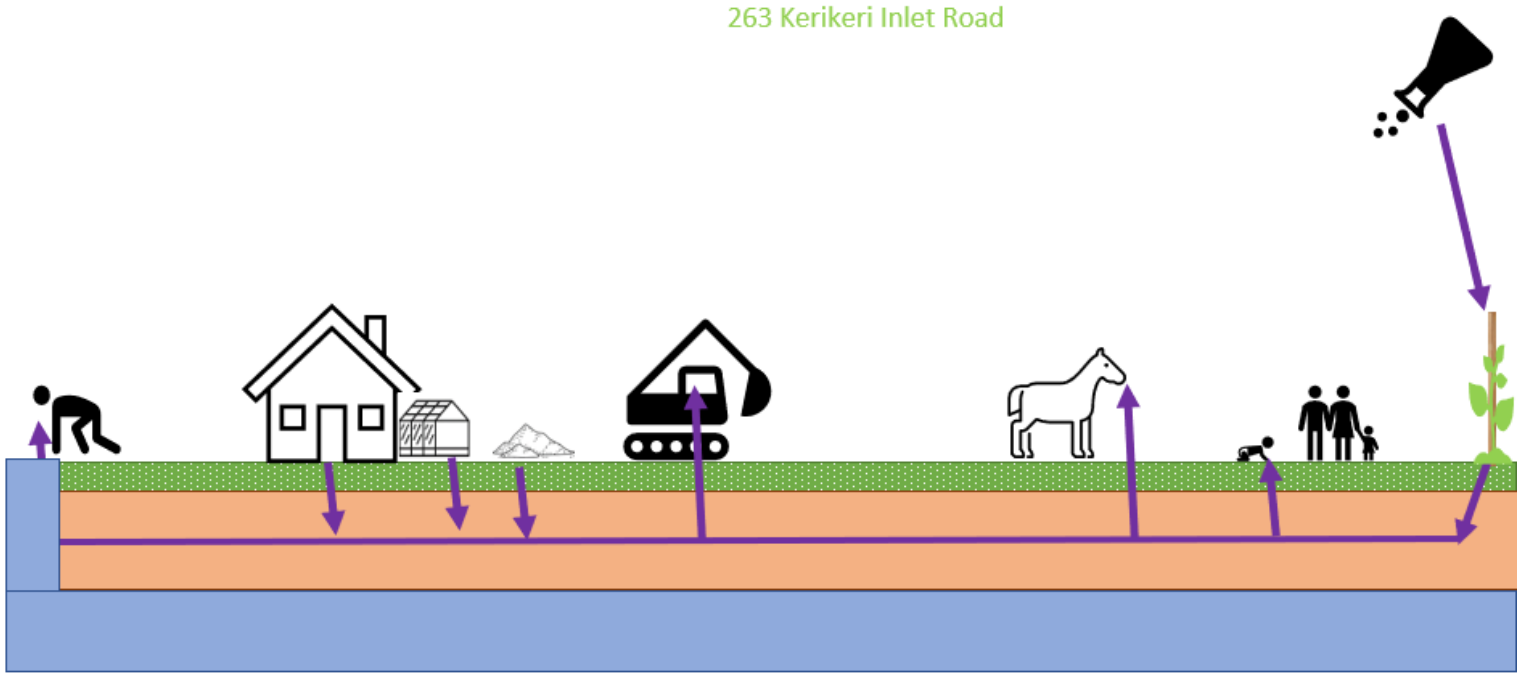
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete
- Potentially complete

Complete pathway

Incomplete pathway

Conceptual Model present and proposed land use (post Investigation)

263 Kerikeri Inlet Road



• Historic use of chemical sprays and fertiliser to kiwifruit crop to soil or groundwater	• Incomplete within applicable guideline values
• Historic leaching from kiwifruit infrastructure to soil or groundwater	• Incomplete within applicable guideline values
• Uptake of COI in ground by crops => ingestion	• Incomplete within applicable guideline values
• Accidental ingestion of COI from soil during play or maintenance	• Incomplete within applicable guideline values
• Dermal contact with COI from soil during play or maintenance	• Incomplete within applicable guideline values
• Dermal contact or ingestion with COI in pond water (sourced from soil)	• Incomplete within applicable guideline values
• Inhalation of COI in dust associated with earthworks	• Incomplete within applicable guideline values
• Use of chemical within glasshouse leaching to soil or groundwater	• Incomplete not considered contaminated under NESCS
• Accidental release of COI to ground from imported material or from within shed	• Incomplete not considered contaminated under NESCS

Complete pathway

Incomplete pathway

APPENDIX C
Land Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

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

R.W. Muir
Registrar-General
of Land

Identifier	**NA36C/435**
Land Registration District	**North Auckland**
Date Issued	04 April 1977

Prior References
NA9C/1344 NA9C/1345

Estate	Fee Simple
Area	2.5376 hectares more or less
Legal Description	Lot 1 Deposited Plan 79774
Registered Owners	
Georgian Lodge Limited	

Interests

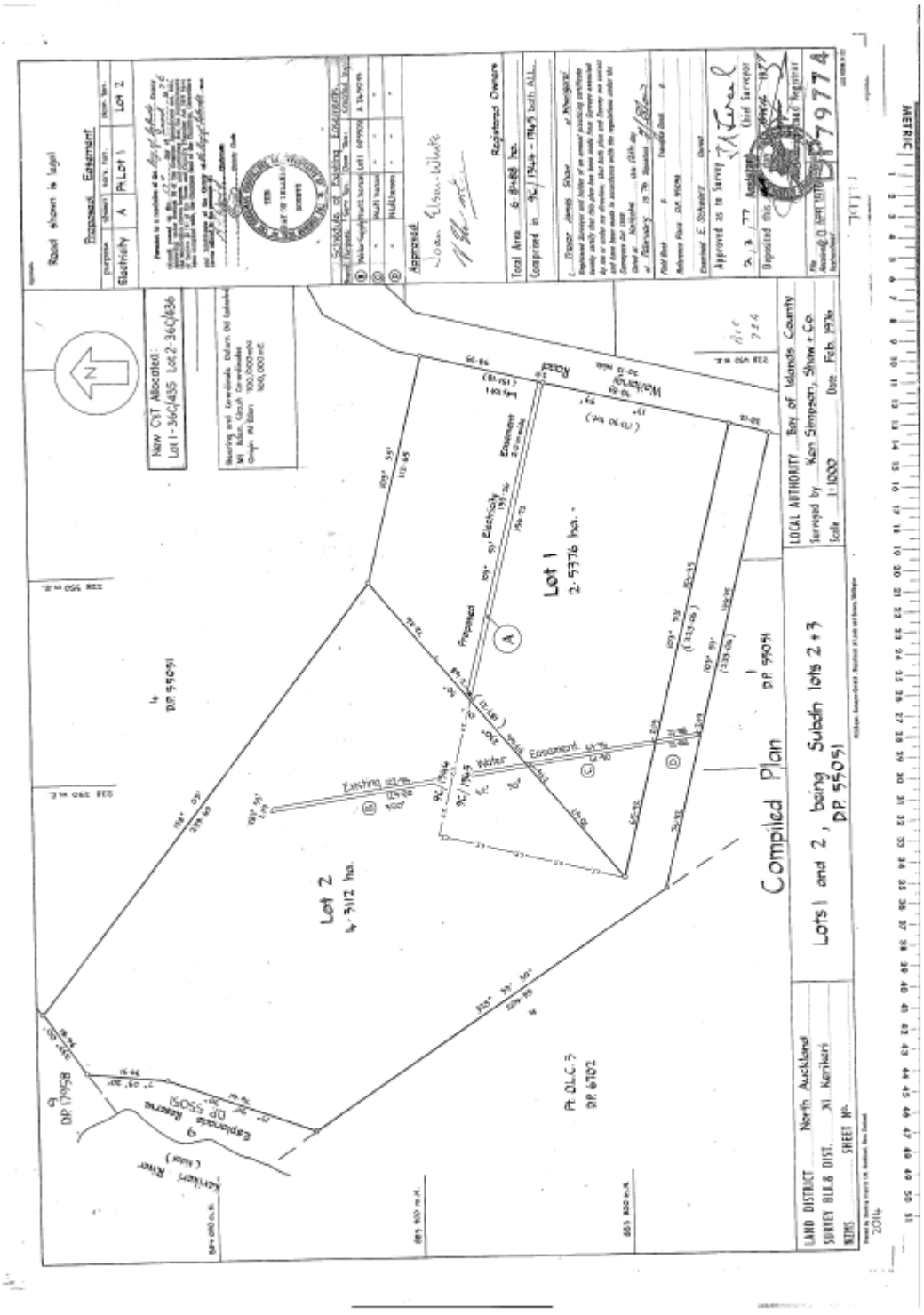
Subject to a water right over part marked C on DP 79774 created by Transfer A245033

Subject to an electricity right over part marked A on DP 79774 specified in Easement Certificate 499495.1 - 8.8.1979 at 2.10 pm

Transaction ID 330536
Client Reference

Guaranteed Search Copy Dated 13/12/22 11:16 am, Page 1 of 2
Register Only

Identifier **NA36C/435**



APPENDIX D
NRC Selected Land Use Register

Regarding 263 Kerikeri Inlet Road, Kerikeri, being Lot 1 DP 79774.

