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 Form 9). 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 Covnsent 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? Te Hikutū Hapū

Who else have you consulted with? Northland Regional Council

*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: Te Hikutū Hapū Trust

Email: [redacted]

Phone number: [redacted]

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

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? ◯ **Yes** ✔ **No**

If yes, please provide details.

6. Address for correspondence

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

Name/s: Zoë Avery

Email: [redacted]

Phone number: [redacted]

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

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: Fleur Josephine Rerekura (42.125 share), Shaun Arthur Kaio (32.125 share) et al

Property address/ location: [redacted]

8. Application site details

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

Name/s: Fleur Josephine Rerekura (42.125 share), Shaun Arthur Kaio (32.125 share)

Site address/ location: Vujcich Road
Whirinaki (in vicinity of 128 Vujcich Road)

Postcode

Legal description: NA878/274 **Val Number:**

Certificate of title: Part Whirinaki 4A Block (NA878/274)

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

Site visit requirements:

Is there a locked gate or security system restricting access by Council staff? ◯ **Yes** ✔ **No**

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

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

Please call/email consultant (Zoë Avery) to arrange site visit.

9. Description of the proposal

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

For the development of a papakāinga comprising 12 new residential dwellings as part of a Whirinaki Managed Retreat project to provide homes outside of the flood risk zone. The proposal requires consent for exceeding papakāinga density, earthworks, integrated development, within 30m of natural inland wetland and accessway.

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**

✔ **Disturbing, removing or sampling soil**

◯ **Changing the use of a piece of land**

◯ **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**

14. Draft conditions:

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

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

15. 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)	Northland Regional Council, Rivers and Natural Hazards\Land Management Teams
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.

15. Billing details continued...

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) Zoë Avery

Signature: [redacted] Date 31-Mar-2026

(signature of bill payer) **MANDATORY**

16. 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.

17. Declaration

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

Name (please write in full) Zoë Avery

Signature [redacted] Date 31-Mar-2026

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

See overleaf for a checklist of your information...

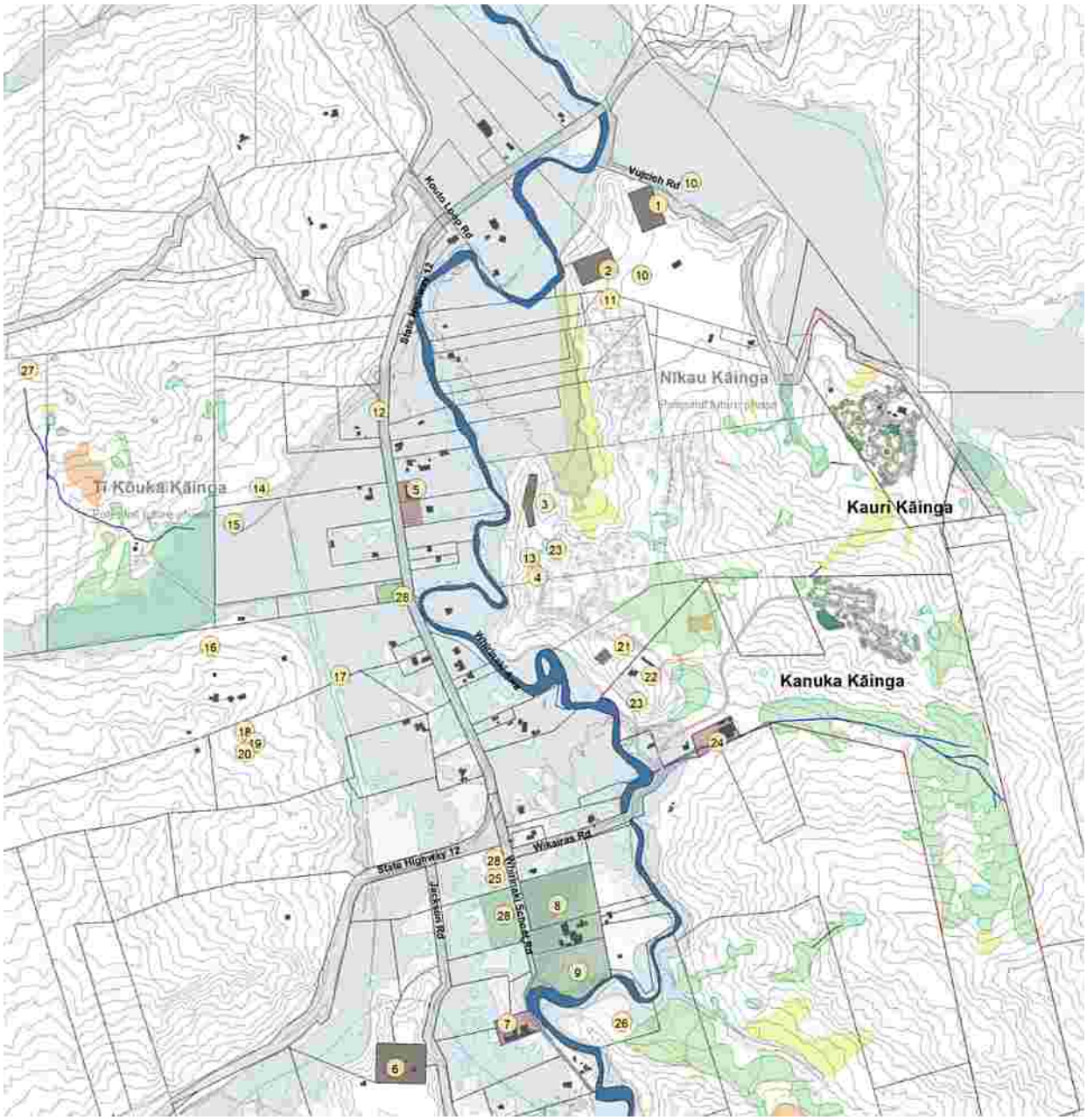
Checklist

Please tick if information is provided

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

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

The Urbanist.
Urban Design + Planning + Landscape



Whirinaki Managed Retreat

Kauri Papakāinga Development

Resource Consent Application

Vujcich Road, Whirinaki

Prepared for Te Hikutū Hapū Trust

December 2025

v1

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6. Geotechnical Investigation Report prepared by RS Engineering Ltd (November 2025)
7. Civil Suitability Report prepared by RS Eng Ltd (December 2025)
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9. Integrated Management Plan
10. Consultation Summary & Affected Party Written Approvals
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1.0 Executive Summary

This Assessment of Environmental Effects (AEE) has been prepared to support a resource consent application for the development of a papakāinga comprising 12 residential dwellings on Part Whirinaki 4A Block, Vujcich Road, Whirinaki. The proposal forms the first stage of the Whirinaki Managed Retreat initiative, a partnership between Northland Regional Council and Te Hikutū hapū to address significant flood risks affecting the Whirinaki valley community.

The Whirinaki valley, located in Te Tai Tokerau, represents a culturally significant rohe that is home to three marae, two churches, a community centre, and approximately 80 homes on 100% Māori-owned land. The community faces significant flooding challenges, with the most severe event recorded in January 1999 causing widespread damage to homes and cultural sites. Current flood modelling indicates that even a 10-year flood event can inundate parts of the valley, with 50 and 100-year floods potentially causing water depths up to 2.2 metres in the most affected low-lying areas.

In response to these risks, Northland Regional Council, in partnership with Te Hikutū hapū, is undertaking an assessment of managed retreat options for the Whirinaki community. This initiative represents an innovative managed retreat programme for Te Tai Tokerau, demonstrating a proactive approach to natural hazard risk management and climate change adaptation. Rather than pursuing traditional flood protection measures which would be prohibitively expensive and potentially ineffective in the long term given climate change projections, the community and Council have partnered to investigate managed retreat options that enable whānau to remain on their ancestral lands whilst relocating to safer locations within the valley.

High-level assessments of options for the project have resulted in the development of a master plan that includes 12 new homes within the papakāinga block referred to as the 'Kauri Papakāinga', with associated community facilities and business operations to be developed in future stages. The Kauri Papakāinga was selected based on multiple factors including location outside mapped flood hazard zones, geotechnical suitability for residential development, proximity to existing community facilities, access to the existing road network, ability to avoid or mitigate ecological effects, Māori freehold land ownership, and support from Te Hikutū hapū.

The proposed Kauri Papakāinga development will provide safe, flood-resilient housing for whānau currently residing in high-risk flood areas. The 12 new dwellings will be supported by appropriate infrastructure including:

- Internal sealed access road connecting to Vujcich Road, designed to accommodate two-way traffic and emergency vehicles
- Individual rainwater harvesting systems with adequate storage tanks for potable water supply
- Firefighting water supply meeting Far North District Council standards (10m³ per dwelling or communal 45m³ supply)
- On-site wastewater treatment and disposal systems designed specifically for the medium to heavy clay soils present on site
- Stormwater management infrastructure, including surface water drainage and energy dissipation measures
- Power supply connections
- Off-street parking and turning areas

Technical assessments have been undertaken to support this application and inform the design of the development. These specialist reports include:

- Ecological Impact Assessment prepared by Wildland Consultants Ltd (October 2025), which identifies ecological values present on site, assesses potential effects of the development, and recommends measures to avoid, remedy, or mitigate ecological effects
- Geotechnical Investigation Report prepared by RS Engineering Ltd (November 2025), which assesses ground conditions, foundation requirements, slope stability, and provides recommendations for earthworks and building design
- Civil Suitability Report prepared by RS Engineering Ltd (October 2025), which addresses water supply, wastewater disposal, stormwater management, access design, and infrastructure requirements

Resource consent is required as the proposal does not comply with certain permitted activity standards under the Operative Far North District Plan. The non-compliances relate primarily to papakāinga housing density on Māori freehold land, with additional consents required for indigenous vegetation clearance, earthworks, and access standards. Specifically, consent is sought under the following rules:

- Rule 8.6.5.2.2 – Papakāinga Housing (Controlled Activity) that does not comply with the 2 hectares for each unit density requirement.
- Rule 8.6.5.4.2 - Integrated Development on Māori freehold land (Discretionary Activity) that proposes 12 dwellings that exceeds the permitted density standard.
- Rule 12.3.6.2 - Earthworks (Restricted Discretionary Activity) involving fill heights for access construction may exceed 1.5 metres in some locations.
- Rule 12.7.6.3: Papakāinga wastewater dispersal field (Discretionary Activity) being located within 30m of a natural inland wetland.
- Rule 15.1.6C.2: Private Accessway (Discretionary Activity) serves 13 household equivalents connecting to Vujcich Road being more than the permitted 8 households.

Overall, the status of the application is Discretionary Activity, being the most restrictive activity classification triggered by the proposed development.

The comprehensive assessment of environmental effects undertaken for this application demonstrates that, subject to the implementation of recommended mitigation measures through appropriately worded consent conditions, the actual and potential adverse effects of the proposal on the environment will be no more than minor. Key findings of the effects assessment include:

- Ecological effects can be avoided, remedied, or mitigated to less than minor through implementation of recommendations from the Wildland Consultants Ecological Impact Assessment, including limiting vegetation clearance, protecting identified wetlands and streams, implementing erosion and sediment control measures, and undertaking offset planting
- The site is geotechnically suitable for residential development with appropriate foundation design (timber piles to minimum 0.9m depth) and earthworks management as recommended by RS Engineering Ltd
- Natural hazard risks are low as the development area is positioned outside mapped 10, 50, and 100-year flood extents
- Water quality effects during construction and operation will be less than minor with appropriate wastewater treatment system design, low irrigation loading rates, groundwater separation, and erosion and sediment control measures

- Traffic and access effects are acceptable with the existing road network having adequate capacity and the access design meeting required standards
- Amenity and character effects are appropriate for the rural environment and consistent with the existing pattern of papakāinga development in the Whirinaki valley
- Construction effects will be temporary and manageable through a Construction Management Plan
- Cultural effects are positive as the proposal supports Te Hikutū hapū aspirations and enables continued occupation of ancestral lands in a safe and sustainable manner

Importantly, the proposal generates significant positive effects that are material to the overall assessment. These include improved community resilience and safety through relocation from high flood risk areas, support for cultural and social wellbeing by enabling whānau to remain on ancestral lands, economic benefits through construction employment and retention of population in the valley, and demonstration of an innovative approach to managed retreat that could provide precedent value for other communities facing similar challenges.

The proposal is consistent with the purpose and principles of the Resource Management Act 1991, particularly in enabling people and communities to provide for their social, economic, and cultural wellbeing whilst managing environmental effects responsibly. The development supports the relationship of Māori with their ancestral lands, addresses significant natural hazard risks, responds to the effects of climate change, and has been developed in partnership with tangata whenua reflecting the principles of the Treaty of Waitangi.

2.0 The Applicant and Property Details

Site Address:	Vujcich Road, Whirinaki (in vicinity of 128 Vujcich Road)
Applicants Name:	Te Hikutū Hapū Trust
Agents Details:	The Urbanist Suite 2F, Level 2, Canterbury Arcade 166-174 Queen Street Auckland Central 1010 Atten: Zoë Avery Email: zoe@theurbanist.nz
Owner:	Bella Karora as to 6.188 shares Ellen Karora as to a 6.187 shares Teresa Karora as to 6.187 shares Helena Hinemoa Karora as to 1.547 shares Laurence Allan Karora as to 1.547 shares Shaun Arthur James McKay Kaio as to a 32.125 share Michael Karora as to a 3.0945 share Fleur Josephine Rerekura as to a 42.125 share
Legal Description:	Part Whirinaki 4A Block (NA878/274)
Site Area:	9.5228ha
Operative Plans:	Operative Far North District Plan
Zoning:	Rural Production
Controls/Overlays:	N/A
Proposed Plans:	Proposed Far North District Plan
Zoning:	Māori Purpose Zone – Rural Production
Controls/Overlays:	Coastal Flood (Zone 1: 50 Year Scenario), Coastal Flood (Zone 2: 100 Year Scenario) Coastal Flood (Zone 3: 100 Year + Rapid Sea Level Rise Scenario) River Flood Hazard Zone (10 Year ARI Event), River Flood Hazard Zone (100 Year ARI Event)

3.0 Project Background and Context

3.1 Whirinaki Managed Retreat Programme

The Whirinaki valley has been continuously occupied by Te Hikutū hapū for generations and represents a culturally significant rohe. The valley is home to approximately 80 homes on 100% Māori-owned land, three marae that serve as focal points for community gatherings and cultural activities, two churches serving the spiritual needs of the community, a community centre used for meetings and events, and Whirinaki School providing education for local children. The strong sense of community established social relationships, and connection to ancestral lands are fundamental to the identity and wellbeing of Te Hikutū hapū.

However, the low-lying nature of much of the valley floor means it is highly susceptible to flooding from the Whirinaki River and its tributaries. The community has experienced multiple flood events over the years, with the most severe event occurring in January 1999. This event caused widespread damage to homes and cultural sites, with floodwaters inundating large parts of the valley. Many whānau experienced significant property damage, with some homes becoming uninhabitable. The trauma of this event has had lasting impacts on the community, with residents living with ongoing anxiety about future flooding, particularly during heavy rainfall events.

Following the 1999 flood event, Northland Regional Council undertook detailed hydraulic modelling of the Whirinaki valley to better understand flood behaviour and quantify flood risks. This modelling work, which has been progressively refined over subsequent years, paints a concerning picture of flood risk in the valley. The modelling indicates that:

- Even a 10-year average recurrence interval (ARI) flood event can cause inundation of parts of the valley floor, affecting multiple properties
- A 50-year ARI flood event would cause significant inundation across large areas of the valley, with water depths exceeding 1 metre in many locations
- A 100-year ARI flood event could result in water depths up to 2.2 metres in the most affected low-lying areas, causing catastrophic damage to homes and infrastructure
- Flood velocities in some areas would be sufficient to cause structural damage to buildings and pose significant risk to life
- Some properties have limited or compromised evacuation routes during flood events, creating life safety risks

With climate change projections indicating increased rainfall intensity and frequency in Northland, the flood risk to the Whirinaki community is expected to worsen over time. Events that are currently considered 'rare' (such as 100-year floods) are likely to occur more frequently, and the magnitude of flood events is expected to increase. This means that properties currently considered to be at moderate risk may face high or very high risk in coming decades.

Traditional approaches to managing flood risk typically involve structural flood protection measures such as stopbanks, floodwalls, or channel improvements. However, preliminary assessments of such approaches for the Whirinaki valley identified significant challenges:

- The cost of providing effective flood protection for the entire valley would be prohibitively expensive, likely exceeding tens of millions of dollars

- The geomorphology of the valley and behaviour of the Whirinaki River system would make flood protection technically challenging and potentially ineffective
- Flood protection works could have significant adverse ecological effects on the river system and associated wetlands
- Even with substantial investment in flood protection, residual flood risk would remain, and climate change would progressively reduce the effectiveness of protection works over time
- The economic analysis showed that the costs of structural protection far exceed the economic benefits, making such an approach economically unviable

In light of these challenges, Northland Regional Council, in partnership with Te Hikutū hapū, began investigating alternative approaches to managing flood risk in the valley. This led to the development of the Whirinaki Managed Retreat programme - an innovative initiative that represents one of the first managed retreat projects in Te Tai Tokerau. The programme recognises the realities of flood risk and climate change whilst respecting the community's deep connection to their ancestral lands and desire to remain within the valley.

The managed retreat approach involves relocating people from the highest risk areas to safer locations within the valley that are positioned outside significant flood zones. Critically, this is not about abandoning the valley or forcing people to leave their lands - it is about enabling whānau to remain within their rohe whilst moving to locations with acceptable flood risk. The approach maintains community cohesion, preserves connections to marae and cultural sites, enables continued use of productive land, and supports the long-term sustainability and resilience of the Whirinaki community.

3.2 Programme Development and Community Engagement

The development of the Whirinaki Managed Retreat programme has been a collaborative process involving Northland Regional Council, Te Hikutū hapū, affected landowners, and technical specialists. The programme delivery is proposed to be undertaken by Whirinaki Finance Limited, which will manage and distribute funding, while Te Hikutū Hapū Trust owns and manages assets and property. The Whirinaki Operations Company will oversee the delivery of programme elements including housing construction, infrastructure development, and service projects.

A governance and accountability framework has been designed with legal advice to support programme oversight and delivery. Key programme preparation work has already been completed, including:

- Selecting sites for the papakāinga development through technical assessments of flood risk, geotechnical suitability, access, proximity to community facilities, and ownership status
- Assessing development feasibility through preliminary engineering and ecological assessments
- Securing housing supply through quotes from local modular construction companies (Advance Build and A-line homes have confirmed capacity to deliver required housing within project timeframes)
- Preparing resource consent applications including commissioning of technical specialist reports
- Developing a procurement strategy aligned with Northland Regional Council requirements and Whirinaki Operations Company capabilities

- Undertaking social procurement planning to employ local whānau in construction activities where possible, building local capacity and reinvesting funds into the community

Critically, a whole-of-community process has been undertaken with appropriate tikanga to collectively agree on which residents are in the greatest need for relocation and who are willing to move. This process involved hui with the community to discuss and agree on prioritisation criteria, detailed assessments of existing residences against agreed criteria, and respectful engagement with individual whānau about their situations and needs. The criteria used to assess existing residences for relocation priority include:

- Households with critical medical dependencies requiring continuous power supply (such as oxygen concentrators or dialysis equipment)
- Elderly residents with mobility impairments who would have difficulty evacuating during flood events
- Homes in areas with flood depths exceeding 2 metres in a 100-year ARI event
- Properties in areas with fastest flood water velocities presenting structural damage risk
- Families with children under 5 years old who are particularly vulnerable during flood events
- Homes with significant existing structural damage or habitability issues exacerbated by previous flood events
- Properties with compromised evacuation routes during flood conditions

Through this process, priority households for the first stage of development (the Kauri Papakāinga) have been identified. These whānau are currently living with unacceptable flood risk and will benefit most from relocation to safe, flood-resilient housing. Importantly, participation in the managed retreat is voluntary - no whānau are being forced to relocate. The programme provides options and opportunities for those who choose to move, whilst respecting the decisions of those who wish to remain in their current locations.