The property that you have enquired about is not listed on the NRC Selected Land-use Register (SLR) for any current or historical Hazardous Activities and Industries List (HAIL) activities. Please note that the SLR is not a comprehensive list of all sites that have a HAIL land use history. It is a live record and therefore continually being updated.

There are two environmental incidents recorded on the property, both relating to burning and smoke nuisance. It is unclear from the records whether the incident locations are where the fires were or not.

Logged Date	IRIS ID	Request Subject	Description
18/09/2008	REQ.417377	Burning and smoke nuisance	Large vegetation fires causing smoke blanket
17/10/2012	REQ.424047	Burning and smoke nuisance	Smoke nuisance from neighbouring property

There are no resource consents recorded on the property.

NRC has aerial images of the site for the following years that can be provided upon request: 1978, 2000, 2007, 2009, 2010, 2015.

As per Rule C.6.8.1 of the Proposed Regional Plan for Northland, copies of site investigation reports, where land disturbance has occurred, must be provided to the regional council within three months of completion of the investigation. Reports can be sent to contamination@nrc.govt.nz

Kind regards,
Heather

Ngā mihi

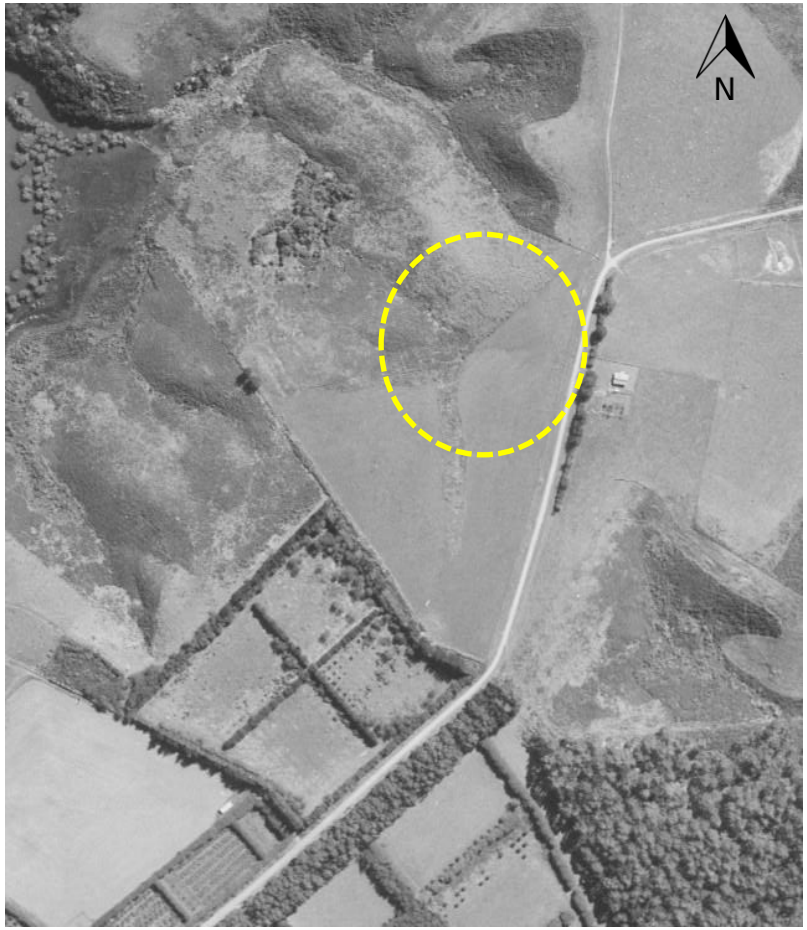
Heather Giles
Environmental Monitoring Officer – Waste Management
Northland Regional Council » Te Kaunihera ā rohe o Te Taitokerau

P 09 470 1210 ext 9212
M 027 615 3952

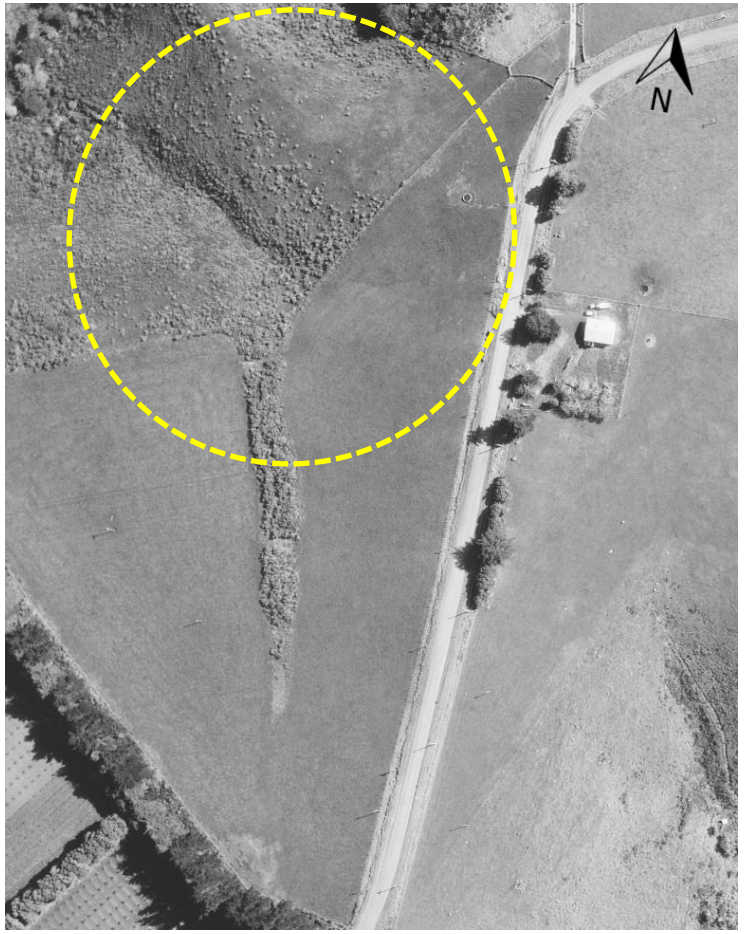
Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

P 0800 002 004 **» W** www.nrc.govt.nz

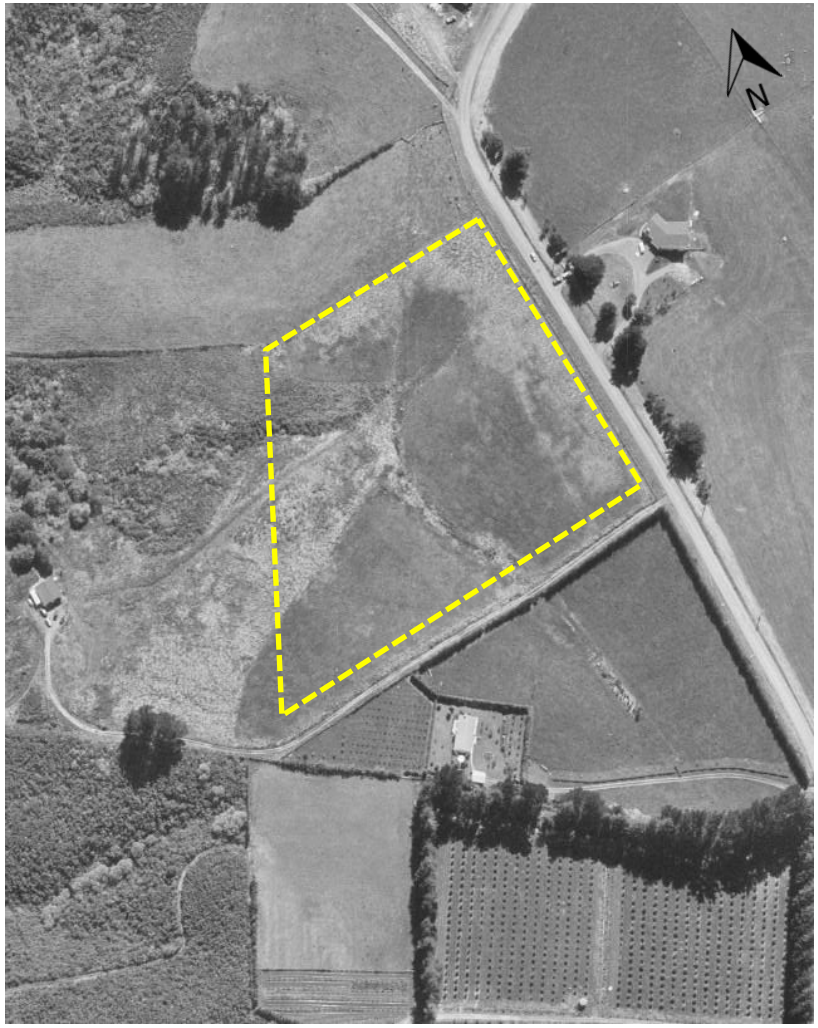
APPENDIX E
Aerial Photographs and Documents



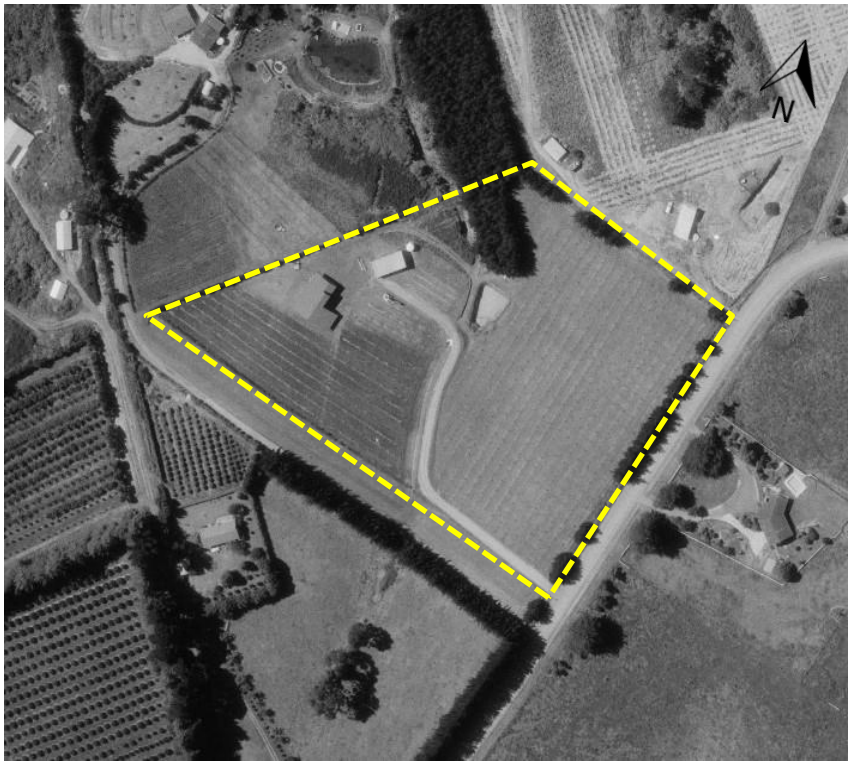
E 1 Aerial view taken 1951 with location of site indicated (Source Retrolens)



E 2 Aerial view taken 1965 with location of site indicated (Source Retrolens)



E 3 Aerial view taken 1972 (Source Retrolens)

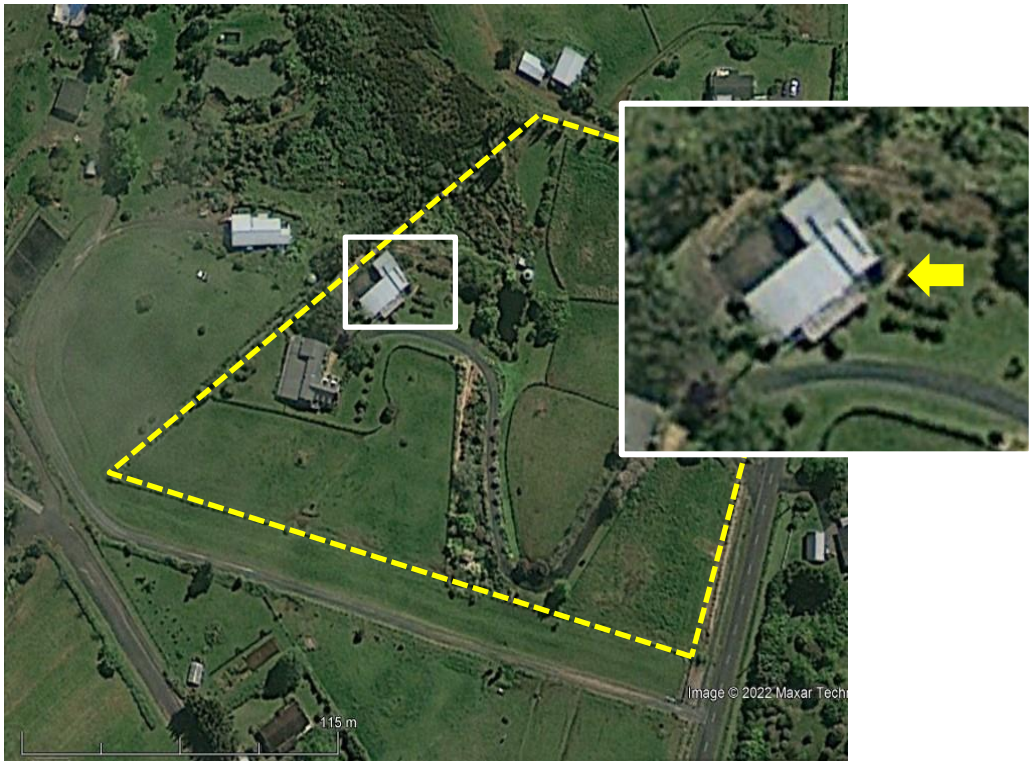


E 4 Aerial view taken 1980 (Source Retrolens)

E 5 Aerial view taken 1981 (Source Retrolens)

E 6 Aerial view taken 2000 (Source LRIS)

E 7 Aerial view taken 2003 (Source Google Earth)