3.3 The Kauri Papakāinga Development

The Kauri Papakāinga (Part Whirinaki 4A Block) has been identified as the most suitable location for the first stage of papakāinga development within the managed retreat programme. The block is Māori freehold land with title reference NA878/274. The property has legal access via Vujcich Road, which is a sealed public road connecting to State Highway 12 approximately 1.2 kilometres to the west. Existing addresses on the title include 92 Vujcich Road and 92A Vujcich Road (northern part of block), with the development area in the vicinity of 128 Vujcich Road.

The Kauri Papakāinga was selected through a systematic assessment process that evaluated multiple potential sites within the valley against a comprehensive set of criteria. The key factors that led to selection of the Kauri Papakāinga include:

- Flood Risk - The development area is positioned well outside mapped 10, 50, and 100-year flood extents, providing long-term resilience against flooding
- Geotechnical Suitability - Preliminary geotechnical assessments indicated suitable ground conditions for residential development with appropriate foundation design

- Access - The block has legal access to Vujcich Road, a non-sealed public road with good connection to State Highway 12
- Proximity - The site is located within reasonable distance of existing marae, school, and community facilities, maintaining community connections
- Ecological Values - Site investigations showed that development could be undertaken whilst avoiding or mitigating effects on significant ecological features
- Land Ownership - The block is Māori freehold land, supporting papakāinga development under the Operative District Plan provisions
- Community Support - Te Hikutū hapū supported selection of this block for the first stage of development
- Existing Infrastructure - Power and telecommunications services are available in the vicinity, reducing infrastructure costs
- Topography - The gently sloping terrain is suitable for residential development with moderate earthworks

The proposed development comprises 12 new residential dwellings with all necessary infrastructure and services. The number of dwellings has been determined based on the priority whānau identified through the community process, the capacity of the site to accommodate dwellings whilst maintaining appropriate environmental standards, and the need to establish a viable and sustainable papakāinga community that supports social cohesion and cultural practices.

The Kauri Papakāinga development represents the first phase of the broader managed retreat programme. Subsequent phases may involve additional papakāinga development on other suitable land blocks within the valley, further community facilities, and potentially small-scale commercial or enterprise activities to support community economic development. Each future stage will require separate assessment and resource consent processes.

4.0 Site Description and Locality

4.1 Site Location and Legal Description

The Kauri Papakāinga comprises Part Whirinaki 4A Block, with Certificate of Title reference NA878/274. The property has a total area of approximately 20 hectares, with the development area occupying approximately 9.5 hectares on the gently sloping terrace portion of the block. The site is located on the southern and western side of Vujcich Road, accessed approximately 1.2 kilometres from the intersection of Vujcich Road with State Highway 12.

The property is Māori freehold land as defined by Te Ture Whenua Māori Act 1993. This land status has significant implications for resource consent processing, as the Operative Far North District Plan includes specific provisions for papakāinga housing and integrated development on Māori freehold land that recognise the unique circumstances and aspirations of Māori land ownership.

Vujcich Road provides unsealed road access to the property. The road is maintained by Far North District Council and connects to State Highway 12, which is maintained by Waka Kotahi New Zealand Transport Agency. The unsealed surface and connection to the State Highway network provides good all-weather access for residents and emergency services.

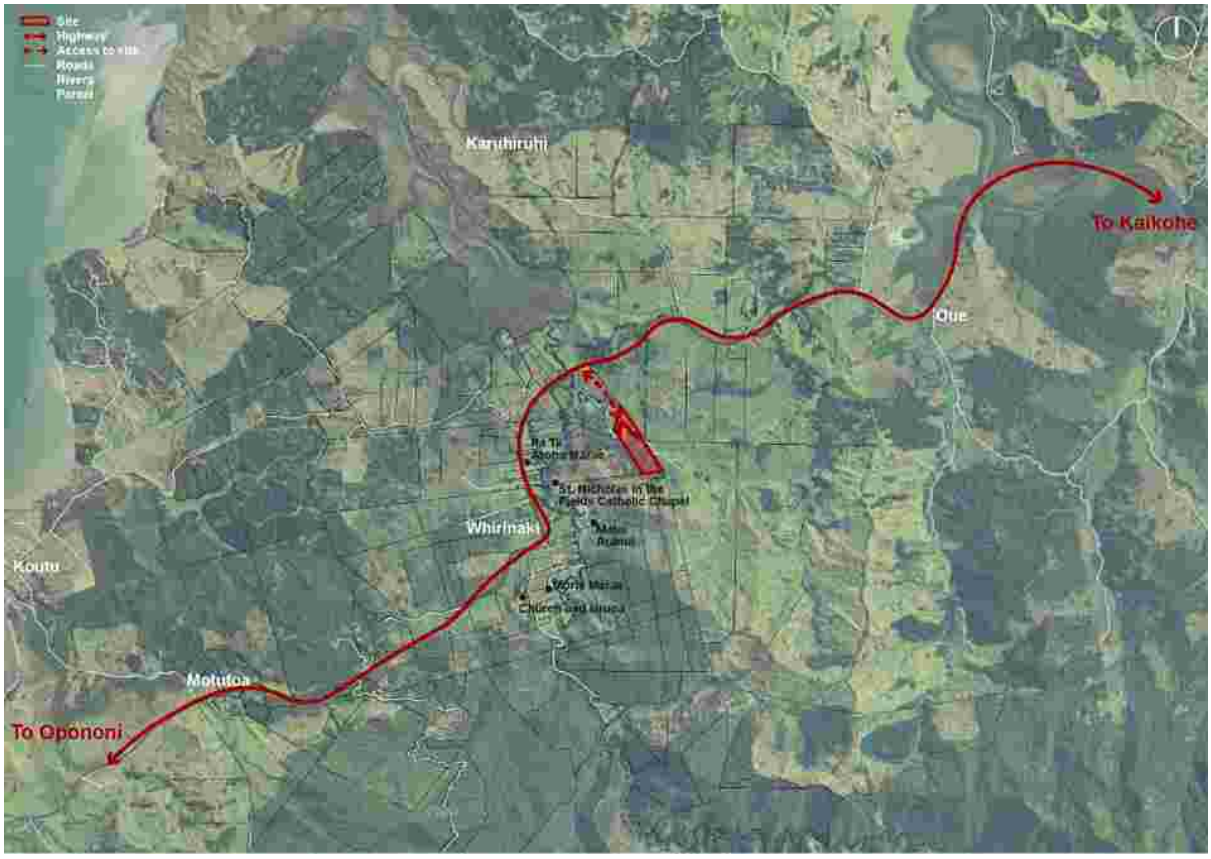


Figure 1: Kauri Papakāinga Location Plan

4.2 Site Character and Existing Development

The Kauri Papakāinga currently contains existing dwellings and farm buildings associated with historic and contemporary occupation of the land by Te Hikutū hapū descendants. These existing structures are located primarily in the northern and eastern portions of the property. The development area for the new papakāinga has been positioned to utilise areas of lower ecological value and existing disturbance where practicable, whilst maintaining appropriate separation from existing dwellings to respect privacy and amenity.

The development area is located on a gently sloping terrace with ground coverage consisting of a mixture of vegetation types:

- Dense indigenous regenerating scrub in some areas, including kahikatea, mānuka, and tī kōuka (cabbage tree)
- Exotic forest vegetation including eucalyptus and pine trees, some of substantial size
- Areas of rank pasture and grassland, particularly in locations of historic or current grazing
- Patches of wetland vegetation in lower-lying areas and drainage lines
- Mixed indigenous and exotic shrubland on steeper slopes to the east

The Ecological Impact Assessment prepared by Wildland Consultants Ltd (October 2025) provides detailed descriptions of vegetation types present on site. The EcIA identified several distinct vegetation types including exotic forest, kahikatea-mānuka scrub, and raupō reedland wetland. These

ecological values have informed the siting and design of the development to avoid or minimise adverse ecological effects.

According to the site investigations undertaken by RS Engineering, the development area exhibits ground conditions typical of Northland hill country. Surface water and saturated soils were observed in some locations during site investigations, particularly in lower-lying areas and during wet weather conditions. A permanent stream flows northeast across the southwestern corner of the site, with a defined bed ranging from 0.5 to 1 metre in width. Small ephemeral drainage lines are also present, conveying surface water during rainfall events.

Figure 2: Kauri Papakāinga existing built form – house and sheds

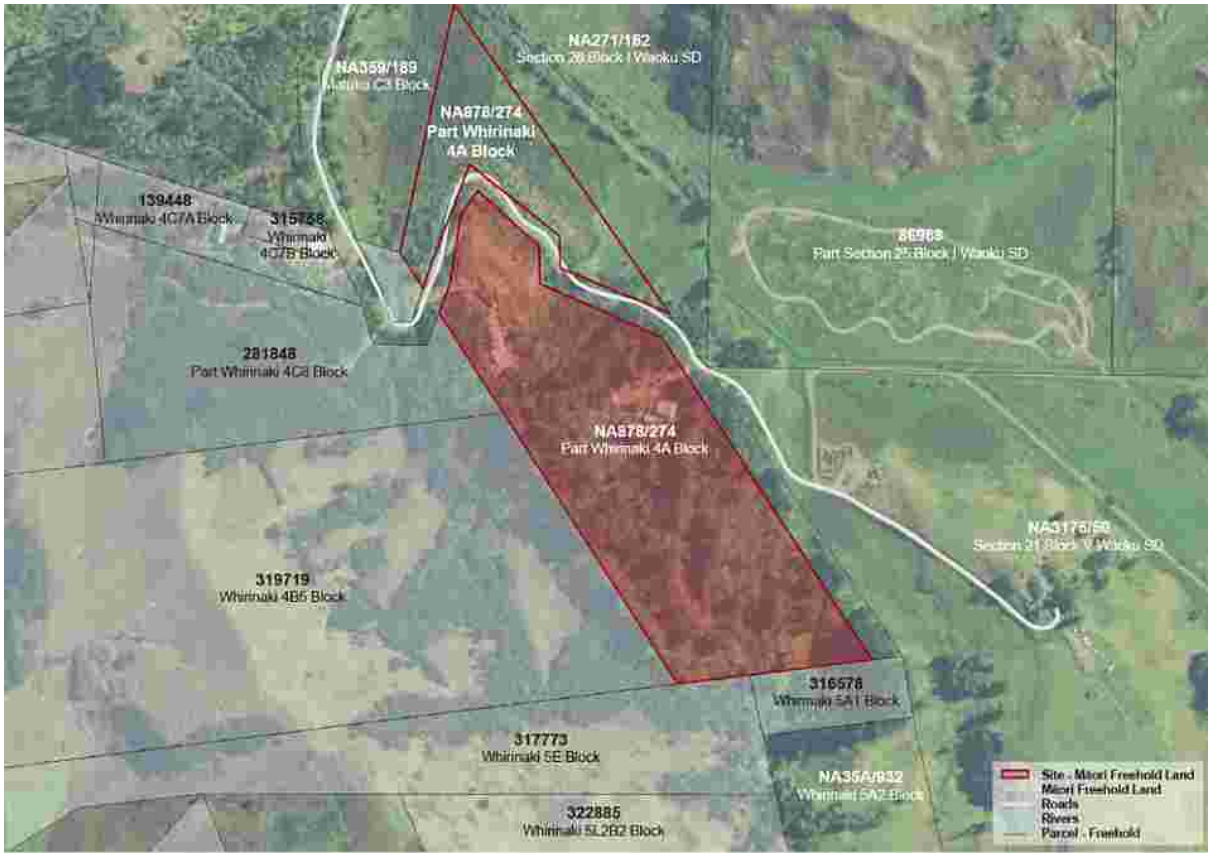


Figure 3: Kauri Papakāinga and neighbouring site property parcels
Source: Northland Regional Council Local Maps

Figure 4: **Kauri Papakāinga existing vegetation**
Source: Far North Atlas

4.3 Topography and Landform

The Kauri Papakāinga is situated on an elevated terrace that forms part of the broader rolling to steep hill country characteristic of the Whirinaki valley catchment. The development area occupies the gently sloping portion of this terrace, with slopes typically ranging from near-level (less than 3 degrees) to gentle (approximately 5-10 degrees). This topography provides suitable ground for residential development with moderate earthworks requirements.

To the east of the development area, the terrain rises more steeply toward higher ground, with slopes in the range of 15-30 degrees. This steeper terrain is generally vegetated and has been excluded from the development area. To the north and west, the terrain generally slopes downward toward lower-lying areas of the valley floor that are subject to flooding. The elevated position of the Kauri Papakāinga development area relative to these lower areas is a critical factor in its selection for papakāinga development.

According to the Geotechnical Investigation Report prepared by RS Engineering Ltd (November 2025), the gentle slopes within the development area are suitable for residential construction. The report notes that building platforms can be established with cuts limited to a maximum of 2.0 metres and with minimal fill above existing ground levels. This approach works with the existing topography rather than requiring extensive re-grading, minimising earthworks volumes and associated effects.

The elevation of the development area places it well above the flood-prone lower valley areas. Based on Northland Regional Council flood modelling, the development area sits outside the mapped extents of 10, 50, and 100-year average recurrence interval flood events. This elevated position provides long-term flood resilience and was a primary criterion in site selection for the managed retreat programme. The development will provide genuinely safe housing for whānau relocating from high flood risk areas, rather than simply moving the risk from one location to another.

4.4 Surrounding Environment and Land Use

The site is located within the Whirinaki valley, which has a distinct character reflecting its occupation by Te Hikutū hapū. The valley contains a mix of land uses including residential dwellings, marae and associated buildings, farming activities (primarily pastoral grazing), areas of indigenous and exotic vegetation, and community facilities. This mixed land use pattern is typical of Māori land blocks in rural Northland, where multiple land uses coexist to support whānau wellbeing and community sustainability.

The nearest neighbours to the Kauri Papakāinga development are existing residences on adjacent Māori land blocks. These properties are accessed from the same road network and share similar land use patterns. The sense of community in the Whirinaki valley is strong, with established social relationships, regular interaction between neighbouring whānau, and collective participation in marae activities and community events. This social fabric is an important part of the valley's character and one of the reasons why managed retreat within the valley (rather than relocation elsewhere) is the preferred approach.

The wider locality includes several important community facilities that serve the Whirinaki community:

- Pa Te Aroha Marae, Matai Ara Nui Marae, Moria Marae - The three marae are the focal point for the community, hosting hui, tangihanga, celebrations, and cultural activities. The marae maintains its role as the heart of the community and is central to the identity of Te Hikutū hapū

- Te Kura Kaupapa Māori o Te Tonga o Hokianga School - The local school at Koutu provides education for children from the valley and surrounding areas. Maintaining school roll numbers is important for the school's viability and continued service to the community
- Whirinaki has a Kōhanga Reo located next to the community centre, providing early childhood education
- Community Centre - The community centre hosts meetings, events, and activities. It provides important communal space for the valley residents. Whirinaki Trust operates out of the community centre.
- Churches - Two churches in the valley serve religious needs of the community and are important gathering places
- Sports facilities - Recreation areas, including rugby fields, support community health and wellbeing and provide important social spaces

The valley is accessed via State Highway 12. State Highway 12 runs along the northwestern edge of the valley and provides the primary connection to larger centres. Key destinations accessible via State Highway 12 include:

- Kaikohe (approximately 25 kilometres to the east) - The nearest town with supermarket, medical centre, secondary school, and other services
- Opononi and Ōmāpere (approximately 6 and 11 kilometres to the west) - Coastal settlements with basic services and amenities
- Whangārei (approximately 124 kilometres to the southeast) - The regional centre with hospital, tertiary education, and full range of services
- Dargaville (approximately 93 kilometres to the south) - District centre with hospital and range of services

The Whirinaki valley is part of the broader Hokianga area, which is characterised by strong Māori cultural presence, extensive Māori freehold land ownership, rural and remote character, and close community connections. The valley's location provides reasonable access to services whilst maintaining the rural character and community cohesion that are valued by residents.

Figure 5: Land Use Map
Source: Far North District Council

5.0 Description of the Proposal

5.1 Overview of Development

The proposal involves the construction of 12 new residential dwellings on the Kauri Papakāinga (Part Whirinaki 4A Block, NA878/274), together with all necessary infrastructure and services to support safe, sustainable residential occupation. The development has been designed in accordance with the recommendations of specialist consultants and with careful consideration of the unique context of the Whirinaki Managed Retreat programme.

The development layout has been informed by multiple technical considerations including topography, geotechnical ground conditions, ecological values, hydrological features, access requirements, service provision, and cultural considerations. The siting of dwellings and infrastructure represents a balanced outcome that enables the development objectives to be achieved whilst managing environmental effects responsibly.