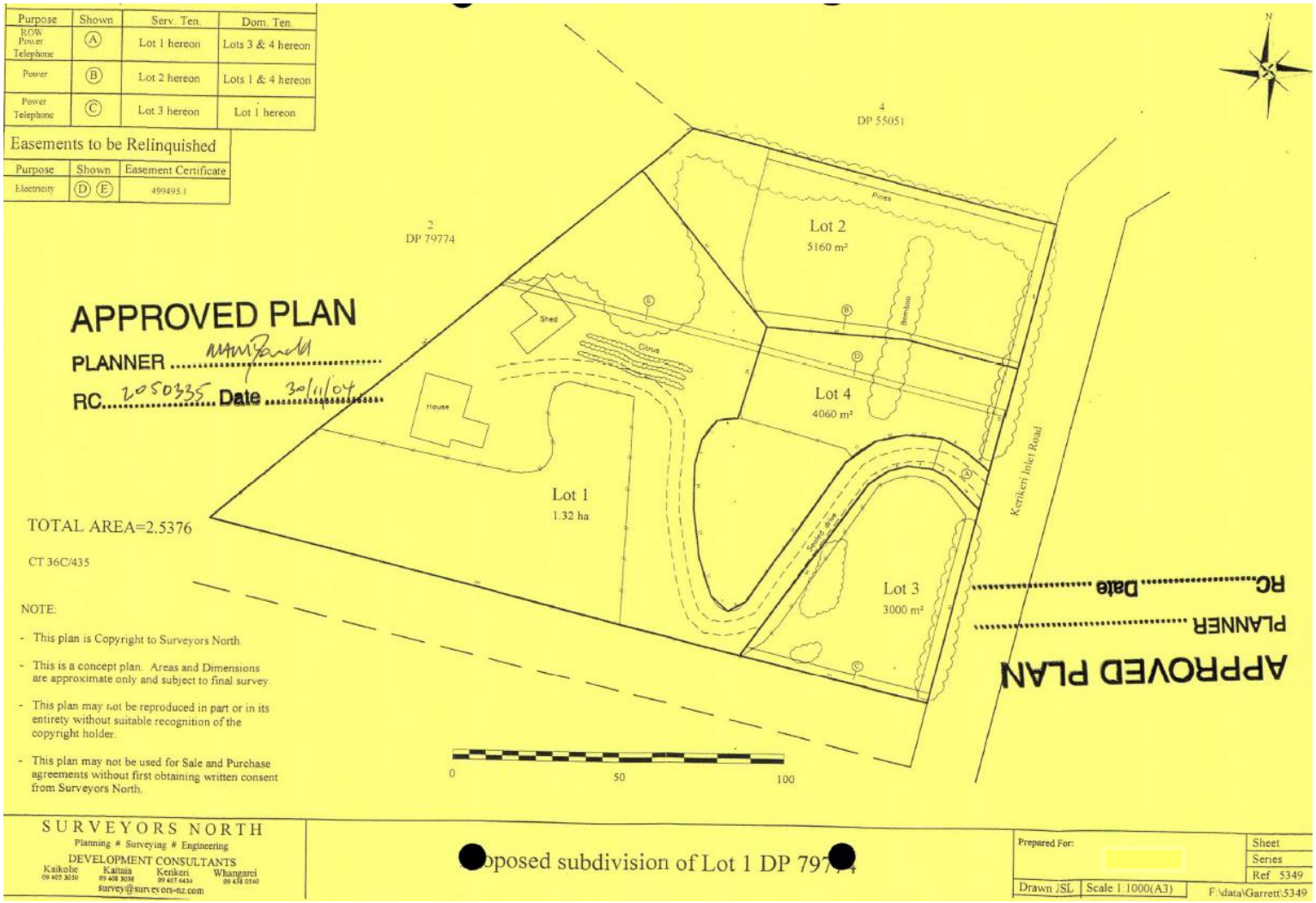
E 8 Aerial view taken 2009 (Source Google Earth)

E 9 Aerial view taken 2016 (Source Google Earth)

E 10 Aerial view taken 2022 showing indicative drainage patterns (Source Google Earth)

Year of photograph	Landuse on site	HAIL category
1951	Pastoral & scrubland	
1965	Pastoral & scrubland	
1972	Pastoral & scrubland	
1980	Residence/shed and orchard with pond (empty)	A 10, I
1981	Residence/shed and orchard with pond (full)	A 10, I
2000	Residence/shed and pasture	
2003	Residence/shed and pasture	
2009	Residence/shed and pasture	
2016	Residence/shed and pasture	
2022	Residence/shed and pasture	

E 11 Summary of Aerial photographs



E 12 Subdivision plan dated 2004 showing location of citrus. No other orchard indicated.

APPENDIX F
Site Photographs

Plate no. F1	**Date: 20/12/22**
Description: Looking north-west across the site from Kerikeri Inlet Road. Residence and shed in background.	

Plate no. F2	**Date: 20/12/22**
Description: Pastoral area, Looking north-west from driveway near entrance.	

Plate no. F3	**Date: 20/12/22**
Description: Pond and gazebo.	

Plate no. F4	**Date: 20/12/22**
Description: Glasshouse off east side of shed.	

Plate no. F5	**Date: 20/12/22**
Description: Paved west side of shed.	

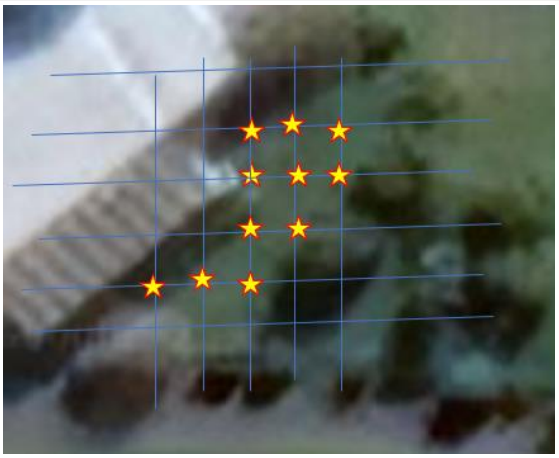
Plate no. F6	**Date: 20/12/22**
Description: Residual citrus trees located to east of shed.	

Plate no. F7	**Date: 20/12/22**
Description: Pastoral area to south and east of residence.	

Plate no. F8	**Date: 1/5/23**
Description: Delineated arsenic hotspot area of interest (primarily area of unmown grass).	

APPENDIX G
Sampling and Analysis Plan

Sampling and Analysis Plan - Job # 202312			Date: 23/3/23					
Site Location:	Address:		Grid Reference:					
	263 Kerikeri Inlet Road		(-35.21888 173.978382)					
Objectives:	Investigation Objectives: to identify if any contaminat present on lot at concentration with pose a risk to human health derived from past land use of orchard and home glasshouse use.							
	Sampling Objectives: characterise concentration of arsenic in soil							
Site History:	pastoral, orchard (kiwifruit)1980 - pre 2000. pastoral since pre 2000.							
Current Landuse:	Residential /lifestyle							
Intended Landuse:	Residential							
CSM Summary: Refer CSM:	Source		Pathway		Receptor			
	chemical used on kiwifruit orchard or in glasshouse, leaching from CCA treated infrastructure		play, contact with soil through gardening and maintenance and construction, produce ingestion, (dust during earthworks)		Adult worker, adult resident, child resident			
Media investgated:	soil							
Analytes:	TR Arsenic							
Reference Background Concentration:	Cavanagh, J E, 2016. User Guide: Background soil concentrations and soil guidelinevalues for the protection of ecological receptors (Eco-SGVs) –Consultation Draft							
	https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/							
Number of samples - statistical spacial sampling:	$G = \frac{R}{0.59}$ (1) $N = \frac{A}{G^2}$ (2) *	G=	22 / 0.59		N=	19000 / 1390	Number of sampling points=	13
Sampling Pattern:	Stratified							
Sample Depths:	Surface plus 1 x depth							
Composites:	None							
Quality Assurance/Quality Control:	1 x systematic plus 1 x hotspot systematic (1 collected during prelim sampling)							
Sampling Method & Equipment:	shovel & auger							
	Additional detail:							
Decontamination:								
	Spade/auger:	As per section 5.3 Contaminated land management guidelines No 5, 2021						

Soil Investigation Design Plan: General orchard area sampling				
	Preliminary sample sites collected December 2022			
	DSI sample locations			
Soil Investigation Design Plan: Hotspot sampling locations				
	1.5m grid around location of prelim sample number 1			
Sampling preferred order:	greater systematic no order required. Hotspot systematic, work toward entrance of glasshouse			
Lab Details:	Name of Lab: Hill	Containers required: PSoil250	Analysis required: TR Arsenic	Other:

APPENDIX H
Laboratory Results and Chain of Custody Documentation

Hill Laboratories
TRIED, TESTED AND TRUSTED

ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Job No: **314 2018**
Date Recv: 21-Dec-22 06:14
Received by: David Manson

CHAIN OF CUSTODY RECORD

Quote No 121697

Primary Contact Heather Windsor 293087

Submitted By Heather Windsor 293087

Client Name NZ Environmental Management Limited 293085

Address 350 Kerikeri Road, Kerikeri 0230

Phone Mobile 021 075 1959

Email

Charge To NZ Environmental Management Limited 293085

Client Reference Georgian Lodge

Order No

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.
☐ Email Primary Contact ☐ Email Submitter ☐ Email Client
☐ Email Other
☐ Other
Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

Sent to Hill Laboratories
☐ Tick if you require COC to be emailed back
Date & Time: 20/12/22
Name: Heather Windsor
Signature:

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition
☐ Room Temp ☐ Chilled ☐ Frozen
Temp: 22.2
☐ Sample & Analysis details checked
Signature:

ADDITIONAL INFORMATION / KNOWN HAZARDS
Hold 572011

Priority ☐ Low ☐ Normal ☑ High
☐ Urgent (ASAP, extra charge applies, please contact lab first)
NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types
Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	composite 572001, 572002	20/12/22	soil	Heavy Metals
2	composite 572003, 572004			
3	composite 572005, 572006			
4	composite 572007, 572008			
5	composite 572009, 572010			
6	composite 572001, 572003, 572007, 572010			OCP's
7				
8				
9				
10				

Hill Laboratories
TRIED, TESTED AND TRUSTED
R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	NZ Environmental Management Limited	Lab No:	3142018 SPv3	
Contact:	Heather Windsor	Date Received:	21-Dec-2022	
	C/- NZ Environmental Management Limited	Date Reported:	05-Jan-2023	(Amended)
	350 Kerikeri Road	Quote No:	121697	
	Kerikeri 0230	Order No:		
		Client Reference:	Georgian Lodge	
		Submitted By:	Heather Windsor	

Sample Type: Soil

Sample Name:		572001 20-Dec-2022	572002 20-Dec-2022	572003 20-Dec-2022	572004 20-Dec-2022	572005 20-Dec-2022
Lab Number:		3142018.1	3142018.2	3142018.3	3142018.4	3142018.5
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	27	4	5	2	4

Sample Name:		572006 20-Dec-2022	572007 20-Dec-2022	572008 20-Dec-2022	572009 20-Dec-2022	572010 20-Dec-2022
Lab Number:		3142018.6	3142018.7	3142018.8	3142018.9	3142018.10
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	< 2	6	4	4	3

Sample Name:		572011 20-Dec-2022	Composite of 572001 & 572002	Composite of 572003 & 572004	Composite of 572005 & 572006	Composite of 572007 & 572008
Lab Number:		3142018.11	3142018.12	3142018.13	3142018.14	3142018.15
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	5	-	-	-	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	-	18	4	3	5
Total Recoverable Cadmium	mg/kg dry wt	-	0.13	0.45	0.24	0.50
Total Recoverable Chromium	mg/kg dry wt	-	28	31	28	32
Total Recoverable Copper	mg/kg dry wt	-	33	33	28	36
Total Recoverable Lead	mg/kg dry wt	-	16.1	6.0	5.5	6.7
Total Recoverable Nickel	mg/kg dry wt	-	10	11	8	11
Total Recoverable Zinc	mg/kg dry wt	-	112	71	46	73

Sample Name:		Composite of 572009 & 572010	Composite of 572001, 572003, 572007 & 572010
Lab Number:		3142018.16	3142018.17
Individual Tests			
Dry Matter	g/100g as rcvd	-	68
Heavy Metals, Screen Level			
Total Recoverable Arsenic	mg/kg dry wt	3	-
Total Recoverable Cadmium	mg/kg dry wt	0.32	-
Total Recoverable Chromium	mg/kg dry wt	31	-
Total Recoverable Copper	mg/kg dry wt	28	-
Total Recoverable Lead	mg/kg dry wt	5.5	-
Total Recoverable Nickel	mg/kg dry wt	11	-
Total Recoverable Zinc	mg/kg dry wt	51	-

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Soil				
Sample Name:		Composite of 572009 & 572010	Composite of 572001, 572003, 572007 & 572010	
Lab Number:		3142018.16	3142018.17	
Organochlorine Pesticides Screening in Soil				
Aldrin	mg/kg dry wt	-	< 0.015	
alpha-BHC	mg/kg dry wt	-	< 0.015	
beta-BHC	mg/kg dry wt	-	< 0.015	
delta-BHC	mg/kg dry wt	-	< 0.015	
gamma-BHC (Lindane)	mg/kg dry wt	-	< 0.015	
cis-Chlordane	mg/kg dry wt	-	< 0.015	
trans-Chlordane	mg/kg dry wt	-	< 0.015	
2,4'-DDD	mg/kg dry wt	-	< 0.015	
4,4'-DDD	mg/kg dry wt	-	< 0.015	
2,4'-DDE	mg/kg dry wt	-	< 0.015	
4,4'-DDE	mg/kg dry wt	-	< 0.015	
2,4'-DDT	mg/kg dry wt	-	< 0.015	
4,4'-DDT	mg/kg dry wt	-	< 0.015	
Total DDT Isomers	mg/kg dry wt	-	< 0.09	
Dieldrin	mg/kg dry wt	-	< 0.015	
Endosulfan I	mg/kg dry wt	-	< 0.015	
Endosulfan II	mg/kg dry wt	-	< 0.015	
Endosulfan sulphate	mg/kg dry wt	-	< 0.015	
Endrin	mg/kg dry wt	-	< 0.015	
Endrin aldehyde	mg/kg dry wt	-	< 0.015	
Endrin ketone	mg/kg dry wt	-	< 0.015	
Heptachlor	mg/kg dry wt	-	< 0.015	
Heptachlor epoxide	mg/kg dry wt	-	< 0.015	
Hexachlorobenzene	mg/kg dry wt	-	< 0.015	
Methoxychlor	mg/kg dry wt	-	< 0.015	

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3142018-SPv2' issued on 30-Dec-2022 at 1:31 pm.
Reason for amendment: Additional Testing Added as per Clients Request.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-16
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-11
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	12-16
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	17
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	17
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-11
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-10
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-11

Hill Laboratories
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ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Job No: **321 6704** Date Recv: 27-Mar-23 09:41
Received by: Ben Kingston

Quote No 121697

Primary Contact Heather Windsor 293087

Submitted By Heather Windsor 293087

Client Name NZ Environmental Management Limited 293085

Address 350 Kerikeri Road, Kerikeri 0230

Phone *Mobile* 021 075 1959

Email

Charge To NZ Environmental Management Limited 293085

Client Reference Georgian Lodge

Order No

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

☑ *Email Primary Contact* ☐ *Email Submitter* ☐ *Email Client*
☐ *Email Other*
☐ *Other*

Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

ADDITIONAL INFORMATION / KNOWN HAZARDS

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
☐ *Tick if you require COC to be emailed back*
Date & Time: 23/3/23
Name: Heather Windsor
Signature: HWindsor

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition ☐ *Room Temp* ☐ *Chilled* ☐ *Frozen* *Temp:* 20.1

☐ Sample & Analysis details checked
Signature:

Priority ☐ Low ☐ Normal ☑ High
☐ **Urgent** (ASAP, extra charge applies, please contact lab first)

NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	1212	23/3/23	soil	TR Arsenic
2	1213			
3	1214			
4	1215			
5	1216			
6	1217			
7	1218			
8	1219			
9	1220			
10	1221			

Hill Laboratories
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ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Office use only (Job No)

Quote No 121697

Primary Contact Heather Windsor 293087

Submitted By Heather Windsor 293087

Client Name NZ Environmental Management Limited 293085

Address 350 Kerikeri Road, Kerikeri 0230

Phone Mobile 021 075 1959

Email

Charge To NZ Environmental Management Limited 293085

Client Reference Georgian Lodge

Order No

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.

☑ Email Primary Contact ☐ Email Submitter ☐ Email Client
☐ Email Other
☐ Other

Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
Date & Time: 23 / 3 / 23
Name: Heather Windsor
☐ Tick if you require COC to be emailed back
Signature: H Windsor

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition ☐ Room Temp ☐ Chilled ☐ Frozen
Temp:

☐ Sample & Analysis details checked
Signature:

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority ☐ Low ☐ Normal ☑ High
☐ Urgent (ASAP, extra charge applies, please contact lab first)

NOTE: The estimated turnaround time for the types and number of samples and analysis specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
11	1222	23/3/23	soil	TR Arsenic
12	1223			
13	1224			
14	1225			
15	1226			
16	1227			
17	1228			
18	1229			
19	1230			
20	composite 1213, 1215, 1216	23/3/23		OCP

Hill Laboratories
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R J Hill Laboratories Limited
28 Duke Street Frankton 3204
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Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	NZ Environmental Management Limited	Lab No:	3216704 SPv1
Contact:	Heather Windsor	Date Received:	27-Mar-2023
	C/- NZ Environmental Management Limited	Date Reported:	30-Mar-2023
	350 Kerikeri Road	Quote No:	121697
	Kerikeri 0230	Order No:	
		Client Reference:	Georgian Lodge
		Submitted By:	Heather Windsor

Sample Type: Soil

Sample Name:	1212 23-Mar-2023	1213 23-Mar-2023	1214 23-Mar-2023	1215 23-Mar-2023	1216 23-Mar-2023
Lab Number:	3216704.1	3216704.2	3216704.3	3216704.4	3216704.5
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	3	7	4	4	6