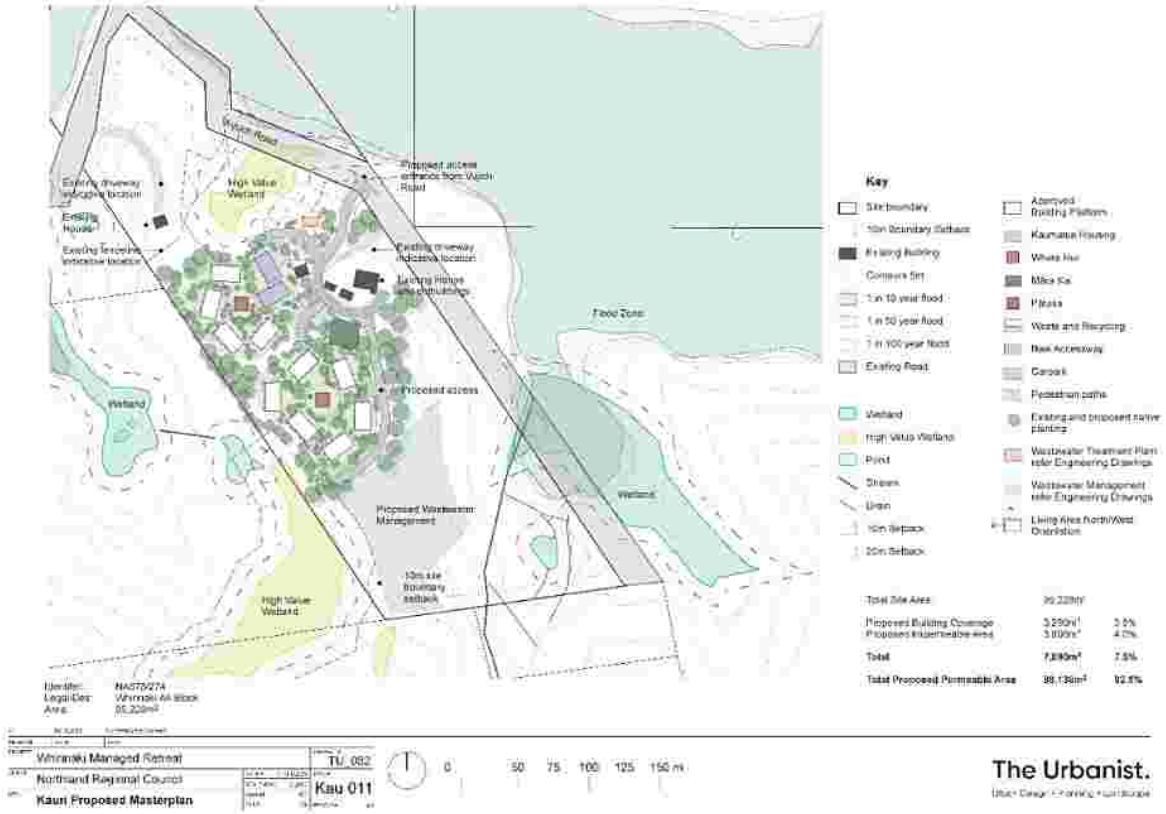


Figure 6: Kauri Papakāinga Masterplan

Source: The Urbanist, November 2025

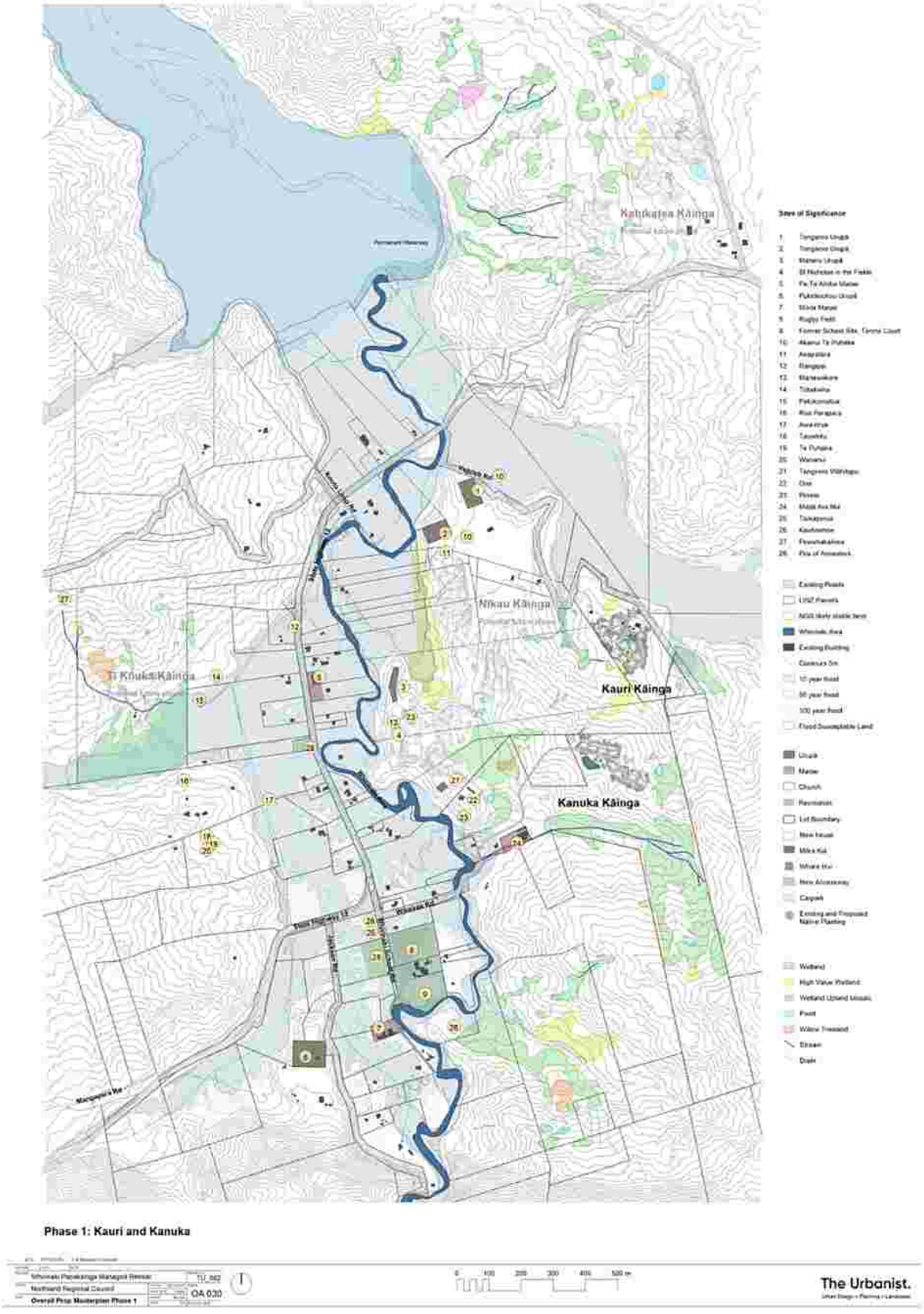


Figure 7: Kauri Papakāinga in context of Potential Overall Managed Retreat

Source: The Urbanist, December 2025

5.2 Papakāinga Proposed Works

The proposal involves 12 new standalone residential dwellings designed to accommodate whānau of varying sizes. The dwellings will be primarily single-storey structures of modest scale (80-148m² floor area) consistent with rural residential buildings in the locality. Prefabrication construction methods are proposed, utilising local suppliers Advance Build and A-Line homes, who have confirmed capacity to deliver the required dwellings within project timeframes.

Figure 8: Kauri Papakāinga Typical Floorplans - Advance Build

Source: Advance Build

Figures 9 and 10: Kauri Papakāinga Typical Floorplans - A-Line

Source: A-Line

5.2.1 Foundation Design

Based on the geotechnical investigations undertaken by RS Engineering Ltd, including hand auger drilling and Cone Penetration Testing across the development area, all dwellings will be constructed on timber pile foundations. This foundation system is specifically required to account for the medium to heavy clay soils present on site (classified as Soil Category 6 per AS/NZS 1547) and their highly expansive characteristics (Class H1 per AS 2870).

The Geotechnical Investigation Report (RS Engineering Ltd, November 2025) provides the following specific foundation design parameters and recommendations:

- Timber pile foundations shall be specifically designed by a qualified structural engineer to account for the reduced bearing capacities in the clay soils.
- Timber piles shall extend to a minimum depth of 0.9 metres below ground level. This depth is specifically required to account for the shrink-swell behaviour of the highly expansive clay soils and to ensure piles extend below the zone of seasonal moisture variation.
- Ultimate Bearing Capacity (Geotechnical Ultimate) of 150 kPa shall be adopted for geotechnical design purposes.
- Dependable Bearing Capacity (Ultimate Limit State) of 75 kPa shall be used for structural limit state design.
- Allowable Bearing Capacity (Serviceability Limit State) of 50 kPa shall be adopted for serviceability design to limit settlements.
- Settlement: Based on CPT data analysis, vertical settlements of up to 40 mm are expected under average long-term building loads of 10 kPa with no filling above original ground level. Differential settlements are expected to be within the NZ Building Code limit of 1V:240H.
- Retaining Walls: Where retaining walls are required to form building platforms, these shall be specifically designed by a suitably experienced Chartered Professional Engineer familiar with the Geotechnical Investigation Report, using the following assessed soil parameters: soil density 19 kN/m³; friction angle 26°; and undrained shear strength 40 kPa. Retaining walls shall be designed for at-rest earth pressures. A strength reduction factor of 0.45 shall be adopted for the limit state design of the lateral capacity of cantilever retaining wall pile foundations.
- Slope Setbacks: No buildings shall be constructed within 5 metres of the crest of moderate to steep slopes. No-build zones are shown on the site plan prepared by RS Engineering Ltd (Drawing C01, Rev A, 11 November 2025).
- Further Investigation: At the building consent stage, further geotechnical investigation shall be undertaken at each individual building site to confirm specific foundation design recommendations prior to construction

These recommendations reflect the specific geotechnical conditions encountered across the Kauri Block. The Pleistocene alluvium deposit underlying the site consists of firm to stiff silty clays, sandy clays, and clayey silts, with In-Situ Undrained Shear Strengths between 15 kPa and greater than 150 kPa, extending to approximately 28 metres below ground level. The geotechnical report confirms that a timber pile foundation system is appropriate for this geological setting as it provides robust load transfer through the expansive upper clay layer, accommodates shrink-swell movement without structural distress, allows underfloor ventilation beneficial to the Northland climate, and minimises site disturbance during construction.

The Geotechnical Investigation Report concludes that the land is not, or is not likely to be, subject to material damage by subsidence or slippage from any source, and that the proposed use is not likely to accelerate, worsen, or result in material damage to the land or surrounding land.

5.2.2 Building Design Guidelines

Each dwelling will be designed to meet the specific needs of the whānau who will occupy it, with flexibility in layout and size to accommodate different household compositions. Typical dwellings are expected to include:

- 4-5 bedrooms depending on household size and composition
- Open plan living/dining/kitchen area providing flexible family space
- Bathroom facilities including shower, toilet, and hand basin
- Separate laundry facilities with connection for washing machine and provision for drying
- Covered deck or verandah area providing sheltered outdoor living space and connection to the land
- Storage areas for household goods and equipment
- Adequate ceiling height (minimum 2.4m) and natural light to all habitable rooms

Design Guidelines

Form

- Any cut, fill or visible excavation into the ground is to be planted with vegetation consistent with the surrounding landscape
- All slopes and mounding should be shaped into the natural angle of the landform
- Buildings are to comply with the maximum height control of 8m rolling height
- Roofs are to be gabled or monopitch with overhangs
- Exterior lighting is to be downward facing and warm toned to minimise light spill and sky glow

Materiality

- Natural timber cladding - left to weather, oiled or stained in natural hues
- Painted timber weatherboards or profiled metal cladding in recessive colours
- Joinery colour should read as part of the overall materiality of the cladding

Infrastructure

- Infrastructure such as water tanks, rainwater storage, wastewater tanks and solar panels are to be screened from view from communal areas where possible
- External service areas and site utilities are to be integrated so that rubbish, storage, washing lines and similar items do not dominate views from surrounding dwellings. These can be screened with vegetation or material to match the cladding of the building where possible.

All dwellings will be designed and constructed to comply with the New Zealand Building Code, including requirements for structural performance, fire safety, moisture control, energy efficiency,

access, and durability. Building consent will be obtained from Far North District Council prior to construction commencing.

The external appearance of dwellings will be designed to complement the rural character of the Whirinaki valley. Dwellings will feature:

- Pitched roofs compatible with rainwater collection and appropriate for the climate
- Exterior cladding in natural or subdued colours (earth tones, greens, greys) that blend with the surrounding environment
- Materials suited to the Northland climate including treated timber weatherboards, metal roofing, and durable joinery
- Modest scale and form consistent with rural residential buildings rather than urban housing typologies
- Positioning and orientation to take advantage of sun, views, and natural ventilation where site conditions permit

5.3 Papakāinga Layout and Design Rationale

The layout and design of the Kauri Papakāinga has been developed through an iterative master planning process that responds to multiple site-specific constraints and opportunities. The design approach integrates geotechnical recommendations, ecological constraints, cultural principles, infrastructure requirements, and community needs to create a resilient and sustainable papakāinga development.

5.3.1 Geotechnical Constraints and Site Selection

The fundamental driver of the site layout is the geotechnical investigation undertaken by RS Engineering Ltd, which identified areas of stable ground suitable for development and areas requiring avoidance or special treatment. The layout has been specifically designed to:

- Work with existing contours to minimise earthworks, particularly avoiding areas identified as requiring large-scale cut and fill operations
- Locate dwellings on identified stable land areas, avoiding steeper hummocky terrain and areas with elevated slope instability risk
- Minimise the requirement for deep piled foundations by selecting flatter, more stable building platforms
- Maintain appropriate setbacks from wetlands, streams, and identified overland flow paths as recommended in the geotechnical and civil engineering reports

5.3.2 Cluster Papakāinga Configuration

The development adopts a cluster housing model rather than dispersed individual lots, which provides multiple benefits for this papakāinga context. The cluster comprises 12 dwellings arranged around shared spaces, with the following design principles:

- Dwelling mix designed to support multigenerational living, including the provision for a combination of dwellings to accommodate kaumatua/kuia, small families, and larger whānau units. This includes flexible floorplan configurations, such as bedrooms positioned to provide separation while sharing common living spaces. Adaptable kāinga enable kaumatua/kuia to be included comfortably within the whānau without compromising their privacy and the overall functionality of the home.
- Minimum spacing of 5 metres between dwellings to provide adequate privacy, space for outdoor living areas, and separation for fire safety
- Closer spacing (minimum 3 metres) for the two kaumatua dwellings, which are designed for kaumatua/kuia and positioned close together for usability and to promote neighbourliness and mutual support for the two kaumatua dwellings
- Central position for a 10m x 10m shared facility, which is designed as a community gathering space for each of the papakāinga clusters to promote collective enterprise, neighbourliness and mutual support (such as civil defence organisation space, meetings, shared office space, weaving, shared meals etc)
- Development density of approximately 0.7 homes per hectare, which is appropriate for cluster papakāinga development and significantly more efficient than standard rural residential subdivision.

5.3.3 Solar Orientation and Views

Each dwelling has been positioned to optimise solar access and capture views where site conditions allow. Key orientation principles include:

- Primary living spaces and outdoor decks oriented to the north and west to maximise winter sun and afternoon light
- Dwelling orientation arranged to provide privacy between units while maintaining visual connections to shared spaces and accessways
- Generous deck areas (typically 3 x 6m on north/west sides) provided for outdoor living, with the potential for covered sections to provide summer shade while allowing winter sun penetration

5.3.4 Whare Hui, Māra Kai and Pātaka (Shared Facilities/Community Space)

Whare Hui

Central to the papakāinga design is the provision of a Whare Hui (shared communal building) within the cluster, as briefly noted above. A central 10m x 10m covered structure is positioned at the heart of the cluster, surrounded by the family dwellings. This Whare Hui is designed to accommodate:

- Covered outdoor gathering space for whānau events and daily interaction
- Shared kitchen facilities for community meals and food preparation
- Shared storage for tools, equipment, and community resources
- Rainwater tank infrastructure serving the cluster

The cluster layout also includes space for māra kai (food gardens) integrated within and around the residential area, with additional larger productive areas positioned nearby on suitable land.

Māra Kai and Productive Landscapes

Food production is integrated throughout the papakāinga development at multiple scales, supporting both household food security and potential income generation. The māra kai strategy includes:

- Household māra kai are proposed within the papakāinga clusters including small kitchen gardens integrated within individual dwelling sites for daily vegetable production, herbs, and small-scale food growing. These gardens will be positioned to receive good sun exposure and be convenient for daily access from each home or around the Whare Hui.
- Māra Huupara (informal food forests) are proposed for productive plantings integrated along pathways and in clearings between residential areas, including fruit trees (e.g., feijoa, citrus, avocado, stone fruit), berries, and perennial vegetables. These plantings serve multiple functions - providing food, creating pleasant walking routes, offering shade, and reinforcing the connection to mahinga kai traditions.
- Centralised larger māra kai are proposed to provide a more substantial productive area around 400m², positioned on suitable flat land near vehicle access for ease of maintenance, equipment access, and harvest collection. This shared garden encourages collective responsibility, knowledge sharing between generations, and provides space for larger crops that benefit from economies of scale. This area is designed for intensive vegetable production and has potential for light commercial operation to generate income for the community is desired.
- Orchard areas with both informal fruit tree plantings scattered through clearings and more formal orchard layouts on appropriate sites. Orchards are positioned to avoid areas identified for building or infrastructure while utilising productive land that may not be suitable for housing due to slope or access constraints.

Māra kai areas are positioned near vehicle access where possible to facilitate delivery of compost, mulch, and equipment, as well as harvest collection. Water supply for gardens will primarily utilise rainwater harvesting from buildings and the central whare hui, supplemented by swale systems to capture and direct stormwater runoff where needed.

Pātaka and Food Storage

The provision of pātaka (traditional food storage structures) is integrated within the design to support the māra kai system and reinforce tikanga Māori practices of food preservation and sharing. Pātaka locations include:

- Central pātaka at the Whare Huis, being a primary food storage structure positioned adjacent to the central 10m x 10m covered gathering space. This pātaka serves the entire cluster and provides cool, dry storage for preserved foods, seed saving, and bulk storage of harvest from communal gardens. The central location reinforces the traditional role of pātaka in community life and facilitates equitable food distribution.
- Pātaka associated with larger māra kai provides additional storage positioned near the centralised productive garden to store tools, equipment, harvest rourou (food baskets), and fresh produce awaiting distribution. These pātaka support the operational needs of larger-scale food production.

The pātaka will be elevated to help prevent pest access, well-ventilated to maintain appropriate temperature and humidity, and positioned to avoid direct hot sun while remaining easily accessible from both the Whare Hui and the māra kai areas. The pātaka reinforces the cultural value of kai sovereignty and the principle that food security is a collective responsibility within the papakāinga.

5.3.5 Access and Movement Network

The access road layout has been designed to:

- Follow natural contours to minimise earthworks, with road gradients designed at a maximum ratio of 80 metres horizontal distance for every 12 metres of vertical rise
- Maintain separation between vehicular access and pedestrian areas within the cluster to ensure safety, particularly for children and elderly residents
- Position parking at the edges of the cluster with accommodation for accessibility needs where required (locating some homes nearer to parking where mobility is a consideration, such as for kaumatua housing)
- Design for slow vehicle speeds through the development area, recognising multimodal use of access ways
- Provide sufficient width and surface treatment to accommodate delivery of modular homes during construction

5.3.6 Cultural Considerations

The layout incorporates tikanga Māori principles in several ways:

- Appropriate separation and arrangement of tapu and noa spaces and activities has been considered in positioning dwellings, shared facilities, and productive areas
- Space has been allocated for potential placement of pou and other cultural markers as determined by Te Hikutū hapū
- The cluster model reinforces traditional papakāinga living patterns where whānau live in close proximity with shared resources and collective responsibility

5.3.7 Environmental Protection and Enhancement

The layout specifically protects and enhances ecological values through:

- Maintaining recommended setbacks from all identified wetlands and watercourses, with riparian planting to stabilise banks and enhance habitat
- Strategic planting on slopes identified as requiring stabilisation, using indigenous species appropriate to the Hokianga ecological district (refer Table 4 of Ecological Assessment)
- Stormwater management through bioswales and low-impact design approaches that minimise runoff velocity and filter sediment (refer section 9.4 of Ecological Assessment)
- Retention and enhancement of existing vegetation where compatible with development, particularly larger trees and native vegetation that provide habitat and character

5.4 Access and Roading Design

Vehicular access to the development will be provided via a new internal access road connecting to Vujcich Road. Vujcich Road is an existing unsealed public road maintained by Far North District Council that connects to State Highway 12 approximately 1.2 kilometres to the northwest. The Civil Suitability Report prepared by RS Engineering Ltd, dated December 2025, (Appendix 7) addresses access design in detail.

5.4.1 Internal Access Road Design

The internal access road has been designed to meet Far North District Council standards (as set out in Appendix 3B-1 of the Operative District Plan), adapted for the site's specific characteristics. The access road will feature:

- Formed width of 5 metres for the majority of its length (minimum 3.5m), accommodating two-way traffic and providing adequate clearance for vehicles to pass safely
- Sealed surface (concrete) to minimise dust generation, ensure all-weather trafficability, and reduce ongoing maintenance requirements
- Design grades working with topography with steeper grades only on short sections where topography necessitates, in accordance with Council standards
- Minimum curve radii of 10 metres at bends to accommodate the swept path of service vehicles and emergency response vehicles (fire trucks, ambulances)
- Adequate sight distances (65m +) at the junction with Vujcich Road, designed in accordance with Austroads guidelines for the posted speed limit on Vujcich Road
- No internal accessway lighting is proposed to avoid light spill and protect the rural environment
- Underground services (power, telecommunications) beneath the access road corridor where practicable to reduce visual clutter and ongoing maintenance

5.4.2 Turning Areas and Parking

The access road layout includes appropriate turning areas sized to accommodate service vehicles including refuse collection trucks (up to 10m length), delivery vehicles, and emergency response vehicles (fire trucks up to 11m length). Turning areas have been provided at strategic locations to enable vehicles to turn around and exit in a forward direction, avoiding the need for reversing long distances.

Each dwelling has been provided with off-street parking and turning areas meeting Far North District Council requirements:

- A total of 26 carparks are provided (typically 2.5m x 5.5m per space) which meets the requirement for spaces required for Papakāinga under Appendix 3C of Part 15: Transportation. This includes additional parking spaces for visitors
- Parking spaces formed with a permeable surface where grades permit (gravel) to reduce impervious area and assist with stormwater infiltration
- On-site turning areas enabling vehicles to enter and exit the property in a forward direction without reversing onto the access road

5.4.3 Pedestrian Access and Connectivity

The development prioritises pedestrian movement and community connection over vehicle access, drawing on principles from successful communal co-housing models (such as Earthsong in Tāmaki Makaurau Auckland) that promote health, longevity, and social wellbeing.

Vehicle access is intentionally limited within the papakāinga, with parking concentrated at the periphery to create safe, vehicle-free internal spaces. This design approach places people first, fostering a pedestrian-oriented environment where residents can move freely and safely throughout the development.

Internal circulation focuses on generous pedestrian pathways, both formal gravel paths and informal tracks following natural desire lines, that connect dwellings to communal facilities and gathering spaces. These pathways are designed to encourage spontaneous interaction between residents and provide safe, accessible routes for all ages and abilities.

A key priority is creating abundant space for tamariki to play, explore, and move independently throughout the papakāinga. The vehicle-free internal layout ensures children can safely access communal areas, play spaces, and natural features, supporting their physical health, development, and connection to whenua. This pedestrian-first approach strengthens community bonds, promotes active living, and creates a safer, healthier environment that reflects the values of communal living and intergenerational wellbeing.

5.5 Water Supply Design

Potable water supply for the development will be provided through individual rainwater harvesting systems at each dwelling. This approach is appropriate for the rural setting, is consistent with typical practice in the Whirinaki valley, and is supported by the Civil Suitability Report prepared by RS Engineering Ltd. It is noted that the valley is linked up to Whirinaki Water supply – however water tanks are proposed to provide resilience to the papakāinga.

5.5.1 Rainwater Collection Systems

Each dwelling will be equipped with a rainwater harvesting system including:

- Roof-mounted spouting and downpipes sized to capture rainfall from the entire roof area. Typical roof areas of 100-150m² will provide substantial catchment
- Water storage tanks with adequate capacity for household water use, designed based on roof catchment area, household size, and rainfall patterns. Typical tank capacity will be 30,000L for three bedrooms and 50,000L for four bedrooms
- Overflow pipes directing excess water to stormwater disposal systems
- Basic water treatment to ensure water quality meets NZ Drinking Water Standards and G12 of NZBC for roof-supplied water

RS Engineering Ltd's Civil Suitability Report confirms that roof water collection systems can provide adequate water supply for domestic use. Based on Northland rainfall patterns (average annual rainfall

approximately 1,500mm), roof catchment areas, and typical household water use, rainwater systems will meet household demands in normal years. Residents will be advised on water conservation practices and may need to supplement supply during extended dry periods.

5.5.2 Firefighting Water Supply

Firefighting water supply will be provided in accordance with Far North District Council requirements. A communal 45m³ (45,000 litre) firefighting water storage tank will be provided at a central accessible location, serving multiple dwellings and providing adequate supply for sustained firefighting operations. The specific approach to firefighting water supply will be confirmed at building consent stage in consultation with Far North District Council and Fire and Emergency New Zealand.

5.6 Wastewater Treatment and Disposal - Detailed Design

On-site wastewater treatment and disposal systems will be provided for each dwelling. The Civil Suitability Report prepared by RS Engineering Ltd provides comprehensive design recommendations for these systems, specifically tailored to the medium to heavy clay soil conditions present on site (Soil Category 6 as per AS/NZS 1547:2012).

5.6.1 Treatment System Design

Secondary wastewater treatment systems will be installed for each dwelling. Secondary treatment is required to treat effluent to a high standard before land disposal, given the clay soil conditions which have limited permeability and treatment capacity compared to sandy or gravelly soils. Secondary treatment systems typically reduce:

- Biochemical Oxygen Demand (BOD)
- Total Suspended Solids (TSS), clarifying the effluent and preventing clogging of disposal systems
- Nitrogen concentrations through biological processes, though some nitrogen will remain in the treated effluent
- Pathogens (bacteria, viruses) through residence time and biological processes, though further treatment occurs through soil passage

The specific treatment system for each dwelling will be selected at detailed design stage based on household size, wastewater characteristics, site conditions, and cost considerations. All systems will be installed and commissioned in accordance with manufacturer specifications and AS/NZS standards.

5.6.2 Effluent Disposal Field Design

Treated effluent from the secondary treatment system will be disposed of through subsurface drip irrigation disposal fields. This disposal method is specifically recommended for clay soils as it:

- Distributes effluent evenly across the disposal area, avoiding ponding or preferential flow paths
- Applies effluent below the soil surface, minimising odour and preventing direct human or animal contact
- Allows precise control of irrigation rates to match soil infiltration capacity and plant uptake rates

- Provides good distribution efficiency and long-term reliability on clay soils where conventional trenches may not perform well

The RS Engineering Civil Suitability Report provides specific design parameters for the disposal fields:

- Irrigation Loading Rate: A conservative rate of 2.0 mm/day has been adopted, appropriate for Soil Category 6 (medium to heavy clays) as per AS/NZS 1547. This low loading rate ensures the soil has adequate time to treat and infiltrate the effluent.
- Disposal Area: Based on design flows of ~850 litres per day per dwelling (typical 4-person household) and the 2.0 mm/day loading rate, minimum disposal area of ~460m² per dwelling is required. Larger areas will be provided where site conditions permit to provide capacity margin.
- Drip Line Spacing: Subsurface drip irrigation lines will be installed at 1m centers and at a depth of 50-100mm below ground surface minimum or covered in mulch.
- Pressure Compensation: Pressure-compensating drip emitters will be used to ensure even distribution across the disposal field regardless of slope or pipe length.
- Groundwater Separation: A minimum vertical separation of 0.6m is required between the drip irrigation lines and the seasonal high water table. Geotechnical investigations encountered groundwater at 0.9m depth, providing adequate separation.

5.6.3 Vegetation on Disposal Fields

Existing vegetation over the disposal field areas will be retained where present, or new vegetation will be established where existing coverage is inadequate. Vegetation serves multiple beneficial functions for wastewater disposal:

- Plant roots take up water, nitrogen, and phosphorus from the soil, providing additional treatment and preventing accumulation
- Transpiration removes water from the soil profile, assisting with effluent disposal and preventing waterlogging
- Root systems maintain soil structure and porosity, preventing soil compaction and maintaining infiltration capacity
- Surface coverage prevents erosion and stabilises the disposal field

Recommended vegetation for disposal fields in this environment includes low-growing native sedges (such as *Carex* species), native grasses (such as *Austroderia toetoe*), and native shrubs (such as *Coprosma* species, *Leptospermum scoparium*/mānuka). These species are well-adapted to Northland conditions, tolerate moist soils, have good nutrient uptake capacity, and are low-maintenance.

6.0 Resource Consents Required

6.1 Operative Far North District Plan

The Operative Far North District Plan (ODP) is the relevant 'plan' to consider and the site is zoned Rural Production. Pursuant to the Operative Far North District Plan, resource consent is required for:

- **Papakāinga Housing - Rule 8.6.5.2.2:** The application proposes papakāinga development with 12 new residential units on a site being approximately 9.5ha in area with two existing dwellings onsite. This is 10 more than the density permits, as such is a **discretionary activity** (refer Rule 8.6.5.4(c)).
- **Integrated Development - Rule 8.6.5.4.2:** The papakāinga housing and associated buildings is proposed as part of an integrated development on Māori freehold land within the Rural Production Zone land where consent is sought as the proposed development does not comply with one or more of the zone rules. Consent is sought as a **discretionary activity** under this rule and a Management Plan is included as part of this application.
- **Earthworks - Rule 12.3.6.2**: Consent is sought for earthworks of 1,635m^3 (less than 5,000m^3) with a maximum fill height for some sections of the access road exceeding 1.5m as a **restricted discretionary activity**.
- **Wetlands setback - Rule 12.7.6.3:** The papakāinga wastewater dispersal field are within 30m of a natural inland wetland, as such a **discretionary activity** consent is sought.
- **Private Accessway – Rule 15.1.6C.2:** The papakāinga private accessway has been designed in accordance with Appendix 3B-1 and will have a formed width of 5.0m for the majority of its length. The private access is for 13 household equivalents, in excess of permitted 8 households pursuant to Rule 15.1.6C.1.1, as such a **discretionary activity** consent is sought.

Overall, the proposal requires consent as a **discretionary activity**.

A full assessment of the relevant Operative District Plan rules is included in Appendix 5.

6.2 Proposed Far North District Plan

The Proposed Far North District Plan (PDP) was publicly notified on the 27th of July 2022. The submissions and further submission periods have now closed. PDP hearings have been underway since May 2024. As no decisions on the submissions have yet been made, little weight is attributed to the proposed provisions at this time.

The proposed zoning for the application site is Māori Purpose Zone - Rural Production. The lower portion of the site (on the opposite side of the road) is noted as being within the Coastal Flood (Zone 1: 50 Year Scenario), Coastal Flood (Zone 2: 100 Year Scenario) Coastal Flood (Zone 3: 100 Year + Rapid Sea Level Rise Scenario) River Flood Hazard Zone (10 Year ARI Event), River Flood Hazard Zone (100 Year ARI Event).

An assessment of the proposal against the PDP rules that have immediate legal effects is set out below:

RULE	COMPLIANCE
Hazardous Substances Rules: Rule HS-R2 has immediate legal effect for a new significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a scheduled heritage resource . Rules: HS-R5, HS-R6, HS-R9	Not applicable Not applicable
Heritage Area Overlays: All rules: HA-R1 to HA-R14 All standards: HA-S1 to HA-S3	Not applicable

Historic Heritage: All rules: HH-R1 to HH-R10 Schedule 2	Not applicable
Notable Trees All rules: NT-R1 to NT-R9	Not applicable – no notable trees on site
Sites and Areas of Significance to Māori: All rules: SASM-R1 to SASM-R7 Schedule 3	Not applicable. The site does not contain any scheduled sites or areas of significance to Māori.
Ecosystems and Indigenous Biodiversity: All rules: IB-R1 to IB-R5	Complies The Wildland Consultants Ecological Impact Assessment addresses ecological values and mitigation measures.
Subdivision: Rules: SUB-R6, SUB-R13, SUB-R14, SUB-R15, SUB-R17	Not applicable - no subdivision proposed
Activities on the Surface of Water: Rules: ASW-R1 to ASW-R4	Not applicable
Earthworks: Rules: EW-R12, EW-R13 Standards: EW-S3, EW-S5	All earthworks in all zones are subject to Accidental Discovery Protocol standards EW-S3 and sediment control standards EW-S5. All earthworks proposed will be undertaken in accordance with these standards.
Signs: The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area	Not applicable – no signage is proposed

6.3 Overall Status of the Application

Overall, the status of the application is considered to be a **discretionary activity**.

7.0 Consultation

7.1 Te Hikutū Hapū

Extensive community and stakeholder consultation has been undertaken for the Whirinaki Papakāinga Managed Retreat Project between February and November 2025. This consultation programme reflects the project team's commitment to meaningful engagement with mana whenua, affected communities, and regulatory authorities throughout the planning and design process.

Consultation Period and Approach

The Urbanists consultation programme commenced on 14 February 2025 and is ongoing, spanning approximately nine months. The approach has emphasised frequent, ongoing engagement with the Whirinaki Papakāinga community and iwi representatives, recognising the cultural significance of the project and the importance of community-led design.

Key Stakeholders Engaged

Primary stakeholders engaged throughout the process include Whirinaki Papakāinga community members and iwi representatives, Te Hikutū Hapū Trust, Northland Regional Council staff and legal advisors, and potential project funders. The consultation has been led by core project team members including Ruth Tautari, Storm Tautari, and The Urbanist (Zoë Avery and Jon Avery), ensuring consistency and relationship continuity throughout the engagement process.

Community Engagement

The majority of consultation has occurred through community hui, with over 20 hui sessions held with Whirinaki Papakāinga community members and iwi representatives. These sessions have focused on community consultation, design review, and ensuring the project reflects community aspirations and cultural values. Several multi-day hui series were held in April, August, and October 2025, demonstrating sustained, in-depth engagement with the community. A public notice was also published for a five day hui online shared via the Northland Advocate, Age and Herald (30 and 31 July and 1 August 2025). This programme of community hui reflects the project team's commitment to genuine partnership and iterative design development informed by ongoing community feedback.

Site-Based Consultation

Multiple site visits were conducted between February and August 2025 to understand the site and wider areas constraints and opportunities. These included multi-day site visits in February 2025, assessment of the project site at Whirinaki, and inspection of neighbouring properties including Fife Farm (Kaihikatea Papakāinga). These site-based activities enabled the project team to ground their understanding in the physical realities of the location and informed subsequent design development.

Regulatory Authority Engagement

Regular meetings with Northland Regional Council staff and legal advisors were held throughout the consultation period. Five meetings occurred between February and October 2025, specifically addressing project coordination, updates, and resource consent process requirements. This ongoing dialogue with the regulatory authority has ensured the project team maintains a clear understanding of the regulatory pathway and compliance requirements.

Governance and Funding

Two meetings with the establishing Te Hikukū Hapū Trust representatives were held in June and October 2025, focusing on project planning and governance matters. Additionally, presentations to project funders were conducted in April and May 2025 regarding the masterplan proposal, securing understanding and support for the project's direction.

Outcomes

The comprehensive consultation programme has enabled iterative design development informed by community feedback, fostered strong relationships with mana whenua and the Whirinaki community, and established a clear understanding of resource consent requirements and process. The frequency and nature of consultation, particularly the numerous community hui sessions, demonstrates genuine partnership and reflects best practice in engagement with Māori communities on papakāinga development projects. As such the owners of this land have granted their consent to the proposal for 12 new homes to be built on their land for use of wider hapū members to move out of the flood zone (refer Appendix 10).

8.0 Section 104 Assessment

As established in Section 6.3, this application is to be assessed as a **discretionary activity** under the ODP. A consent authority must have regard to several matters under Part 2, sections 104, 104B and 108 of the Resource Management Act 1991 (RMA) when considering a resource consent application.

In this instance the considerations include;

- the actual and potential effects of an activity on the environment;
- any measure proposed or agreed by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any potential adverse effects;
- the relevant provisions of a plan, regional policy statement or other relevant statutory document; and
- any other matter the consent authority considers relevant and reasonably necessary to determine the application.

The following assessment addresses the relevant considerations under sections 104 of the RMA.

8.1 Permitted Baseline and Receiving Environment

Section 104(2) of the RMA states that:

"when forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect."

Consequently, when considering any actual or potential effects, the Council may disregard any adverse effects that arise from permitted activities in a NES or a plan ('the permitted baseline').

It is acknowledged that the Council has discretion whether to apply this permitted baseline under section 104(2). However, in this case it is considered reasonable to adopt the permitted baseline and to disregard effects arising from this baseline, particularly for several activities that form part of the application.

With respect to the application site, there is a permitted baseline in that a Papakāinga housing development with up to 4 units and associated buildings (including a marae) could be undertaken on the application site provided all other Far North District Council and Northland Regional Council requirements were met.

With respect to the application site, there is a permitted baseline that can be considered when assessing the effects of the proposed papakāinga development. Under the Operative Far North District Plan, Rule 8.6.5.4.1 establishes that residential development in the Rural Production Zone shall be limited to one dwelling per 2 hectares of land. For the 9.5 hectare development area, this would permit approximately 4 residential dwellings as a permitted activity, provided all other District and Regional Plan requirements were met.

Furthermore, Rule 8.6.5.2.2 provides for papakāinga housing as a controlled activity where each residential unit has at least 3,000m² surrounding the unit for its exclusive use. Applying this standard

to the 9.5 hectare site could potentially accommodate 4+ papakāinga units as a controlled activity, again subject to compliance with all other plan requirements.

This permitted baseline is material to the assessment of effects. It establishes that some level of residential development and associated activities - including buildings, access construction, earthworks, traffic generation, vegetation clearance for building platforms and access, and on-site servicing infrastructure - could occur on the site without resource consent. The adverse effects arising from this permitted baseline level of development may be disregarded when assessing the incremental effects of the proposal.

These activities could be undertaken with their associated effects, which would legitimately form part of the permitted baseline. The most significant effects of the proposed works relate to the new dwellings and associated earthworks, which requires consent as a discretionary activity.

The receiving environment in this case consists of the subject site and its surroundings, which the lower topography is subject to flood risk. The site is characterised by predominantly gently sloping topography. The surrounding environment includes rural-residential land use, with a mix of pastoral farmland, scattered vegetation, and proximity to the Whirinaki Awa with its associated ecological values.

It is appropriate for the Council to disregard the effects associated with the permitted baseline scenario described above in considering the effects of the proposal, focusing primarily on the incremental effects of the discretionary activity components.

Existing Environment Context

The existing environment provides the necessary context for understanding how the proposed development relates to its surroundings. The application site is located within the Whirinaki valley, an area characterised by predominantly Māori freehold land ownership with a well-established pattern of residential occupation, community facilities, and rural production activities.

The broader Whirinaki rohe contains approximately 80 existing homes in the flood zone, three marae (Te Kapua o Te Whare, Te Puna ki Whirinaki, and Ngaiotonga), two churches, and a community centre. This demonstrates that residential occupation and community development are established features of the existing environment. The valley has been continuously occupied by Te Hikutū hapū for generations.

Critically, the existing environment is also characterised by significant natural hazard risk. The majority of existing residential properties in the valley are located in areas subject to riverine flooding, with many homes positioned within mapped 10, 50, and 100-year flood extents. This creates an existing environment where flood vulnerability is a defining feature - residents regularly experience anxiety during heavy rainfall, properties require evacuation during flood events, and the community maintains emergency preparedness and response protocols.

The proposed development site (the Kauri Papakāinga) forms part of this broader rohe but is distinguished by its location outside mapped flood hazard areas. The site comprises approximately 9.5 hectares of elevated terrain that has historically been used for grazing and rural production. Some indigenous ecological features are present including wetlands and regenerating native vegetation, significant exotic vegetation and the site contains two dwellings and associated sheds.

The surrounding land use pattern includes rural residential properties, farming operations, and areas of indigenous vegetation. Vujcich Road provides formed road access connecting to State Highway 12. The area is serviced by individual water supply and wastewater systems, with Whirinaki Water supply

provided to some homes in the wider area. No reticulated wastewater services available. This self-sufficient servicing approach is characteristic of the rural environment and is accommodated within district plan provisions.

When assessed against this existing environment, the proposal represents the establishment of a papakāinga development pattern within the Whirinaki rohe. It differs significantly to the patterning of the existing homes to a more papakāinga style layout and crucially it will provide housing in a location that is not subject to the flood risk that characterises the existing residential environment. This distinction is central to understanding both the effects of the proposal and its benefits.