Sample Name:	1217 23-Mar-2023	1218 23-Mar-2023	1219 23-Mar-2023	1220 23-Mar-2023	1221 23-Mar-2023
Lab Number:	3216704.6	3216704.7	3216704.8	3216704.9	3216704.10
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	5	10	29	30	2

Sample Name:	1222 23-Mar-2023	1223 23-Mar-2023	1224 23-Mar-2023	1225 23-Mar-2023	1226 23-Mar-2023
Lab Number:	3216704.11	3216704.12	3216704.13	3216704.14	3216704.15
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	12	10	17	16	5

Sample Name:	1227 23-Mar-2023	1228 23-Mar-2023	1229 23-Mar-2023	1230 23-Mar-2023	Composite of 1213, 1215 & 1216
Lab Number:	3216704.16	3216704.17	3216704.18	3216704.19	3216704.20
Individual Tests					
Dry Matter g/100g as rcvd	-	-	-	-	63
Total Recoverable Arsenic mg/kg dry wt	6	7	17	6	-
Organochlorine Pesticides Screening in Soil					
Aldrin mg/kg dry wt	-	-	-	-	< 0.016
alpha-BHC mg/kg dry wt	-	-	-	-	< 0.016
beta-BHC mg/kg dry wt	-	-	-	-	< 0.016
delta-BHC mg/kg dry wt	-	-	-	-	< 0.016
gamma-BHC (Lindane) mg/kg dry wt	-	-	-	-	< 0.016
cis-Chlordane mg/kg dry wt	-	-	-	-	< 0.016
trans-Chlordane mg/kg dry wt	-	-	-	-	< 0.016
2,4'-DDD mg/kg dry wt	-	-	-	-	< 0.016
4,4'-DDD mg/kg dry wt	-	-	-	-	< 0.016
2,4'-DDE mg/kg dry wt	-	-	-	-	< 0.016
4,4'-DDE mg/kg dry wt	-	-	-	-	< 0.016
2,4'-DDT mg/kg dry wt	-	-	-	-	< 0.016
4,4'-DDT mg/kg dry wt	-	-	-	-	< 0.016
Total DDT Isomers mg/kg dry wt	-	-	-	-	< 0.10
Dieldrin mg/kg dry wt	-	-	-	-	< 0.016
Endosulfan I mg/kg dry wt	-	-	-	-	< 0.016
Endosulfan II mg/kg dry wt	-	-	-	-	< 0.016
Endosulfan sulphate mg/kg dry wt	-	-	-	-	< 0.016
Endrin mg/kg dry wt	-	-	-	-	< 0.016

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The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Soil						
Sample Name:		1227 23-Mar-2023	1228 23-Mar-2023	1229 23-Mar-2023	1230 23-Mar-2023	Composite of 1213, 1215 & 1216
Lab Number:		3216704.16	3216704.17	3216704.18	3216704.19	3216704.20
Organochlorine Pesticides Screening in Soil						
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.016
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.016
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.016
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.016
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.016
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.016

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-19
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-19
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	20
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	20
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-19
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	2, 4-5
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-19

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 28-Mar-2023 and 30-Mar-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

Hill Laboratories
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ANALYSIS REQUEST

R J Hill Laboratories Limi
28 Duke Street Frankton
Private Bag 3205
Hamilton 3240 New Zeala

T 0508 HILL LAB (44 5
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.c

Job No: **324 2367**
Date Recv: 15-Apr-23 08:30
Received by: Jonas Eyskens

Quote No 121697
Primary Contact Heather Windsor 293087
Submitted By Heather Windsor 293087
Client Name NZ Environmental Management Limited 293085
Address 350 Kerikeri Road, Kerikeri 0230

Phone *Mobile* 021 075 1959
Email
Charge To NZ Environmental Management Limited 293085
Client Reference Georgian Lodge
Order No

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*
☑ *Email Primary Contact* ☐ *Email Submitter* ☐ *Email Client*
☐ *Email Other*
☐ *Other*
Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
☐ *Tick if you require COC to be emailed back*
Date & Time: 14/4/23
Name: Heather Windsor
Signature:

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition ☐ *Room Temp* ☐ *Chilled* ☐ *Frozen*
Temp: 16.3
☐ Sample & Analysis details checked
Signature:

ADDITIONAL INFORMATION / KNOWN HAZARDS

hold 1236, 1237, 1238, 1239

Priority ☐ Low ☐ Normal ☑ High
☐ **Urgent** (ASAP, extra charge applies, please contact lab first)
NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types
Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	1231	14/4/23	soil	TR Arsenic
2	1232			
3	1233			
4	1234			
5	1235			
6	1240			
7	1241			
8				
9				
10				

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R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	NZ Environmental Management Limited	**Lab No:**	3242367 SPv2
Contact:	Heather Windsor	**Date Received:**	15-Apr-2023
	C/- NZ Environmental Management Limited	**Date Reported:**	27-Apr-2023 **(Amended)**
	350 Kerikeri Road	**Quote No:**	121697
	Kerikeri 0230	**Order No:**	
		Client Reference:	Georgian Lodge
		Submitted By:	Heather Windsor

Sample Type: Soil

Sample Name:	1231 14-Apr-2023	1232 14-Apr-2023	1233 14-Apr-2023	1234 14-Apr-2023	1235 14-Apr-2023
Lab Number:	3242367.1	3242367.2	3242367.3	3242367.4	3242367.5
Total Recoverable Arsenic mg/kg dry wt	9	25	10	40	10

Sample Name:	1236 14-Apr-2023	1237 14-Apr-2023	1238 14-Apr-2023	1239 14-Apr-2023	1240 14-Apr-2023
Lab Number:	3242367.6	3242367.7	3242367.8	3242367.9	3242367.10
Total Recoverable Arsenic mg/kg dry wt	33	18	29	10	26

Sample Name:	1241 14-Apr-2023
Lab Number:	3242367.11
Total Recoverable Arsenic mg/kg dry wt	28

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3242367-SPv1' issued on 21-Apr-2023 at 8:42 am.
Reason for amendment: Total Recoverable Arsenic has been added to samples 6 to 9.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-11
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-11
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-11
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-11

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 18-Apr-2023 and 27-Apr-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Helena Bertram BSc
Client Services Manager - Environmental

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ANALYSIS REQUEST

R J Hill Laboratories Limited
26 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Job No: **326 6018** Date Recv: 04-May-23 09:25

Received by: Holly Rees

Quote No 121697

Primary Contact Heather Windsor 293087

Submitted By Heather Windsor 293087

Client Name NZ Environmental Management Limited 293085

Address 350 Kerikeri Road, Kerikeri 0230

Phone Mobile 021 075 1959

Email

Charge To NZ Environmental Management Limited 293085

Client Reference Georgian Lodge

Order No

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.

☑ Email Primary Contact ☐ Email Submitter ☐ Email Client
☐ Email Other
☐ Other

Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories Date & Time: 1/5/23
☐ Tick if you require COC to be emailed back
Name: Heather Windsor
Signature:

Received at Hill Laboratories Date & Time:
Name:
Signature:

Condition ☐ Room Temp ☐ Chilled ☐ Frozen Temp: 19.2

☐ Sample & Analysis details checked
Signature:

ADDITIONAL INFORMATION / KNOWN HAZARDS

hold 1243, 1245, 1254, 1255, 1256, 1257, 1258, 1259,1260

Priority ☐ Low ☐ Normal ☑ High
☐ **Urgent** (ASAP, extra charge applies, please contact lab first)

NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date:

Quoted Sample Types

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	1242	1/5/23	soil	TR Arsenic
2	1244			
3	1246			
4	1247			
5	1248			
6	1249			
7	1250			
8	1251			
9	1252			
10	1253			
11	1261			

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T 0508 HILL LAB (44 555 22)
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E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	NZ Environmental Management Limited	Lab No:	3266018	SPv1
Contact:	Heather Windsor	Date Received:	04-May-2023	
	C/- NZ Environmental Management Limited	Date Reported:	09-May-2023	
	350 Kerikeri Road	Quote No:	121697	
	Kerikeri 0230	Order No:		
		Client Reference:	Georgian Lodge	
		Submitted By:	Heather Windsor	

Sample Type: Soil

Sample Name:		1242 01-May-2023	1244 01-May-2023	1246 01-May-2023	1247 01-May-2023	1248 01-May-2023
Lab Number:		3266018.1	3266018.2	3266018.3	3266018.4	3266018.5
Total Recoverable Arsenic	mg/kg dry wt	4	4	4	5	8