8.2 Actual and Potential Effects on the Environment

Having established the permitted baseline and existing environment, the detailed assessment of actual and potential effects provided in Section 8.0 of this AEE demonstrates that the incremental effects of the proposal above the permitted baseline are appropriately managed and will be no more than minor. The key findings include:

- Ecological effects can be avoided, remedied, or mitigated to less than minor through limiting vegetation clearance to only what is necessary, protecting identified wetlands and streams, implementing comprehensive erosion and sediment control measures
- Geotechnical suitability has been confirmed with appropriate foundation design (timber piles to minimum 0.9m depth) and earthworks management recommendations provided by RS Engineering Ltd
- Natural hazard risks are minimal as the development area is positioned outside mapped 10, 50, and 100-year flood extents, representing a significant improvement over the flood-vulnerable existing environment
- Water quality effects during construction and operation will be less than minor with appropriate wastewater treatment system design, low irrigation loading rates, adequate groundwater separation, and implementation of erosion and sediment control protocols
- Traffic and access effects are acceptable, with the incremental increase in traffic generation (from 12 dwellings compared to permitted baseline of 2-3 dwellings) being well within the capacity of the existing road network and access design meeting required standards
- Amenity and character effects are appropriate for the rural location, with the cluster-style papakāinga layout reflecting traditional Māori settlement patterns and the development being complementary to the established character of the Whirinaki rohe

Importantly, when the incremental density increase is considered in the context of the entire Whirinaki rohe (rather than just the 9.5 hectare development site in isolation), the proposal represents a modest intensification within an area already characterised by papakāinga development. The hapū maintains substantial areas of open space, indigenous vegetation, and community amenities across their landholdings, providing the broader landscape context contemplated by Rule 8.6.5.4.2's reference to "integrated development plans being considered in the context of other whānau and hapū lands in the vicinity".

8.2.1 Positive Effects of the Proposal

The proposal will generate substantial positive effects that are material considerations under section 104 of the RMA. These positive effects operate at multiple scales - from individual whānau wellbeing

to community resilience to broader natural hazard management practice in Aotearoa New Zealand. The consent authority is entitled to give weight to these positive outcomes in the overall assessment.

Provision of Safe, Flood-Resilient Housing - Primary Positive Effect

The most significant and immediate positive effect of the proposal is the provision of safe, flood-resilient housing for whānau currently living in areas subject to very high or extreme flood risk. This positive effect operates at multiple interconnected levels and represents a significant improvement in living conditions and community wellbeing.

Context: Flood Risk in the Whirinaki Valley

To appreciate the significance of this positive effect, it is necessary to understand the nature and magnitude of flood risk currently faced by residents of the Whirinaki valley. Flood modelling undertaken by Northland Regional Council indicates that significant portions of the valley are subject to inundation during flood events:

- 10-year average recurrence interval (ARI) flood events - events that have a 10% chance of occurring in any given year - can inundate low-lying residential areas, affecting access and potentially causing water to enter homes
- 50-year ARI flood events - with a 2% annual probability - result in more extensive inundation with water depths reaching 1-1.5 metres in some residential areas
- 100-year ARI flood events - with a 1% annual probability - can produce water depths exceeding 2 metres in the most vulnerable locations, causing severe damage to homes and complete loss of access

The January 1999 flood event, which approached or exceeded 100-year ARI levels in some locations, caused widespread damage throughout the valley. Homes were inundated, possessions destroyed, and the community was isolated for a period of time.

Through the hui undertaken for this project, residents have noted with regard to flooding:

- Significant anxiety and stress, particularly for those who lived through the 1999 event or have heard stories from whānau who did
- Preparing to evacuate - moving valuables to higher locations within the home, packing essential items
- Loss of access to essential services when roads become impassable
- Damage to property even in less severe events - muddy inundation of property, damage to outbuildings and vehicles

Moreover, climate change projections indicate that flood risk will worsen over coming decades. Increased rainfall intensity means that the flood events that currently have 50 or 100-year return periods will become more frequent.

Elimination of Direct Flood Risk

The Kauri Papakāinga development area is positioned entirely outside the mapped extents of 10, 50, and 100-year average recurrence interval flood events from the Whirinaki River and its tributaries. For the whānau who will occupy these dwellings, this represents practical benefits:

- Mental health and safety – elimination/reduction of flood-related trauma, anxiety, and evacuation stress
- Asset protection - homes and possessions protected from flood damage

- Service continuity - power, water, and communications will remain functional during flood events affecting low-lying areas
- Insurance availability - properties will be insurable, unlike current flood-prone valley properties which are uninsurable or prohibitively expensive, providing financial security for whānau

These benefits extend beyond individual householders to entire whānau. Children residing in the Kauri Papakāinga will not be exposed to flood events during their formative years. Kaumātua will have stable housing without the physical demands of flood preparation and evacuation. Whānau will be able to gather at these homes without disruption from flood events affecting cultural and social activities.

Enablement of Managed Retreat While Remaining on Ancestral Lands

A particularly significant aspect of this positive effect is that it enables whānau to move to safety while remaining within their rohe. This is fundamentally different from managed retreat scenarios where affected communities must relocate away from their ancestral lands entirely. For Māori communities, the connection to whenua is not merely about property ownership - it is about whakapapa, identity, and cultural practice. The Whirinaki Managed Retreat, by contrast, allows whānau to:

- Maintain their connection to ancestral whenua - they are not being forced to leave the rohe but are moving to a safer part of it
- Continue participation in marae activities and community life - the Kauri Papakāinga is proximate to existing marae and community facilities, enabling ongoing engagement
- Stay within the same papakāinga community - they are not being dispersed to different locations but are relocating together, maintaining social bonds and strengthening them through closer papakāinga design and incorporation of shared community facilities in close proximity (such as the whare hui, māra kai and pātaka
- Retain the ability to return to their current homes for visits if they wish, or to continue using land in flood-prone areas for purposes that don't involve permanent occupation

This approach demonstrates that managed retreat does not have to mean abandonment of place. Instead, it can mean strategic relocation within place to safer locations that preserve cultural connection while addressing physical risk. This is an innovative approach that may serve as a model for other communities facing climate change-related hazards.

Wider Community Benefits

Beyond the direct benefits to the households who will occupy the Kauri Papakāinga dwellings, the proposal generates positive effects for the wider Whirinaki community and beyond.

Reduction in Emergency Service Demands

By relocating households from high flood risk areas to safe locations, the proposal will reduce demands on emergency services during flood events. Current arrangements require coordination by Civil Defence Emergency Management, deployment of Fire and Emergency New Zealand water rescue capability, and Police resources to support evacuations and conduct welfare checks during floods.

Demonstration of Proactive Climate Change Adaptation

The proposal represents a proactive approach to climate change adaptation rather than reactive disaster response. Rather than waiting for flood events to force action, the hapū are working to address escalating risk before it manifests in potential loss of life, property damage, or community displacement.

This proactive approach aligns with best practice in natural hazard risk management and climate change adaptation planning. The New Zealand Coastal Policy Statement, the National Adaptation Plan, and guidance from the Ministry for the Environment all emphasise the importance of anticipating and planning for increased natural hazard risk rather than simply responding after disasters occur.

Economic Benefits

The proposal will generate economic benefits through construction employment, ongoing property maintenance, and avoided costs of flood damage and emergency response. The construction phase will provide employment for local contractors and tradespeople. Once completed, the 12 new homes, whare hui, māra kai and pātaka will require ongoing maintenance, supporting local hapū businesses.

More significantly, the avoided costs of flood damage represent substantial economic benefit. Flood events cause direct damage to homes and contents, temporary accommodation costs, loss of income when residents cannot reach work, health impacts from stress and exposure to contaminated floodwaters, and costs to Council and other agencies for emergency response and recovery coordination. By relocating households to safe locations, these costs are avoided.

Conclusion on Positive Effects

The proposed development will generate significant positive cultural effects for Te Hikutū hapū. The development enables whānau to remain within their rohe whilst relocating from flood-prone areas, maintaining critical connections to ancestral lands, marae, urupā, and other sites of cultural significance. The papakāinga design supports traditional settlement patterns and enables collective cultural practices, with shared spaces and proximity between dwellings facilitating whanaungatanga (kinship relationships) and collective activities. The project represents hapū self-determination in addressing climate risks and housing needs, demonstrating the exercise of tino rangatiratanga through hapū-led planning and decision-making. By providing safe, secure housing, the development ensures future generations can continue to occupy ancestral lands, maintaining the transmission of mātauranga Māori and cultural practices. Furthermore, the development incorporates environmental protection measures including wetland protection, riparian planting, and ecological restoration, enabling the hapū to fulfil their role as kaitiaki.

8.2.2 Cultural Effects

The site is not identified as containing any known archaeological features or wāhi tapu. However, given the long history of Māori occupation in the Whirinaki valley, there is potential for uncovering archaeological material during earthworks.

Mitigation measures include the implementation of an Accidental Discovery Protocol (ADP) developed in consultation with Te Hikutū hapū, cultural monitoring of initial earthworks by hapū representatives, appropriate tikanga for any discoveries including karakia and temporary cessation of works if required.

The proposal generates overwhelmingly positive cultural effects by enabling Te Hikutū hapū to maintain their connection to ancestral lands whilst addressing critical safety needs. Any potential adverse effects related to archaeological discoveries can be appropriately managed through the ADP and cultural monitoring. Overall, cultural effects are considered to be significantly positive.

8.2.3 Landscape, Character and Visual Effects

The Whirinaki valley exhibits typical rural character of Te Tai Tokerau with pastoral farming and scattered rural dwellings, areas of indigenous and exotic vegetation, marae and papakāinga developments, low-density settlement patterns, and a working rural landscape with agricultural activities.

The proposed development will introduce 12 new dwellings in a clustered configuration on a 9.5 hectare site. In terms of visual effects, buildings will be single-storey, consistent with rural residential development, with the clustered layout concentrating visual change in one area rather than dispersing impacts. Retention of existing vegetation around the periphery will provide visual screening, while the development scale is consistent with other papakāinga developments in the valley. Buildings will be set back from Vujcich Road with intervening vegetation and a change in topography.

Mitigation measures include building design guidelines noted above ensuring consistency in materials, colours, and form, with a maximum building height of 8 metres maintaining a low visual profile (refer section 5.2.2). Landscape planting using indigenous species will integrate the development, while retention of native vegetation where practicable and clustering of buildings will maintain open space areas.

Effects on amenity values for neighbouring properties include considerations of privacy and outlook, with the development area separated from neighbouring dwellings by distance and topography. Existing vegetation provides screening between the site and adjacent properties, and the clustered layout positions dwellings away from boundaries. Residential activities will generate typical domestic noise within acceptable levels, though construction noise will be temporary and managed through restricted hours, while ongoing residential use is compatible with the rural environment. External dwelling lighting will be designed to minimise light spill, using low-level lighting for safety and wayfinding only, with no external lighting on roads proposed and therefore no significant light pollution anticipated.

The proposal will result in localised change to the visual environment through introduction of clustered housing. However, this change is consistent with the papakāinga development patterns, appropriate for Māori freehold land where different development patterns are anticipated, and mitigated through design, landscaping, and retention of vegetation. The change is acceptable within the context of the managed retreat programme's objectives. Overall, effects on rural character and amenity are assessed as less than minor.

8.2.4 Traffic Effects

The proposed 12 dwellings will generate approximately 120-144 vehicle movements per day based on standard rates of 10-12 movements per dwelling per day. This comprises residents' daily travel for work, education, and activities, visitor traffic, service and delivery vehicles, and occasional emergency services access.

Vujcich Road is a partly sealed public road with adequate width and formation to accommodate the additional traffic. Current traffic volumes are low, typical of rural roads in the district. The additional 120-144 movements per day represents a modest increase that is well within the road's capacity. State

Highway 12, located 1.2 kilometres northwest, has substantial capacity to accommodate the minor additional traffic from the development.

The proposed private access road will be 5.0 metres wide with widening on curves and constructed to Council engineering standards. It will be designed to accommodate emergency vehicles including fire trucks and has appropriate sight lines at the Vujcich Road intersection. 26 parking spaces are provided for the 12 new houses which includes visitor parking and manoeuvring areas to enable vehicles to exit in a forward direction.

The Vujcich Road/private access intersection will be designed to achieve adequate sight distances in both directions, appropriate intersection geometry, and clear signage and marking. The internal access road design will ensure safe speeds through horizontal and vertical alignment, adequate width for two-way traffic, and safe pedestrian access.

During construction, estimated at 12-18 months, there will be temporary increases in heavy vehicle traffic for earthworks equipment, building materials delivery, prefabricated dwelling delivery, trucks, and worker vehicles. Construction traffic effects will be managed through a Construction Traffic Management Plan, wheel washing to prevent tracking of sediment onto public roads, and appropriate signage and safety measures.

The traffic generation from 12 dwellings is modest and well within the capacity of the local road network. The access will be designed to appropriate standards ensuring safety, and adequate parking will be provided on-site. Construction traffic effects will be temporary and managed appropriately. Overall, traffic and parking effects are assessed as no more than minor.

8.2.5 Servicing and Infrastructure Effects

Each dwelling will be provided with rainwater harvesting systems comprising minimum 30,000 litre minimum for three bedrooms and 50,000 litres for four bedrooms, filtration systems, UV treatment for potable supply, and adequate roof collection area. Additional firefighting water supply will be provided through a communal 50,000 litre tank serving the development. The rainwater harvesting approach is standard for rural properties in the district, provides resilient, self-sufficient water supply, avoids demand on groundwater resources, and can be adequately sized for the rainfall patterns in Northland.

Wastewater treatment and disposal will be via on-site systems comprising advanced secondary treatment systems (aerated wastewater treatment plants), subsurface drip irrigation disposal fields, design for low loading rates (2mm/day) suitable for clay soils, and reserve disposal areas for each system. The Geotechnical Report confirms the site's suitability for on-site wastewater disposal subject to appropriate system selection for clay soils, low irrigation loading rates, adequate separation from groundwater, and regular maintenance regimes. Site-specific design will ensure compliance with AS/NZS 1547:2012, adequate separation distances from waterways and boundaries, appropriate distribution of disposal areas, and no adverse effects on groundwater quality.

Stormwater will be managed through roof water directed to storage tanks with controlled overflow, grassed swales for road runoff, existing natural drainage patterns maintained where practicable, energy dissipation at discharge points, and erosion protection at concentrated flow locations. The stormwater management approach maintains pre-development runoff patterns, provides water

quality treatment through swales, minimises erosion and sedimentation, and protects receiving waterways.

Power connection is available from the existing network on Vujcich Road, with capacity confirmed as adequate for 12 additional dwellings. Solid waste will be managed through internal collection points and disposing of at a nearby facility or via collection on state highway through prepaid bags.

All necessary services can be provided to appropriate standards. The on-site water and wastewater approach is typical for rural development in the district. Infrastructure has been designed by qualified engineers to meet relevant standards and site conditions. Effects on infrastructure and servicing are assessed as less than minor.

8.2.6 Earthworks and Construction Effects

Total earthworks are estimated at 1,635m³ comprising 1,315m³ of cut and 320m³ of fill across an area of 4,040m². This includes access road construction at approximately 2,500m², dwelling platforms at approximately 1,000m², service trenches at approximately 300m², and stormwater infrastructure at approximately 240m². Earthworks will be undertaken over approximately 2-3 months, weather permitting.

A comprehensive Erosion and Sediment Control Plan (ESCP) will be implemented including erosion control measures such as progressive stabilisation of exposed areas, temporary grassing of incomplete areas, mulching of exposed slopes, minimising the area of disturbance at any one time, and avoiding earthworks during heavy rainfall. Sediment control measures will include silt fences downslope of work areas, stabilised construction entrances, and wheel washing facilities. Specific measures for wetland protection include super silt fences between work areas and wetlands, no machinery operation within wetland areas, pre-construction marking of wetland boundaries, daily inspections during rainfall events, and immediate response protocols for any sediment discharge.

Construction activities will generate noise from earthmoving machinery, truck movements, building construction, and power tools. Noise effects will be managed through limiting construction hours to 7:00am - 7:00pm Monday to Saturday, with no work on Sundays or public holidays except for emergencies. Equipment will be maintained in good working order with appropriate mufflers, neighbours will be informed of any unusually noisy activities, and all work will comply with NZS 6803:1999 Acoustics - Construction Noise. Vibration from earthworks will be minimal and short-term, with no piling or major vibration-generating activities proposed.

Construction traffic will be managed through a Construction Traffic Management Plan. Dust generation will be managed through water application during dry conditions, limiting vehicle speeds on unsealed areas, covering loads of fine material, progressive stabilisation of completed areas, and ceasing dust-generating activities during high winds if necessary. Construction waste will be managed through segregation of waste streams for recycling, appropriate disposal of hazardous materials, regular removal of waste from site, and no burning of waste on site.

Construction is expected to occur over 12-18 months, with months 1-3 for earthworks and infrastructure, months 4-12 for dwelling construction (potentially staged), and months 13-18 for landscaping and completion. Staging may involve completing earthworks for the entire development initially, constructing dwellings in groups of 4-6, and progressive commissioning of infrastructure.

Construction effects will be temporary and typical of rural residential development. The comprehensive ESCP will ensure protection of ecological values, particularly wetlands. Noise, dust, and traffic effects will be managed to acceptable levels. With the implementation of appropriate management measures, construction effects are assessed as less than minor.

8.2.7 Ecological Effects

The Ecological Impact Assessment prepared by Wildland Consultants Ltd, dated October 2025, provides a comprehensive assessment of ecological values and potential effects. This section summarises the key findings and mitigation measures.

The site contains several vegetation types including exotic forest comprised of eucalyptus and pine, kahikatea-mānuka scrub, mixed indigenous-exotic scrubland, raupō reedland wetland, and rank pasture grassland. In terms of fauna values, the site provides potential habitat for common forest birds including Kōtare/sacred kingfisher, Pūkeko, Fantail/Pīwakawaka, Pūtangitangi/Paradise shelduck, Riroriro/grey warbler, Tauhou/silvereye, and Spur-wing plover as well as possible habitat for native lizards such as forest gecko and copper skink. No threatened or at-risk species were observed during surveys, and there is low likelihood of long-tailed bats based on habitat assessment. Several small raupō-dominated wetlands are present, which show signs of modification from historical grazing. These wetlands provide ecosystem services including water filtration and flood attenuation, though their ability to provide these services is reduced as a result of degradation from grazing and pugging. The wetlands are assessed as low to moderate ecological value due to modification. Permanent and intermittent streams present on site have been modified by agricultural land use and stock access, providing potential habitat for native fish including longfin eel (At Risk - Declining), and are assessed as moderate ecological value.

The development will result in approximately 5.1 hectares of exotic forest removal proposed, no clearance of mature indigenous forest is proposed. There will be no direct loss of wetland area, though potential indirect effects from sedimentation during construction, potential changes to wetland hydrology from development, and risk of weed invasion if not managed may occur. Fauna will experience temporary disturbance during construction and permanent loss of some habitat (mostly modified and exotic).

Mitigation and management measures follow a comprehensive approach beginning with avoidance, where the development footprint has been positioned to avoid wetlands and high-value vegetation areas have been excluded from development. Minimisation measures include vegetation clearance limited to essential areas only. Remediation will involve comprehensive ESCP implementation, immediate stabilisation of disturbed areas, and restoration of temporary disturbance areas. Ecological Management Plan is proposed including a bat and lizard survey prior to vegetation clearance.

There will be no direct loss of wetland area, with potential indirect effects managed through erosion and sediment controls. Ecological enhancement of the site will occur through remediation planting guided by an Ecological Management Plan, with the overall ecological value of terrestrial vegetation expected to improve once plantings are established. Overall the ecological effects of the development are assessed as very low to low, and the ecological effects will be appropriately addressed.

8.2.8 Geotechnical and Natural Hazard Effects

The Geotechnical Investigation Report prepared by RS Engineering Ltd, dated November 2025, identifies the site's soil conditions as medium to heavy clay soils (Soil Category 6) with low permeability requiring specific wastewater design, adequate bearing capacity for residential structures, and no evidence of instability or significant geotechnical hazards. Foundation requirements include timber pile foundations to minimum 0.9m depth, designed for highly expansive soils. In terms of slope stability, the development area is on slopes between 12° - 20°, min. 5m setbacks from any moderate to steeper slopes is required, and standard retaining walls for building platforms where required.

The natural hazard assessment reveals that the development area is entirely outside mapped flood extents with minimum 500mm freeboard above the 100-year flood level. There is no flood risk from the Whirinaki River system, and overland flow paths have been identified and maintained. The site is located in a moderate seismic zone. Geotechnical assessment has been completed in accordance with NZ Building Code requirements, including liquefaction analysis (ULS event: 0.19g PGA, Mw 6.5) which indicates low liquefaction risk with up to 2cm potential settlement. Slope stability analysis has identified relic instability features in historical aerial photography; accordingly, minimum 5m setbacks from moderate to steep slopes have been specified. Flood modelling has been undertaken using climate change projections (+20% rainfall), with the 1%AEP+CC event modelled to assess overland flow paths. The development areas are located outside defined flood extents and overland flow areas, providing appropriate resilience. Stormwater disposal has been designed to avoid concentrated discharge that could cause erosion or slope instability, with controlled dispersal to stable drains or riprap-lined outlets.

Mitigation measures include timber pile foundations to minimum 0.9m depth for highly expansive soils, minimum 5m setbacks from moderate to steep slopes, engineered retaining walls where required for building platforms, surface water management through controlled stormwater disposal to prevent erosion and slope instability, and maintenance of defined overland flow paths.

The site is geotechnically suitable for the proposed development subject to adherence to the recommendations and limitations stated in the geotechnical and civil reports. Natural hazard assessment indicates low liquefaction risk (up to 2cm potential settlement during ULS seismic event), with buildings appropriately located outside identified flood extents and overland flow areas. Relic slope instability features have been identified in historical aerial photography; however, proposed setbacks and engineering controls mitigate this risk. Geotechnical conditions and natural hazards have been appropriately assessed through detailed investigation and modelling, with effects managed through engineering design to acceptable standards.

8.2.9 Reverse Sensitivity Effects

Reverse sensitivity effects occur when new sensitive activities (residential) locate near existing lawfully established activities and subsequently complain about effects from those existing activities.

The existing surrounding land uses include pastoral farming on adjacent properties, scattered rural residential dwellings, forestry blocks in the wider area, and State Highway 12 approximately 1.2km northwest. Potential reverse sensitivity issues may arise from agricultural activities including noise from farm machinery and stock, odour from farming operations, spray drift from agrichemical application, and stock movement on roads. Forestry operations may generate harvesting noise and

traffic, dust during dry conditions, and visual effects of harvesting. The State Highway, though separated by distance, contributes traffic noise and heavy vehicle movements.

Several factors mitigate reverse sensitivity concerns. Future residents are hapū members from the valley familiar with rural activities and have a strong understanding of rural land use and acceptance of farming activities. The development provides adequate separation from intensive farming operations. The cluster design with internal orientation reduces interface issues, while retained vegetation provides buffering from adjacent activities.

Management measures could include information provided to residents about surrounding rural activities, with no-complaints covenants able to be registered if required. Landscape planting will provide visual and amenity buffering, and building orientation will minimise exposure to potential effects.

The proposal presents low risk of reverse sensitivity effects because residents will be local whānau familiar with rural activities, the development is consistent with anticipated papakāinga patterns, adequate separation and buffering is provided, and the rural community has a history of coexistence. Reverse sensitivity effects are assessed as less than minor.

8.2.10 Cumulative Effects

Cumulative effects are those that result from the combined impact of multiple activities or developments over time.

The Whirinaki valley currently contains approximately 80 existing dwellings in the flood zone, three marae complexes, scattered papakāinga developments, rural residential lifestyle blocks, and productive farming land. The proposed 12 dwellings represent a 15% decrease in households in the flood zone, with development concentrated in one location rather than dispersed development. This development occurs on land already identified for papakāinga use by way of zoning and as part of a planned managed retreat programme.

In terms of traffic impacts, the additional 120-144 movements per day on the road network represents a minor increase on current volumes. It is noted that these vehicle movements are shifting from direct access from the state highway to being controlled via Vujcich Road. It is considered that the road network and Vujcich Road in particular has capacity for cumulative growth, resulting in no significant cumulative traffic effects. Infrastructure considerations show that on-site water and wastewater systems require no reticulated services, the network has capacity for additional connections, and there are no cumulative infrastructure constraints. From a landscape and visual perspective, development is clustered to minimise landscape fragmentation and is consistent with papakāinga development patterns. This maintains rural character at landscape scale, resulting in acceptable cumulative visual change.

Ecological effects have been considered to be mitigated and less than minor. Social and cultural impacts strengthen the papakāinga presence in the valley, maintain population to support marae and school, and create positive cumulative cultural effects. Economic benefits include maintaining valley population supporting local services, construction providing cumulative employment benefits, and supporting long-term valley sustainability.

This development is part of Phase 1 of the managed retreat programme with Kānuka Papakāinga also proposing 8 dwellings and is the subject of a separate consent application. Future phases may include additional papakāinga on other suitable sites, community facilities, and small-scale commercial activities. Future stages will be assessed on their merits.

The proposal will contribute to cumulative development in the valley but the scale is appropriate for the landscape, infrastructure and services can accommodate growth, and the development pattern of clustered papakāinga is efficient. The positive cumulative effects relating to safety, cultural, and social outcomes outweigh adverse effects, and future stages will be assessed on their merits. Cumulative adverse effects are assessed as no more than minor, with significant positive cumulative benefits for community resilience and wellbeing.

8.2.11 Conclusion

The assessment of actual and potential effects demonstrates significant positive outcomes alongside manageable adverse effects.

The proposal will generate significant improvements to community safety and resilience through the relocation of vulnerable whānau from flood-prone areas. Strong positive cultural effects for Te Hikutū hapū include maintaining connection to ancestral lands whilst ensuring safety. The development provides climate change adaptation benefits through innovative managed retreat, along with economic and employment opportunities during construction and ongoing occupation. Additionally, ecological enhancement through restoration will result in net positive environmental outcomes over time.

In terms of adverse effects with mitigation, character and amenity effects are assessed as less than minor through appropriate design and landscaping measures. Traffic and parking effects are no more than minor, with the road network having adequate capacity for the additional movements. Servicing effects are less than minor, with all infrastructure able to be provided to appropriate standards. Construction effects will be less than minor and temporary in nature, managed through comprehensive construction management plans. Liquefaction risk is assessed as low, with up to 2cm potential settlement during ULS seismic events. Slope stability analysis confirms minimum 5m setbacks from moderate to steep slopes are required to mitigate relic instability features identified in historical aerial photography. Timber pile foundations to minimum 0.9m depth accommodate highly expansive soils. Engineering design and mitigation measures manage geotechnical hazards to acceptable standards with the site selection specifically addressing flood risk. Reverse sensitivity effects are less than minor given the residents' familiarity with rural activities and adequate separation distances. Cumulative effects are assessed as no more than minor when considered in the context of the wider valley development pattern.

Subject to the implementation of recommended mitigation measures through appropriate consent conditions, the adverse effects of the proposal on the environment will be no more than minor. The proposal generates significant positive effects that substantially outweigh any residual adverse effects. The development represents a successful example of managed retreat that addresses climate risk whilst maintaining cultural connections and community cohesion.

8.3 Relevant Planning Provisions of the District Plan

8.3.1 Operative Far North District Plan (ODP) - Objectives and Policies

The following objectives and policies of the Operative District Plan are relevant to the proposal:

Chapter 2: Tangata Whenua

Objective 2.7.1 *Through the provisions of the Resource Management Act, to give effect to the rights guaranteed to Maori by Te Tiriti O Waitangi (Treaty of Waitangi).*

Objective 2.7.2 *To enable Māori to develop and manage their land in a manner which is consistent with sustainable management of the natural and physical resources of the District as a whole.*

Objective 2.7.3 *To recognise and provide for the protection of wāhi tapu and other ancestral sites and the mauri (life force) of natural and physical resources.*

Policy 2.8.1 *That Council will provide opportunities for the involvement of tangata whenua in the sustainable management of the natural and physical resources of the District.*

Policy 2.8.2 *That tangata whenua be consulted over the use, development or protection of natural resources where these affect their taonga.*

Policy 2.8.3 *That the Council will have regard to relevant provisions of any whānau, hapū or iwi resource management plans, taiapure and mātaitai plans.*

Policy 2.8.4 *That development on ancestral land will be provided for, consistent with the requirement for sustainable management of resources.*

Policy 2.8.5 *That wāhi tapu and other taonga be identified and protected by provisions in the Plan.*

The proposal directly implements these objectives and policies by enabling Te Hikutū hapū to establish papakāinga housing on ancestral Māori freehold land. The development gives effect to Treaty rights (2.7.1) through the hapū-led managed retreat programme, demonstrating partnership between Council and hapū in addressing climate risks whilst exercising tino rangatiratanga. The proposal enables Māori to develop and manage their land sustainably (2.7.2) through clustered development that protects natural resources through comprehensive ecological mitigation, wetland protection, and riparian enhancement. The mauri of natural and physical resources is recognised and protected (2.7.3) through ecological restoration and the Accidental Discovery Protocol ensuring protection of any wāhi tapu or ancestral sites.

The project demonstrates Council provision of opportunities for tangata whenua involvement (2.8.1) with the hapū taking a leadership role in planning and decision-making throughout. Extensive consultation with tangata whenua has occurred (2.8.2) regarding their taonga, including waterways and indigenous vegetation. The proposal aligns with hapū aspirations and resource management approaches (2.8.3). Development on ancestral land is provided for (2.8.4) in a manner fully consistent with sustainable management through efficient infrastructure provision, minimal productive land loss, and long-term climate resilience. Protection of wāhi tapu and taonga is ensured (2.8.5) through the Accidental Discovery Protocol and cultural monitoring provisions. Overall, the proposal exemplifies sustainable development on ancestral land that is fully consistent with tangata whenua objectives and policies whilst enabling the hapū to maintain their connection to place and provide for their social, cultural, and economic wellbeing.

Chapter 8 - Rural Environment - Rural Production Zone

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

Objective 8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety.

Objective 8.6.3.3 To promote the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

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

Objective 8.6.3.6 To avoid, remedy or mitigate the actual and potential conflicts between new land use activities and existing lawfully established activities (reverse sensitivity) within the Rural Production Zone and on land use activities in neighbouring zones.

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

Objective 8.6.3.8 To enable the efficient establishment and operation of activities and services that have a functional need to be located in rural environments.

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

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

Policy 8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.

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

Policy 8.6.4.4 That the type, scale and intensity of development allowed shall have regard to the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

Policy 8.6.4.5 That the efficient use and development of physical and natural resources be taken into account in the implementation of the Plan.

Policy 8.6.4.7 That although a wide range of activities that promote rural productivity are appropriate in the Rural Production Zone, an underlying goal is to avoid the actual and potential adverse effects of conflicting land use activities.

Policy 8.6.4.8 That activities whose adverse effects, including reverse sensitivity effects, cannot be avoided remedied or mitigated are given separation from other activities.

Policy 8.6.4.9 That activities be discouraged from locating where they are sensitive to the effects of or may compromise the continued operation of lawfully established existing activities in the Rural Production zone and in neighbouring zones.

The proposal achieves these objectives and policies for the Rural Production Zone. The development promotes sustainable management (8.6.3.1) through clustered papakāinga housing that efficiently uses 9.5 hectares whilst protecting ecological values and maintaining productive capacity on the remainder of the site. It enables the Te Hikutū hapū community to provide for their social, economic, cultural wellbeing and health and safety (8.6.3.2) by relocating whānau from high flood-risk areas to safe terrain. Amenity values are maintained (8.6.3.3) through appropriate scale, single-storey buildings, vegetation retention, and landscape planting consistent with rural character. Significant natural values are protected (8.6.3.4) through wetland avoidance, riparian enhancement, and ecological restoration measures.

Reverse sensitivity conflicts are avoided (8.6.3.6, 8.6.4.7, 8.6.4.8, 8.6.4.9) as future residents are existing valley whānau familiar with rural activities, adequate separation exists from intensive farming operations, and the clustered layout with landscape buffers minimises interface issues. The development avoids adverse effects on natural resources (8.6.3.7) through comprehensive mitigation including erosion control, wastewater treatment design, and stormwater management. The papakāinga has a functional need to be located rurally (8.6.3.8) on ancestral Māori freehold land, and the clustered design enables continued rural production on the balance of the property (8.6.3.9).

The proposal ensures all adverse effects are avoided, remedied or mitigated without detriment to rural productivity (8.6.4.1), with off-site effects managed through appropriate infrastructure and setbacks (8.6.4.2). Best practice land management is demonstrated through ecological enhancement and sustainable infrastructure (8.6.4.3). The development's type, scale and intensity maintains amenity values through clustering, appropriate density for papakāinga, and design controls (8.6.4.4). The efficient use of resources is achieved through shared infrastructure and minimal land take (8.6.4.5). Overall, the proposal is consistent with the Rural Production Zone objectives and policies whilst providing for the specific needs of papakāinga development on Māori freehold land.

Chapter 12 - Natural and Physical Resources

Indigenous Flora and Fauna

Objective 12.2.3.1 *To maintain and enhance the life supporting capacity of ecosystems and the extent and representativeness of the District's indigenous biological diversity.*

Objective 12.2.3.2 *To provide for the protection of, and to promote the active management of areas of significant indigenous vegetation and significant habitats of indigenous fauna.*

Objective 12.2.3.3 *To recognise issues of wellbeing including equity for landowners in selecting methods of implementation.*

Objective 12.2.3.4 *To promote an ethic of stewardship.*

Policy 12.2.4.1 *That areas of significant indigenous vegetation and significant habitats of indigenous fauna be protected for the purpose of promoting sustainable management.*

Policy 12.2.4.3 *That adverse effects on areas of significant indigenous vegetation and significant habitats of indigenous fauna are avoided, remedied or mitigated.*

Policy 12.2.4.4 *That clearance of limited areas of indigenous vegetation is provided for.*

Policy 12.2.4.5 *That the contribution of areas of indigenous vegetation and habitats of indigenous fauna to the overall biodiversity and amenity of the District be taken into account in evaluating applications for resource consents.*

Policy 12.2.4.8 *That restoration and enhancement of indigenous ecosystems is based on plants that would have occurred naturally in the locality and is sourced from local genetic stock where practicable.*

Policy 12.2.4.12 *That habitat restoration be promoted.*

Policy 12.2.4.13 *That the maintenance of riparian vegetation and habitats be recognised and provided for, and their restoration encouraged.*

Policy 12.2.4.14 *That when considering an application to clear areas of significant indigenous vegetation or significant habitats of indigenous fauna, enabling Maori to provide for the sustainable management of their ancestral land will be recognised and provided for by Council.*

Natural Hazards

Objective 12.4.3.1 *To reduce the threat of natural hazards to life, property and the environment, thereby to promote the wellbeing of the community.*

Objective 12.4.3.2 *To ensure that development does not induce natural hazards or exacerbate the effects of natural hazards.*

Objective 12.4.3.3 *To ensure that natural hazard protection works do not have adverse effects on the environment.*

Objective 12.4.3.4 *To ensure that the role in hazard mitigation played by natural features is recognised and protected.*

Objective 12.4.3.5 *To improve public awareness of natural hazards as a means of helping people to avoid them.*

Objective 12.4.3.6 *To take into account reasonably foreseeable changes in the nature and location of natural hazards.*

Objective 12.4.3.7 *To avoid fire risk arising from the location of residential units in close proximity to trees, or in areas not near fire fighting services.*

Policy 12.4.4.1 *That earthworks and the erection of structures not be undertaken in areas where there is a significant potential for natural hazards unless they can be carried out in such a way so as to avoid being adversely affected by the natural hazards, and can avoid exacerbating natural hazards.*

Policy 12.4.4.2 *That the natural character of features, such as beaches, sand dunes, mangrove areas, wetlands and vegetation, which have the capacity to protect land values and assets from natural coastal hazards, is protected and enhanced.*

Policy 12.4.4.4 *That the sea level rise, as predicted by the Intergovernmental Panel of Climate Change or Royal Society of NZ, be taken into account when assessing development in areas potentially affected.*

Policy 12.4.4.6 *That the adverse effects on people, property and the environment from coastal hazards in Coastal Hazard Areas, as identified by the Northland Regional Council, are avoided.*

Policy 12.4.4.7 *That the risk to adjoining vegetation and properties arising from fires be avoided.*

Policy 12.4.4.9 *That the role of riparian margins in the mitigation of the effects of natural hazards is recognised and that the continuing ability of riparian margins to perform this role be assured.*

Lakes, Rivers, Wetlands and the Coastline

Objective 12.7.3.1 *To avoid, remedy or mitigate the adverse effects of subdivision, use and development on riparian margins.*

Objective 12.7.3.2 *To protect the natural, cultural, heritage and landscape values and to promote the protection of the amenity and spiritual values associated with the margins of lakes, rivers and indigenous wetlands and the coastal environment, from the adverse effects of land use activities, through proactive restoration / rehabilitation / revegetation.*

Objective 12.7.3.5 *To avoid the adverse effects from inappropriate use and development of the margins of lakes, rivers, indigenous wetlands and the coastline.*

Objective 12.7.3.6 *To protect areas of indigenous riparian vegetation: (a) physically, by fencing, planting and pest and weed control; and (b) legally, as esplanade reserves/strips.*

Objective 12.7.3.7 *To create, enhance and restore riparian margins.*

Policy 12.7.4.2 *That land use activities improve or enhance water quality, for example by separating land use activities from lakes, rivers, indigenous wetlands and the coastline, and retaining riparian vegetation as buffer strips.*

Policy 12.7.4.3 *That adverse effects of land use activities on the natural character and functioning of riparian margins and indigenous wetlands be avoided.*

Policy 12.7.4.15 *To encourage the integrated protection and enhancement of riparian and coastal margins through:*

(a) planting and/or regeneration of indigenous vegetation;

(b) pest and weed control;

(c) control (including, where appropriate, exclusion) of vehicles, pets and stock.

The proposal comprehensively achieves the objectives and policies of Chapter 12 - Natural and Physical Resources. For indigenous flora and fauna, the development maintains and enhances ecosystem life supporting capacity (12.2.3.1) through comprehensive avoidance, mitigation and offset measures. The development footprint avoids wetlands and minimises vegetation clearance, with life supporting capacity enhanced through permanent wetland protection via fencing. Significant vegetation and habitats are protected (12.2.3.2) through careful siting. The proposal recognises landowner wellbeing and equity (12.2.3.3) by enabling Te Hikutū hapū to develop ancestral lands for critical housing needs whilst protecting ecological values, promoting an ethic of stewardship (12.2.3.4) through long-term ecological management commitments. The limited vegetation clearance (12.2.4.4) is offset through restoration planting using local genetic stock (12.2.4.8), with habitat restoration

actively promoted (12.2.4.12). Riparian vegetation is maintained and restored (12.2.4.13). The proposal recognises and provides for Māori sustainable management of ancestral land (12.2.4.14) whilst achieving comprehensive ecological protection.