Sample Name:		1249 01-May-2023	1250 01-May-2023	1251 01-May-2023	1252 01-May-2023	1253 01-May-2023
Lab Number:		3266018.6	3266018.7	3266018.8	3266018.9	3266018.10
Total Recoverable Arsenic	mg/kg dry wt	4	5	5	2	2

Sample Name:		1261 01-May-2023
Lab Number:		3266018.11
Total Recoverable Arsenic	mg/kg dry wt	3

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-11
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-11
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-11
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-11

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 04-May-2023 and 09-May-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Kim Harrison MSc
Client Services Manager - Environmental

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APPENDIX I
Reference Tables

Preliminary Sampling 20 December 2022			NZTM	
Site	**Location**	**Description**	**East**	**North**
572001	At down gradient door of glass house. Target sample	Dark brown friable silty sandy CLAY topsoil, very shallow over rotten rock	1688921	6102296
572002	In citrus grove 1m toward house from most northwestern tree	Dark brown silty CLAY topsoil, granular	1688931	6102292
572003	Near driveway in ex orchard area east of house In pasture	Dark brown silty CLAY topsoil, compacted	1688932	6102267
572004	In pasture area southwest of house near tree	Dark brown silty CLAY topsoil, friable + worms	1688876	6102244
572005	In pasture area southeast of house	Dark brown silty CLAY topsoil, friable	1688913	6102224
572006	In pastue horse paddock on west side of drive near road boundary	Red sandy SILT topsoil, friable	1689004	6102206
572007	In pasture 10m northeast of gate paddock south-east of pond	Dark brown silty CLAY topsoil	1688975	6102261
572008	In pasture mid area paddock due east of pond	Dark brown silty CLAY topsoil, firm	1689004	6102289
572009	In pasture in north-east are of most northeast paddock	Dark brown silty CLAY topsoil, granular	1689030	6102314
572010	In pasture west side of most north-east paddock	Dark brown silty CLAY topsoil, very firm and sticky	1688992	6102328
572011	Duplicate of 572003	Dark brown silty CLAY topsoil, compacted	1688932	6102267
Stage One Sampling 23 March 2023				
Site	**Location**	**Description**		
1212	Grid, NE of pond in horse paddock	Dark brown silty CLAY topsoil, granular	1688991	6102320
1213	Grid, East of pond in horse paddock near road	Dark brown silty CLAY topsoil, granular	1689034	6102293
1214	Grid, East of pond in horse paddock mid site	Dark brown silty CLAY topsoil, granular	1688995	6102271
1215	Grid, west of driveway in horse paddock	Dark brown silty CLAY topsoil, granular	1688937	6102232
1216	Grid, Near SE corner in horse paddock	Dark brown silty CLAY topsoil, granular	1688988	6102200
1217	Grid, Near entrance	Dark brown silty CLAY topsoil, granular	1689040	6102236
1218	Delineation 1.5m grid north of sample #21	Dark brown silty CLAY topsoil, granular	1688927	6102296
1219	Delineation 1.5m grid north of sample #18	Dark brown silty CLAY topsoil, granular +<5% sub-angular medium gravels	1688926	6102296
1220	Delineation 1.5m grid east of #19	Dark brown silty CLAY topsoil, granular	1688926	6102296
1221	0.3m depth sample under location of stage 1 sample 572001	red yellow silty CLAY +<5% sub-angular medium gravels	1688921	6102296
1222	Delineation 1.5m grid sample between # 20 & #23	Dark brown sandy silty CLAY topsoil, granular +<5% sub-angular medium gravels	1688923	6102297
1223	Delineation 1.5m grid sample between # 22 & #24	Dark brown sandy silty CLAY topsoil, granular	1688923	6102295
1224	Delineation 1.5m grid sample 1.5mSw of #23	Dark brown silty CLAY topsoil, granular	1688921	6102295
1225	Delineation 1.5m grid sample 1.5mSw of #24	Dark brown silty CLAY topsoil, granular	1688921	6102293
1226	Delineation 1.5m grid sample 1.5m east of # 24	Dark brown silty CLAY topsoil, granular	1688923	6102291
1227	Delineation 1.5m grid sample between # 26 & #28	Dark brown silty CLAY topsoil, granular +<5% sub-angular medium gravels	1688924	6102292
1228	Delineation 1.5m grid sample north of # 27 and 1.5m E of # 22	Dark brown silty CLAY topsoil, granular +<5% sub-angular medium gravels	1688924	6102295
1229	Duplicate of 1225	Dark brown silty CLAY topsoil, granular	1688921	6102293
1230	Duplicate of 1213	Dark brown silty CLAY topsoil, granular	1689034	6102293

I 1 Location and descriptions of prelimianry and Stage One sampled soils

Stage Two Sampling 14 April 2023 & 1 May 2023				
Site	**Location**	**Description**		
1231	Grid sample 1.5m east of 1320 in grass	Dark brown silty CLAY topsoil, friable with <5% sub-angular medium gravels	1688925	6102297
1232	Grid sample 1.5 NE of 1231in grass base of citrus	Dark brown silty CLAY topsoil, granular with <5% sub-angular medium gravels	1688930	6102298
1233	Grid sample 1.5m north east of 1320 in grass	Dark brown silty CLAY topsoil, friable with <5% sub-angular medium gravels	1688927	6102297
1234	Grid sample 1.5m northwest of 1233 in grass	Dark brown silty CLAY topsoil, friable, very dry with <5% sub-angular medium gravels + black plastic and blue plastic bailing twine	1688926	6102299
1235	Grid sample 1.5m northwest of 1234 in garden north end of concrete	Dark brown silty CLAY topsoil, under potting mix	1688925	6102300
1236	Grid sample 1.5m north east of 1232 in grass out from citrus	Dark brown silty CLAY topsoil, granular, very dry	1688931	6102296
1237	Grid sample 1.5m north east on 1233 in grass base of citrus	Dark brown silty CLAY topsoil, friable, very dry	1688929	6102299
1238	Grid sample 1.5m north east of 1234 in grass	Dark brown silty CLAY topsoil, granular, very dry with <5% sub-angular medium gravels	1688927	6102299
1239	Grid sample 1.5m north west of 1238 in grass	Dark brown silty CLAY topsoil, under potting mix	1688927	6102304
1240	Duplicate of 1232	Dark brown silty CLAY topsoil, granular with <5% sub-angular medium gravels	1688930	6102298
1241	Depth sample 0.3m under location of sample 1219	Dark brown silty CLAY	1688926	6102296
1242	0.4m dupth under location of sample 1219	Dark brown silty CLAY topsoil, friable with <5% sub-angular medium gravels	1688927	6102296
1243	0.5m dupth under location of sample 1219	red brown silty CLAY	1688927	6102296
1244	0.4m dupth under location of sample 1234	Dark brown silty CLAY topsoil, friable with <5% sub-angular medium gravels	1688929	6102300
1245	0.5m dupth under location of sample 1234	red brown silty CLAY with <5% small sub-angular gravels	1688929	6102300
1246	Grid sample 1.5m east 1231 in grass	Dark brown silty CLAY topsoil, moist with worms & roots	1688929	6102294
1247	Grid sample 1.5m north 1246 in grass	Dark brown silty CLAY topsoil, moist with worms & roots	1688932	6102296
1248	Grid sample 1.5m north 1247 in grass	Dark brown silty CLAY topsoil, granular with worms	1688937	6102298
1249	Grid sample 1.5m north 1248 in grass	Dark brown silty CLAY topsoil, friable, moist	1688936	6102295
1250	Grid sample 1.5m west of 1249 in grass	Dark brown silty CLAY topsoil, friable, moist	1688934	6102298
1251	Grid sample 1.5m west of 1250 in grass	Dark brown silty CLAY topsoil, friable, moist	1688934	6102306
1252	Grid sample 1.5m west of 1251 in grass	Dark brown silty CLAY topsoil, friable, moist	1688932	6102303
1253	Grid sample 1.5m west of 1252 in grass	Dark brown silty CLAY topsoil, friable, moist +<5% sub-angular medium gravels	1688931	6102305
1254	Grid sample 1.5m north of 1251 in grass	Dark brown silty CLAY topsoil, friable, moist +<5% sub-angular medium gravels	1688934	6102301
1255	Grid sample 1.5m north of 1249 in grass mid north slope	Dark brown silty CLAY topsoil, friable. + alcathene water pipe	1688936	6102298
1256	Grid sample 1.5m east of 1249 in grass	Dark brown silty CLAY topsoil, moist with worms & roots	1688937	612296
1257	Grid sample 1.5m east of 1247 in grass between citrus rows	Dark brown silty CLAY topsoil, friable, moist +<5% sub-angular medium gravels	1688931	6102295
1258	Grid sample 3m east of 1255 in grass near ornamental garden	Dark brown silty CLAY topsoil, moist + 10% medium-large sub angular gravels	1688938	6102297
1259	Grid sample 1.5m north of 1255 in grass	Dark brown silty CLAY topsoil, friable, moist	1688936	6102300
1260	Grid sample 3m north of 1252 in grass down gradient	Dark brown sandy, silty CLAY topsoil + <5% medium sub angular gravels	1688934	6102304
1261	Grid sample. Duplicate of 1252	Dark brown silty CLAY topsoil, friable, moist	1688932	6102303