Regarding natural hazards, the proposal directly reduces threats to life, property and the environment (12.4.3.1) by relocating whānau from high flood-risk areas where depths could reach 2.2 metres to terrain entirely outside all mapped flood zones. The development does not induce or exacerbate natural hazards (12.4.3.2), with geotechnical assessment confirming site stability and stormwater management maintaining existing flow patterns. Natural features that mitigate hazards are protected (12.4.3.4), particularly wetlands and riparian vegetation which provide flood attenuation capacity. The proposal accounts for climate change (12.4.3.6, 12.4.4.4) with development positioned well above projected flood levels including climate change scenarios, providing long-term resilience. Earthworks and structures are located outside hazard areas (12.4.4.1) with the site specifically selected for its elevation above flood zones. Natural character of wetlands is protected and enhanced (12.4.4.2), maintaining their flood attenuation function. Fire risk is managed (12.4.3.7, 12.4.4.7) through adequate firefighting water supply, appropriate setbacks from vegetation, and access designed for fire trucks. The role of riparian margins in hazard mitigation is recognised and assured (12.4.4.9) through permanent protection and enhancement.

For rivers and wetlands protection, adverse effects on riparian margins are avoided and mitigated (12.7.3.1) through setbacks and native planting. Natural, cultural and spiritual values of wetlands are protected (12.7.3.2). The development avoids inappropriate use of wetland margins (12.7.3.5) by positioning all buildings and infrastructure outside sensitive areas based on ecological assessment. Indigenous riparian vegetation is protected through pest control (12.7.3.6), with riparian margins enhanced and restored (12.7.3.7) through 10m-wide indigenous planting strips along all streams. Water quality is maintained (12.7.4.2) through separation of development from wetlands and streams, with riparian buffer strips retained and enhanced. Adverse effects on natural character and functioning are avoided (12.7.4.3) through careful siting, appropriate wastewater system design, and comprehensive erosion and sediment control. The proposal encourages integrated protection and enhancement (12.7.4.15) through ongoing weed control.

Overall, the proposal demonstrates integration across all Chapter 12 provisions, achieving multiple objectives through a comprehensive approach that addresses climate adaptation through managed retreat whilst simultaneously enhancing ecological values, protecting natural hazard mitigation features, and improving riparian and wetland health for future generations. The development represents best practice in balancing development needs with environmental protection, demonstrating that papakāinga housing can successfully achieve social, cultural and safety outcomes whilst delivering net positive environmental results.

Chapter 15 - Transportation

Objective 15.1.3.1 To minimise the adverse effects of traffic on the natural and physical environment.

Objective 15.1.3.3 To ensure that appropriate provision is made for on-site car parking for all activities, while considering safe cycling and pedestrian access and use of the site.

Objective 15.1.3.4 To ensure that appropriate and efficient provision is made for loading and access for activities.

Objective 15.1.3.5 *To promote safe and efficient movement and circulation of vehicular, cycle and pedestrian traffic, including for those with disabilities.*

Policy 15.1.4.1 *That the traffic effects of activities be evaluated in making decisions on resource consent applications.*

Policy 15.1.4.3 *That parking spaces be provided at a location and scale which enables the efficient use of parking spaces and handling of traffic generation by the adjacent roading network.*

Policy 15.1.4.6 *That the number, size, gradient and placement of vehicle access points be regulated to assist traffic safety and control, taking into consideration the requirements of both the New Zealand Transport Agency and the Far North District Council.*

The proposal addresses transportation objectives and policies through appropriate design considerations. As this development forms part of the Whirinaki Managed Retreat programme, it involves the relocation of existing valley residents rather than introduction of new traffic to the area. Many of these whānau currently access their properties directly from State Highway 12 or from other roads in the valley (such as Whirinaki School Road). The consolidated access via Vujcich Road represents a redistribution rather than generation of new traffic movements.

The development minimises adverse traffic effects (15.1.3.1) by consolidating multiple individual property accesses into a single access point. This reduces the number of vehicle turning movements directly onto State Highway 12, improving safety along the state highway corridor. The estimated 120-144 daily vehicle movements from the relocated households occur within the valley road network and are being redistributed to Vujcich Road.

Appropriate on-site parking provision is made (15.1.3.3) with each dwelling having minimum two off-street parking spaces plus visitor parking areas. This represents an improvement over some existing flood-prone properties which may have limited or compromised parking. The development includes manoeuvring areas enabling vehicles to exit in forward direction.

Efficient provision for loading and access (15.1.3.4) is achieved through the 5.0-metre-wide private access road designed to Council engineering standards. This ensures reliable access for service vehicles, delivery trucks, and emergency vehicles including fire appliances - a critical improvement over current properties where flood events can compromise emergency access.

The proposal promotes safe and efficient movement (15.1.3.5) through consolidation of access points and appropriate design standards. The single access to Vujcich Road with adequate sight distances represents a safety improvement over multiple individual driveways or direct access to State Highway 12.

The relocation nature of the development means existing traffic is being redistributed rather than generated anew. The clustering of dwellings with shared access infrastructure (15.1.4.3) provides more efficient traffic management than the current dispersed pattern of individual properties. The single vehicle access point to Vujcich Road (15.1.4.6) is appropriately designed.

Overall, the proposal achieves transportation objectives and policies by improving the existing traffic situation through consolidation of access points, provision of appropriate parking and manoeuvring areas, and relocation of existing traffic movements to a safer, flood-free location with reliable access for residents and emergency services.

8.3.2 Assessment Criteria

The relevant assessment criteria as sourced from the ODP cover the same matters that have been discussed in the previous sections of this report, in particular those that address environmental effects (Section 8.2) as well as the objectives and policies of the ODP (Section 8.3.1). These assessments, as well as the supporting specialist documentation, have all considered the relevant assessment criteria. The key activities requiring assessment are:

Papakāinga Housing - Rule 8.6.5.2.2

The application proposes papakāinga development with 12 new residential units on a site being approximately 9.5ha in area with two existing dwellings onsite. This is 10 more than the density permits, as such is a discretionary activity. In considering an application under this provision, the Council will consider the following matters:

The number and location of dwellings

The proposal involves 12 new residential dwellings, plus 2 existing dwellings, totalling 14 dwellings on approximately 9.5 hectares. This development density of 1.5 dwellings per hectare is significantly lower than typical urban densities, is appropriate for papakāinga development and the rural character of the area.

The location of dwellings has been carefully selected based on:

- Geotechnical suitability, avoiding areas of steep, hummocky terrain identified as requiring extensive foundation works
- Avoidance of natural wetlands and significant ecological features
- Positioning on higher, flood-free land as part of the managed retreat initiative
- Cluster configuration to support whānau connections while providing privacy
- Solar orientation for passive design benefits

The dwellings are positioned to minimise earthworks, avoid areas requiring deep piled foundations, and work with existing contours. Each dwelling site has been selected for geotechnical stability, with appropriate separation from wetlands and streams as recommended in technical assessments.

The cluster papakāinga model supports traditional Māori living patterns where extended whānau live in proximity, while the spacing between dwellings (minimum 5-10 metres, with closer spacing of 3 metres for the two kaumātua dwellings) provides adequate privacy and outdoor living space. This configuration enables communal support networks critical to papakāinga while maintaining individual household autonomy.

The location and standard of access

Access to the papakāinga is via a new 5.0-metre-wide private access road extending from Vujcich Road. The access has been designed to Council's Engineering Standards and Guidelines, with appropriate gradient, formation width, and turning provisions.

The access location provides:

- Safe connection to the local road network with adequate sight distances
- Reliable all-weather access unaffected by flooding
- Adequate width and turning facilities for service vehicles including fire trucks

- Appropriate drainage infrastructure to manage stormwater runoff
- Consolidation of individual property accesses into a single access point, improving safety

The access standard represents a significant improvement over existing flood-prone properties in the valley, where emergency access can be compromised during flood events. The consolidated access reduces the number of turning movements onto the road network and provides better traffic safety than multiple individual driveways.

Within the development, the internal access network follows a permeable layout that maintains connectivity while minimising impervious surfaces. Vehicle parking is provided, with manoeuvring areas enabling forward exit.

Screening and planting

The proposal incorporates comprehensive planting to integrate the development into the rural landscape and enhance ecological values:

- Native planting is proposed throughout the development using locally-sourced species appropriate to the Whirinaki valley. Planting areas include riparian margins, wetland buffers, and transitional zones between developed areas and natural features. Native species selection prioritises ecological enhancement, providing habitat connectivity and biodiversity benefits.
- While the site's topography provides natural visual screening from surrounding properties, supplementary planting screens the development from adjacent residences. The planting design uses a mix of canopy trees, understory shrubs, and groundcover to create visual depth and soften built form. The existing vegetation framework is retained where possible, with new planting integrated to create a cohesive landscape character.
- The planting strategy integrates māra kai (food gardens) at household and community scales, māra huupara (food forests) along pathways and in common areas, and orchard plantings. These productive landscapes support food sovereignty while contributing to the visual amenity of the development.
- The planting includes culturally significant species for rongoā (traditional medicine), weaving materials (harakeke), and ceremonial purposes. These plantings connect residents to traditional practices and strengthen cultural identity within the papakāinga.
- Planting around existing wetlands enhances their ecological function and water quality. Appropriate buffer zones are maintained, with native wetland species providing habitat and filtering runoff. The wetland enhancement programme includes removal of invasive species and establishment of native species to improve biodiversity values.

The planting approach balances multiple objectives by maintaining rural character, providing visual amenity, enhancing ecological values, supporting cultural practices, and creating productive landscapes. The staged implementation allows planting to establish while development progresses, ensuring vegetative cover is maintained throughout construction. Long-term maintenance provisions ensure planting reaches maturity and continues to provide screening, amenity, and ecological benefits.

Overall, the proposal appropriately addresses the matters under Rule 8.6.5.2.2. The number and location of dwellings reflects careful site analysis and responds to geotechnical, ecological, and cultural considerations. The access location and standard provides safe, reliable access appropriate for the development scale. The screening and planting strategy integrates the development into the landscape while enhancing ecological and cultural values.

Integrated Development - Rule 8.6.5.4.2

The papakāinga housing and associated buildings is proposed as part of an integrated development on Māori freehold land within the Rural Production Zone land where consent is sought as the proposed development does not comply with one or more of the zone rules. Consent is sought as a discretionary activity under this rule and a Management Plan is included as part of this application.

See assessment of effects (Section 8.2) which addresses the relevant assessment criteria from Chapter 11 of the District Plan regarding integrated development on Māori freehold land. The assessment demonstrates that the proposal:

- Aligns with the principles and objectives for Māori land development
- Provides appropriate infrastructure and services for the scale of development
- Maintains rural character and amenity while meeting housing needs
- Includes appropriate environmental protection measures
- Supports cultural values and practices through design

Earthworks - Rule 12.3.6.2

Consent is sought for earthworks of 1,635m³ (less than 5,000m³) with a maximum fill height for some sections of the access road exceeding 1.5m as a restricted discretionary activity. The Council will restrict the exercise of its discretion to the following matters:

The effects of the area and volume of soils and other materials to be excavated

The earthworks proposal involves approximately 1,635m³ of cut and fill, well below the 5,000m³ threshold. The volume is modest relative to the development scale and represents careful design to work with existing topography. Cut material will be balanced on-site where practicable, minimising the need for off-site disposal. The earthworks are concentrated in the access corridor and building platforms, with limited disturbance to the broader site. Staged construction will minimise the area of exposed soil at any given time, reducing erosion risk and sediment generation.

The effects of height and slope of the cut or filled faces

The access road design requires fill exceeding 1.5 metres in some locations to achieve appropriate gradients while working with the valley topography. Maximum fill heights of approximately 2.5-3.0 metres are anticipated in limited locations. Cut and fill batters will be stabilized at appropriate grades (typically 1:2 or flatter) and vegetated promptly to prevent erosion. Batter design follows geotechnical recommendations to ensure stability. The relatively modest heights and appropriate batter slopes minimize visual impact and erosion risk. Engineering design ensures long-term stability of cut and fill faces.

The time of the year when the earthworks will be carried out and the duration of the activity

Earthworks will be scheduled to avoid extended periods of high rainfall where practicable, though the Far North's climate presents challenges for completely avoiding wet conditions. Works will be staged over the construction period to minimize the area of exposed ground at any one time. Sediment control measures will be implemented prior to earthworks commencing and maintained throughout the construction period. The phased approach allows vegetation to establish on completed areas

while subsequent stages proceed, reducing cumulative erosion risk. Construction timing will consider seasonal weather patterns to the extent practicable while balancing project delivery requirements.

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

The earthworks design incorporates multiple measures to minimise erosion and sedimentation: appropriate cut/fill batter gradients; staged construction minimising exposed areas; prompt revegetation of disturbed areas; sediment control measures including silt fences; and stormwater management to prevent concentrated flows. The geotechnical investigation confirms stable ground conditions for the proposed works. Natural wetlands are avoided, with appropriate setback distances maintained. The earthworks will not exacerbate natural hazards - indeed, the relocation addresses flooding hazard by moving residents to higher, flood-free land. Surface water management directs runoff to appropriate disposal locations without adversely affecting downstream water bodies.

The extent to which the activity may adversely impact on visual and amenity values

The earthworks are designed to integrate with the existing landform and minimise visual impact. The access road alignment follows natural contours where possible, reducing the need for extensive cut and fill. Building platforms are positioned to minimise earthworks requirements while achieving appropriate levels. Cut and fill batters will be vegetated to blend with the surrounding landscape. The rural character of the area is maintained through appropriate scale and design of earthworks. Views from surrounding properties are not significantly affected - the development is well-screened by existing topography and vegetation, with supplementary planting enhancing visual integration. The earthworks enable development that improves amenity for residents through flood-free access and reliable infrastructure.

The extent to which the activity may adversely affect cultural and spiritual values

Earthworks have been designed in consultation with the hapū to minimise impacts on cultural values. The site does not contain identified archaeological sites or wāhi tapu. The development as a whole supports cultural values by enabling whānau to remain on ancestral land in a safer location. Earthworks enable infrastructure that supports traditional practices including māra kai and communal gathering. Construction methodology will include protocols for discovery of koiwi or taonga, with appropriate processes for engagement with hapū. The managed retreat context means earthworks enable continued occupation of Māori land by whānau rather than forced abandonment due to flooding hazard.

The extent to which the activity may adversely affect areas of significant indigenous vegetation or significant habitats of indigenous fauna

The earthworks avoid areas of significant indigenous vegetation. Native vegetation removal is limited to access corridors and building platforms, with areas of higher ecological value retained. The vegetation assessment confirms no threatened species are present in areas proposed for earthworks. Sediment control measures protect downstream ecological values including wetlands. The overall landscape strategy includes significant native revegetation that will enhance indigenous biodiversity over time. Earthworks are staged to allow vegetation establishment on completed areas while subsequent stages proceed. The net effect is enhancement of indigenous biodiversity through riparian planting and wetland buffers.

The number, trip pattern and type of vehicles associated with the activity

Construction vehicle movements will be managed through a Construction Traffic Management Plan. Estimated construction traffic includes regular deliveries of building materials, concrete trucks, earthmoving machinery, and contractor vehicles. Daily vehicle movements during peak construction are estimated at 20-30 heavy vehicle movements and 30-40 light vehicle movements. Movements are temporary and staged over the construction period. The consolidated access from Vujcich Road provides appropriate access for construction vehicles. Site management will include wheel wash facilities to prevent tracking of sediment onto public roads. Construction hours will comply with permitted times to minimise effects on neighbours.

The location adequacy and safety of vehicular access and egress

The access location has been selected for safety and adequacy. Sight distances meet Engineering Standards requirements. The 5 metre formation width accommodates two-way traffic including large service vehicles. The access gradient complies with standards, with steeper sections limited and appropriately designed. Turning areas within the development enable vehicles to exit in forward direction. The consolidated access represents improved safety over existing arrangements where multiple properties have individual access points to the road network.

The means by which any adverse environmental effects of the activity will be avoided, remedied or mitigated

Environmental effects will be managed through an Erosion and Sediment Control Plan implemented prior to earthworks commencing; staged construction minimising exposed areas; prompt revegetation of disturbed ground; sediment control devices maintained throughout construction; stormwater management preventing concentrated flows and erosion; dust suppression during dry conditions; construction methodology minimising noise and amenity effects on neighbours; vegetation protection measures for areas to be retained; protocols for archaeological discoveries; traffic management during construction; wheel wash facilities if necessary; and monitoring of sediment control effectiveness. The Erosion and Sediment Control Plan will be prepared by suitably qualified professionals and implemented under supervision. These measures will avoid, remedy or mitigate adverse effects to acceptable levels.

Wetlands setback - Rule 12.7.6.3

The papakāinga wastewater dispersal field are within 30m of a natural inland wetland, as such a discretionary activity consent is sought. The Council will consider the following matters:

The extent to which the activity may adversely affect cultural and spiritual values

The wastewater system design has been developed in consultation with the hapū to address cultural concerns. The dispersal field locations have been selected to maintain appropriate separation from wetlands which hold cultural significance. Modern wastewater treatment technology (primary treatment via septic tanks followed by land application through dripline irrigation) provides effective treatment that protects water quality. The system is designed to regulatory standards, ensuring discharge quality protects downstream values. Cultural monitoring during construction and operation can be incorporated into consent conditions. The managed retreat context means providing appropriate wastewater infrastructure enables whānau to continue occupying ancestral land rather than being displaced by flooding hazard.

The extent to which the activity may adversely affect wetlands

The wastewater dispersal fields maintain separation from natural wetlands, with the nearest dispersal area located approximately 20 metres from wetland margins. The separation distance, combined with treatment via septic tanks and subsurface dripline irrigation, ensures wetland water quality is protected. The assessment notes that adequate treatment via soil filtration can be achieved. Based on the assessments provided it is considered that nutrient loading from the wastewater system will not adversely affect wetland ecology when dispersal occurs at appropriate distances with adequate treatment.

The extent to which the activity may exacerbate or be adversely affected by natural hazards

The wastewater system components are located outside the flood hazard zone, representing a significant improvement over existing properties where flooding can compromise septic systems. The system is designed for the site's soil conditions based on geotechnical investigation and testing. Groundwater levels have been assessed to ensure adequate separation between dispersal fields and water table. The system will not exacerbate flooding hazard - stormwater and wastewater are managed separately with stormwater directed to appropriate surface disposal. The elevated location of the development and wastewater infrastructure ensures reliable operation unaffected by the flooding. The managed retreat initiative specifically addresses natural hazards by relocating to safer locations.

The potential effects of the activity on the natural character and amenity values of lakes, rivers, wetlands and their margins or the coastal environment

The wastewater system is designed to protect natural character and amenity values. Subsurface disposal via dripline irrigation is discreet with no visible discharge or associated odour. Treatment standards ensure water quality protection. Wetland buffers will be kept free of weeds, enhancing visual amenity and ecological function. The managed retreat initiative ultimately protects natural character by enabling development outside flood-prone areas rather than continuing degradation of valley floor areas subject to repeated flooding. The integrated approach to water management - including stormwater, wastewater, and wetland enhancement - provides net environmental benefit.

The history of the site and the extent to which it has been modified by human intervention

The site has been subject to pastoral farming for many decades, planting with exotic species and modifications including farm tracks. The proposal represents an opportunity to enhance the site's ecological values through removal of exotic species, native revegetation, and improved land management practices. The wastewater system is a minor additional modification in the context of the site's farming history.

The potential effects on the biodiversity and life supporting capacity of the water body or coastal marine area or riparian margins

The wastewater system is designed to protect biodiversity and life-supporting capacity. Treatment via septic tanks followed by subsurface dispersal provides effective nutrient and pathogen removal. Conservative loading rates ensure soil filtration is effective. The native planting and invasive species removal will improve biodiversity. The net effect on biodiversity is positive - the development enables enhanced ecological management while providing appropriate wastewater infrastructure.