I 1 continued Location and descriptions of Stage Two sampled soils

NZ Environmental Management	**Borehole Log**	**Project: PSI inlet Road** **Job #: 2022 572** **Date: 20/12/22** **Sample #: 572 002** **Drilling method: Hand auger** **Auger Diameter: 5cm**	
Location: 263 Kerikeri Inlet Road			
Northing:1688931	**Easting: 6102292**		
Soil Description:	**Moisture:**	**Depth (m)**	**Soil Type:**	**water table:**
Brown silty CLAY	Moist	0	Topsoil	
Brown silty CLAY	Moist	0.1	Topsoil	
Brown silty CLAY	Moist	0.2	Topsoil	
Brown silty CLAY	Moist	0.25	Topsoil	
Red brown silty CLAY	Moist	0.3	Clay	
Red brown silty CLAY	Moist	0.4	Clay	
Red brown silty CLAY	Moist	0.5	Clay	
Red brown silty CLAY	Moist	0.6	Clay	Not encountered
		0.7		
			Logged by:	HW
Soil Type key: TS (topsoil), F (fill), Cl (clay) St (silt),Sd (sand), P (peat), R (rock)				

I 2 Soil Log

Building/Resource Consent Number	Date	Activity	Applicable to Area of Investigation Y/N	Applicable HAIL category
7819-TCPCU	31/05/1988	House extension	N	N/A
1970226-RMALUC	1/08/1996	Proposed new dwelling (not achieved	N	N/A
2050335-RMASUB	9/09/2004	Proposed subdivision	N	N/A
BC-2015-535/0	9/02/2015	COC wastewater treatment system	N	N/A
COU-2016-5019/0	26/04/2016	Change in use from residential to bed and breakfast	N	N/A
BP6002379	1/02/1986	House extension	N	N/A
BP4847	17/10/1979	Plumbing and drainlaying new dwelling	N	N/A
COA-2016-4046/0	12/09/2007	Change in use from residential to bed and breakfast	N	N/A
BC-1999-831/0	4/12/1998	Barn - withdrawn application	N	N/A
BP9073489	1/07/1979	Implement shed/Residence	N	N/A
BP4058808	1/02/1986	House extension	N	N/A
BP338	22/02/1986	Plumbing and drainlaying new addition	N	N/A
BP4848	20/08/1979	Plumbing and drainlaying new dwelling	N	N/A
79734-TCPSUB	1/02/1976	Subdivision	N	N/A
1960726-RMASUB	1/05/1996	Subdivision neighbouring lot	N	N/A
1970889-RMASUB	1/05/1996	Subdivision neighbouring lot	N	N/A

I 3 FNDC Property file detail

Certificate of Title	From	Registered Owners	Occupation	Area
405/260	28/11/1924	Owen Walter Fuller and Neil Ward Fuller	Farmers	65.124ha
	21/10/1948	Owen Walter Fuller		
9C/1344	10/10/1966	Owen Walter Fuller	Farmer	4.8228ha
	14/11/1967	Victor Elson-White and Joan Elson-White		
NA36C/435	4/04/1977	Victor Elson-White and Joan Elson-White	Manager	2.5376ha
	8/08/1979	Ian Charles Foss and Claudia Valentina Foss	Orchardist and wife	
	7/03/1984	Adrian Michael Garrett	Orchardist	
	21/12/2006	Jeffrey Charles Cooper and Linda Marcia Cooper		
	16/09/2021	Georgian Lodge Limited		

I 4 Title History

Site History	
Land use history	**pre 1979** - natural vegetation or pastoral land use
	1979 -~ 1997 - Orchard, likely kiwifruit
	1997 - present - Lifestyle living with horse grazing
Known incidents	None known
Management practices	Unknown
	Orcharding period likely conventional use of sprays and fertiliser as per growers guides.
Waste disposal	Unknown. No indication of fire piles and unlikly to have been carried out around horses.
Chemical storage practices	Unknown. Implement shed has been on property since duration of historic orcharding practice
Chemicals used on the site	Unknown. Likley to have included fertiliser and sprays
Environmental incidents	None known
Certificates of title	Appendix C
Location of surface water drains and stormwater drainage channels	Appendix E 10
Information on fill material	Not identified, some 'rotten rock' noticed outside glasshouse area
Potable drinking water source	Rain water into tanks
Proposed sewage disposal (if any)	Septic tank or treatment system

I 5 Landuse History

Proposed Lot	Size of Proposed Lots (m^2)	Approximate Area of Piece of Land (m^2)	Earthworks disturbance volumes not requiring consent (annual) m^3	Earthworks removal volumes not requiring consent (annual) m^3
1	8749	5139	256.95	51.39
2	4412	3797	189.85	37.97
3	3158	3158	157.9	31.58
4	3064	3064	153.2	30.64
5	3001	2501	125.05	25.01
6	3002	3002	150.1	30.02
Existing Lot 1 DP 79774	25376	19000	950	190

I 6 Allowable Annual Earthworks Volumes under Regulation 8(3)

Normal UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/ Time of Computation	ProUCL 5.2 10/ 05/ 2023 1:03:45 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%

C0

General Statistics

Total Number of Observations	14	Number of Distinct Observations	6
		Number of Missing Observations	1
Minimum	2	Mean	4.143
Maximum	7	Median	4
SD	1.46	SD of logged Data	0.373
Coefficient of Variation	0.352	Skewness	0.406

Normal GOF Test

Shapiro Wilk Test Statistic	0.921	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.825	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.263	Data appear Normal at 1% Significance Level	

Data appear Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	4.834	95% Adjusted-CLT UCL (Chen-1995)	4.83
		95% Modified-t UCL (Johnson-1978)	4.841

Suggested UCL to Use

95% Student's-t UCL	4.834		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

I 7 ProUCL output orchard area

Gamma UCL Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/ Time of Computation	ProUCL 5.2 10/ 05/ 2023 1:31:39 PM		
From File	WorkSheet_a.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
C0			
General Statistics			
Total Number of Observations	28	Number of Distinct Observations	18
		Number of Missing Observations	1
Minimum	2	Mean	13.86
Maximum	40	Median	10
SD	10.77	SD of logged Data	0.833
Coefficient of Variation	0.777	Skewness	0.969
Gamma GOF Test			
A-D Test Statistic	0.603	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.76	Data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.167	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.168	Data appear Gamma Distributed at 5% Significance Level	
Data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.764	k star (bias corrected MLE)	1.599
Theta hat (MLE)	7.856	Theta star (bias corrected MLE)	8.668
nu hat (MLE)	98.78	nu star (bias corrected)	89.53
MLE Mean (bias corrected)	13.86	MLE Sd (bias corrected)	10.96
		Approximate Chi Square Value (0.05)	68.71
Adjusted Level of Significance	0.0404	Adjusted Chi Square Value	67.59
Assuming Gamma Distribution			
95% Approximate Gamma UCL	18.06	95% Adjusted Gamma UCL	18.36
Suggested UCL to Use			
95% Adjusted Gamma UCL	18.36		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

I 8 ProUCL output arsenic area of interest

APPENDIX J
Statement of Qualification as a SQEP

As per the NESCS User Guide Suitably Qualified and Experienced Practitioner requirements Tricia Scott holds a Bachelor of Science degree and a NZ Certificate of Science. She has over 10 years experience investigating and reporting on contaminated land and is a Certified Environmental Practioner (CEnvP).