The potential and cumulative effects on water quality and quantity, and in particular, whether the activity is within a water catchment that serves a public water supply

Water quality effects are minimised through appropriate treatment and disposal design. Hydraulic loading accounts for site-specific soil conditions and ensures adequate treatment capacity. The

cumulative effect of the wastewater system serving 14 dwellings has been assessed and is manageable given site characteristics, separation distances, and treatment standards. The site is not within a water catchment serving public water supply. The relocation of households from flood-prone properties potentially reduces water quality risk by removing existing septic systems from hazard zones where flooding can compromise function. The integrated water management approach including stormwater treatment wetlands provides overall water quality benefit.

The extent to which any proposed measures will mitigate adverse effects on water quality or on vegetation on riparian margins

Multiple measures mitigate potential effects including primary treatment via septic tanks; subsurface dispersal via dripline irrigation preventing surface discharge; appropriate separation distances from wetlands and waterways; design based on site-specific soil testing; native planting enhancing water quality; and erosion control during construction.

Whether there are better alternatives for effluent disposal

Alternative disposal options have been considered. Centralised wastewater treatment with discharge to surface water is not appropriate given receiving environment characteristics and cultural considerations. Connection to public wastewater infrastructure is not feasible given the rural location. On-site treatment and disposal is the appropriate solution for this context. The proposed system utilising subsurface dripline irrigation represents current best practice for on-site disposal. The distribution of disposal fields across the site at appropriate separation from sensitive features represents the optimal design for site conditions. Alternative disposal locations would either require greater earthworks, closer proximity to wetlands, or less suitable soils. The proposed configuration balances engineering requirements, environmental protection, and practical implementation.

The extent to which the activity has a functional need to establish adjacent to a water body

The wastewater dispersal fields do not have a functional need to be adjacent to water bodies - rather, appropriate separation is maintained to protect wetlands. The disposal field locations are determined by a combination of factors including site topography, soil suitability, setbacks from dwellings and boundaries, and avoiding wetlands and streams. The design maximises separation from water bodies while meeting other practical requirements. The closest approach to wetlands (approximately 20 metres) reflects balancing multiple constraints while maintaining adequate protection. Greater separation would require disposal in areas with less suitable soils or increased pumping requirements, without materially improving environmental outcomes given the treatment provided.

Whether there is a need to restrict public access or the type of public access in situations where adverse safety or operational considerations could result if an esplanade reserve or strip were to vest

This matter is not applicable to the proposal. The site is privately-owned Māori freehold land and the development does not involve subdivision that would trigger esplanade requirements. The wastewater system components are located within the property and do not affect public access considerations.

Private Accessway – Rule 15.1.6C.2

The papakāinga private accessway has been designed in accordance with Appendix 3B-1 and will have a formed width of 5.0m for the majority of its length. The private access is for 13 household equivalents, in excess of permitted 8 households pursuant to Rule 15.1.6C.1.1, as such a discretionary activity consent is sought. The Council will consider the following assessment criteria:

Adequacy of sight distances available at the access location

The access location onto Vujcich Road has been selected to provide adequate sight distances in both directions. The road geometry at this location is relatively straight with good forward visibility. Sight distances meet the requirements of Council's Engineering Standards and Guidelines for the design speed and anticipated traffic volumes. Any required vegetation clearing to maintain sight lines can be addressed through standard maintenance. The sight distance assessment confirms safe entry and exit movements are achievable. The consolidated access arrangement is safer than the alternative of multiple individual access points with varying sight distance conditions.

Any current traffic safety or congestion problems in the area

Vujcich Road is a rural road serving scattered residential properties and pastoral farming activities. There are no known current traffic safety or congestion problems on Vujcich Road or at its intersection with State Highway 12. The road currently accommodates low traffic volumes typical of rural areas. The existing road infrastructure has adequate capacity for the anticipated traffic from the development. The relocation nature of the project means existing traffic is being redistributed rather than new traffic generated - many of the relocating households currently access their properties from other roads in the valley including direct access to State Highway 12.

Any foreseeable future changes in traffic patterns in the area

Foreseeable future changes relate primarily to the managed retreat programme itself. As flood-prone properties are vacated, traffic patterns will shift from multiple dispersed access points to consolidated locations on higher ground. This represents improved traffic safety through reduced access points onto State Highway 12 and better access reliability during flood events. No other significant developments are anticipated in the immediate area that would materially change traffic patterns. The rural character and limited development potential of the valley suggest traffic volumes will remain low. The managed retreat programme is the primary driver of traffic pattern changes, and represents a redistribution rather than generation of new traffic.

Possible measures or restrictions on vehicle movements in and out of the access

No restrictions on vehicle movements are proposed or required. The access is designed to accommodate all vehicle types anticipated for residential use including passenger vehicles, light commercial vehicles, service vehicles, and emergency vehicles. The 5 metre formation width enables two-way traffic flow. Turning facilities within the development enable forward exit manoeuvres. Construction traffic management will be addressed through a Construction Traffic Management Plan during the development phase. Operational traffic requires no restrictions given the modest volumes (estimated 120-144 daily vehicle movements distributed over 14 dwellings) and appropriate access design.

The adequacy of the engineering standards proposed and the ease of access to and from, and within, the site

The access has been designed to Council's Engineering Standards and Guidelines (Appendix 3B-1). The 5 metre formation width provides adequate width for two-way traffic including service vehicles. Gradient complies with standards with maximum grades of 1:8, and steeper short sections

appropriately designed. The access alignment follows the topography to minimise earthworks while achieving appropriate standards. Turning facilities within the development enable manoeuvring of service vehicles including fire appliances. Internal roads maintain connectivity while minimising impervious surfaces. The design provides reliable all-weather access unaffected by flooding - a critical improvement over existing flood-prone properties where access is compromised during flood events. Engineering design is appropriate for the development scale and demonstrates best practice for rural papakāinga access.

The provision of access for all persons and vehicles likely to need access to the site, including pedestrian, cycle, disabled and vehicular

The access design accommodates all anticipated users. Vehicular access is provided via the 5 metre formed access road. Pedestrian and cycle access is accommodated on the road carriageway - the rural context and low traffic volumes enable safe shared use of the access without separate pedestrian infrastructure. The development layout includes pedestrian connections within the papakāinga linking dwellings to communal spaces and facilities. Accessible design principles are incorporated in dwellings to enable aging in place and accommodate residents with disabilities. The consolidated access arrangement improves reliability for all users compared to existing dispersed properties where flooding can prevent access entirely.

The provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties

Stormwater management for the access is integrated with the overall development stormwater strategy. The access includes drainage infrastructure to collect and convey runoff to appropriate disposal locations. Cut-off drains and table drains prevent concentration of flows and erosion. Sediment control during construction protects downstream values. Long-term management includes vegetative stabilisation of batters and ongoing maintenance of drainage infrastructure. Runoff from the formed access will be treated via grassed swales and wetland-based treatment systems before disposal. The stormwater management approach protects waterways and ecosystems while maintaining or improving current drainage patterns. Effects on adjoining properties are minimal given the internal nature of most of the access and appropriate drainage design.

Sites with frontage to Kerikeri Road

This criterion is not applicable. The site is located in Whirinaki and does not have frontage to Kerikeri Road.

The provisions of the roading hierarchy, and any development plans of the roading network

Vujcich Road is classified as a rural road in Council's roading hierarchy. The development is consistent with the function of rural roads serving residential and agricultural land uses. There are no current development plans for the roading network in Whirinaki that would be affected by the proposal. The access arrangement is compatible with the roading hierarchy - the development consolidates access from multiple properties to a single point on the local road network, reducing direct access onto State Highway 12.

Alternative access for car parking and vehicle loading in business zones

This criterion is not applicable. The proposal is for residential papakāinga development in a rural zone, not business zone development.

Provision for vesting of reserves for future roading connections

There is no identified need for roading reserves or connections through this site. The rural context and surrounding land ownership patterns do not indicate future roading extensions are required through the property. The development is designed as a destination rather than a through-route.

Agreements for future road formation and vesting

Given the rural context, managed retreat purpose, and lack of identified future roading needs through the site, no such agreements are required.

Access to State Highway - Limited Access Road

The development does not involve direct access to State Highway 12. Access is via Vujcich Road, which connects to SH12 at an existing intersection. The consolidation of access from multiple properties to a single point on the local road network reduces the number of individual property accesses and turning movements, improving safety along the state highway corridor. Waka Kotahi approval is not required as there is no direct access onto the state highway.

Frontage to Existing Roads

Measures to avoid, remedy or mitigate the effects of not complying with the Council's Engineering Standards and Guidelines

The access design complies with Council's Engineering Standards and Guidelines as required for a private access serving up to 20 household equivalents. The 5 metre formation width, appropriate gradient, adequate sight distances, and turning facilities all meet the relevant standards. Where the development exceeds the permitted threshold of 8 households (the proposal serves 13 household equivalents which includes allowance for the shared facilities), the exceedance is modest and the access design standard is appropriate for the actual number of dwellings. The access is designed to a higher standard than strictly required for 13 household equivalents, providing future flexibility and ensuring adequate performance. No adverse effects arise from the modest exceedance of the permitted threshold given the appropriate access design.

Overall, the proposal appropriately addresses the assessment criteria under Rule 15.1.6C.2. The private accessway is designed to appropriate engineering standards, provides safe and reliable access for all anticipated users, includes appropriate stormwater management, and represents an improvement over existing access arrangements for flood-prone properties. The modest exceedance of the permitted threshold (13 vs 8 household equivalents) does not result in adverse effects given the appropriate design standard and rural context. The access enables the managed retreat programme by providing reliable, flood-free access to safer housing locations for whānau from the Whirinaki valley.

8.3.3 Proposed Far North District Plan (PDP) - Objectives and Policies

The Proposed District Plan was notified in July 2022 with hearings currently underway. Limited weight is given to the provisions at this stage of the process. However, the following objectives and policies of the Proposed District Plan are considered relevant:

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

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

RPROZ-O3 *Land use and subdivision in the Rural Production zone:*

- *protects highly productive land from sterilisation and enables it to be used for more productive forms of primary production;*
- *protects primary production activities from reverse sensitivity effects that may constrain their effective and efficient operation;*
- *does not compromise the use of land for farming activities, particularly on highly productive land;*
- *does not exacerbate any natural hazards; and*
- *is able to be serviced by on-site infrastructure.*

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

RPROZ-P3 *Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.*

RPROZ-P4 *Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes:*

- *a predominance of primary production activities;*
- *low density development with generally low site coverage of buildings or structures;*
- *typical adverse effects such as odour, noise and dust associated with a rural working environment; and*
- *a diverse range of rural environments, rural character and amenity values throughout the district.*

RPROZ-P5 *Avoid land use that:*

- *is incompatible with the purpose, character and amenity of the Rural Production zone;*
- *does not have a functional need to locate in the Rural Production zone and is more appropriately located in another zone;*
- *would result in the loss of productive capacity of highly productive land;*
- *would exacerbate natural hazards; and*
- *cannot provide appropriate on-site infrastructure.*

The proposed rules for the Rural Production zone are enabling of papakāinga housing. While 12 new units are proposed (exceeding the 10 units that would be permitted under the Proposed Plan), the land is Māori freehold land under Te Ture Whenua Māori Act 1993 and will remain in Māori ownership. The development represents integrated development on Māori land which has specific provision

under both the Operative and Proposed Plans, recognising the unique circumstances of papakāinga housing and ancestral land connections.

The proposed objectives and policies for the Rural Production zone are enabling of development provided that land is maintained for primary production activities as the predominant land use, and that the design and location of new sensitive activities avoid or mitigate reverse sensitivity effects. The proposed units are to be located on approximately 5 hectares clustered on gently sloping terrain, with surrounding land (including land within the floodplain that whanau are relocating from) being retained for continued rural production activities. This clustering approach ensures land remains available for productive use, consistent with RPROZ-O1 and RPROZ-O2.

The development specifically addresses natural hazards (RPROZ-O3) by relocating whānau from high flood-risk areas to terrain entirely outside mapped flood zones. This represents a reduction rather than exacerbation of natural hazard risk. The proposal protects primary production activities from reverse sensitivity effects through the residents being existing valley whānau familiar with rural activities, adequate separation distances from intensive farming operations, and the clustered layout with wastewater disposal areas and landscaping providing physical separation and visual buffering from adjacent productive land.

Rural character and amenity (RPROZ-O4, RPROZ-P4) are maintained through single-storey buildings with low site coverage concentrated in two kainga areas, retention of existing vegetation where practicable, and landscape planting using indigenous species. The scale and design are consistent with other papakāinga developments in the district, maintaining the diverse range of rural environments recognised in the policy.

The development does not represent land use that should be avoided under RPROZ-P5. Papakāinga housing has a functional need to locate on ancestral Māori freehold land in the Rural Production zone. The clustered development minimises loss of productive capacity by concentrating dwellings on approximately 5 hectares while retaining the balance for rural use. The development does not exacerbate natural hazards but rather addresses them through managed retreat. The site can be appropriately serviced with on-site water supply through rainwater harvesting, on-site wastewater treatment designed for clay soils, and adequate access via Vujcich Road.

The proposed development has been sensitively designed following input from Wildland Consultants to avoid direct loss of natural inland wetlands. While limited vegetation removal will be required, this is mitigated through proposed revegetation at greater than 1:1 ratio including riparian planting and wetland enhancement. The application site is not known to contain any archaeological features, though an Accidental Discovery Protocol will be implemented as a precaution given the cultural significance of the valley.

Overall, while the Proposed District Plan has limited weight at this stage, the proposal is generally consistent with the policy direction for managed development that maintains primary production whilst avoiding reverse sensitivity effects and addressing natural hazards.

8.4 Northland Regional Policy Statement

The Northland Regional Policy Statement (RPS) covers the management of natural and physical resources across the Northland Region. The provisions within the RPS give guidance at a higher planning level in terms of the significant regional issues. As such it does not contain specific rules that

trigger the requirement for consent but rather give guidance to consent applications and the development of District Plans on a regional level.

The objectives and policies relevant to the Whirinaki Managed Retreat Kauri Papakāinga proposal are assessed below.

Policy 5.1.1 – Planned and Co-ordinated Development

Subdivision, use and development should be located, designed and built in a planned and co-ordinated manner which:

(a) Is guided by the 'Regional Form and Development Guidelines' in Appendix 2;

(b) Is guided by the 'Regional Urban Design Guidelines' in Appendix 2 when it is urban in nature;

(c) Recognises and addresses potential cumulative effects of subdivision, use, and development, and is based on sufficient information to allow assessment of the potential long-term effects;

(d) Is integrated with the development, funding, implementation, and operation of transport, energy, water, waste, and other infrastructure;

(e) Should not result in incompatible land uses in close proximity and avoids the potential for reverse sensitivity;

(f) Ensures that plan changes and subdivision to / in a primary production zone, do not materially reduce the potential for soil-based primary production on land with highly versatile soils, or if they do, the net public benefit exceeds the reduced potential for soil-based primary production activities; and

(g) Maintains or enhances the sense of place and character of the surrounding environment except where changes are anticipated by approved regional or district council growth strategies and / or district or regional plan provisions.

(h) Is or will be serviced by necessary infrastructure.

The Whirinaki proposal represents a planned managed retreat initiative in response to significant climate-related flood hazards. The proposal has been developed through extensive community consultation (as evidenced by hui and community engagement) and represents a co-ordinated approach between the Northland Regional Council and Te Hikutū hapū.

The development will not fragment productive land as it involves relocating existing homes to elevated sites that have been identified as suitable for development. The masterplanning approach ensures integrated infrastructure provision including dual accessways for resilience, sustainable wastewater treatment, and stormwater management. The proposal enhances rather than compromises the sense of place by maintaining the community within their rohe while addressing safety concerns.

Policy 7.1.1 – General Risk Management Approach

Subdivision, use and development of land will be managed to minimise the risks from natural hazards by:

(a) Seeking to use the best available information, including formal risk management techniques in areas potentially affected by natural hazards;

(b) Minimising any increase in vulnerability due to residual risk;

(c) Aligning with emergency management approaches (especially risk reduction);

(d) Ensuring that natural hazard risk to vehicular access routes and building platforms for proposed new lots is considered when assessing subdivision proposals; and

(e) Exercising a degree of caution that reflects the level of uncertainty as to the likelihood or consequences of a natural hazard event.

This proposal directly addresses natural hazard risks through proactive managed retreat, which represents best practice in climate adaptation. Geotechnical assessment (RS Engineering report) and flood modelling (modelling showing 10% and 1% AEP events) have informed site selection, with development focused on elevated land well outside flood hazard areas. The Whirinaki Kauri Papakāinga development relocates families within residential buildings entirely out of flood-prone areas, significantly reducing vulnerability. The accessway design provides resilience for emergency access.

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

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

(a) Hazardous substances will not be inundated during a 100-year flood event.

(b) Earthworks (other than earthworks associated with flood control works) do not divert flood flow onto neighbouring properties, and within 10-year flood hazard sareas do not deplete flood plain storage capacity;

(c) A minimum freeboard above a 100-year flood event of at least 500mm is provided for residential buildings.

(d) Commercial and industrial buildings are constructed so as to not be subject to material damage in a 100-year flood event.

(e) New subdivision plans are able to identify that building platforms will not be subject to inundation and / or material damage (including erosion) in a 100-year flood event;

(f) Within 10-year flood hazard areas, land use or built development is of a type that will not be subject to material damage in a 100-year flood event; and

(g) Flood hazard risk to vehicular access routes for proposed new lots is assessed.

All proposed building platforms and associated wastewater systems are located entirely outside both the 10-year and 100-year flood hazard areas on elevated land. The flood modelling confirms that the Kauri and Kānuka Block development areas remain dry even during 1% AEP + climate change events. While some access infrastructure may be affected during extreme events (State Highway 12 and part of Vujcich Road) the proposal exceeds the requirements of this policy by completely avoiding flood hazard areas rather than merely providing freeboard.

Additional Policy Considerations

3.3 Ecological flows and water levels

Maintain flows, flow variability and water levels necessary to safeguard the life supporting capacity, ecosystem processes, indigenous species and the associated ecosystems of freshwater.

3.4 Indigenous ecosystems and biodiversity

Safeguard Northland's ecological integrity by:

(a) Protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna;
(b) Maintaining the extent and diversity of indigenous ecosystems and habitats in the region; and
(c) Where practicable, enhancing indigenous ecosystems and habitats, particularly where this contributes to the reduction in the overall threat status of regionally and nationally threatened species.

The ecological assessment for Kauri Papakāinga demonstrates that wetland habitats are protected with appropriate setbacks. An Ecological Management Plan will guide restoration planting and habitat enhancement. The managed retreat from the valley floor will ultimately reduce pressure on the Whirinaki River system and associated wetlands, supporting long-term ecological health.

Summary

The proposal requires consent under the Proposed Regional Plan for Northland for wastewater disposal volumes and earthworks in relation to wetland proximity. However, the managed retreat nature of this proposal represents a proactive response to climate change that aligns strongly with the RPS objectives for natural hazard management. Unlike typical development proposals that may introduce new risks, this initiative reduces overall community vulnerability while maintaining cultural connections to ancestral lands.

The proposal demonstrates alignment with regional policy by prioritising community safety, ecological protection, and sustainable development within a culturally appropriate papakāinga framework. It represents an innovative model for climate adaptation that could inform future policy development for managed retreat initiatives across Northland.

8.5 National Environmental Standards, National Policy Statements, New Zealand Coastal Policy Statement

8.5.1 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

The site is not identified as being a contaminated site within the Northland Regional Council's Register of contaminated sites, nor has it previously been used for activities listed on the HAIL Register produced by the Ministry for the Environment. Therefore, consent is not required under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.

8.5.2 National Policy Statement for Highly Productive Land

Under s104(1)(b) Council is required to have regard to the NPS-HPL. Kauri Papakāinga has a land use capability of 6 (LUC6), and on the northern side of Vujcich Road, land use capability 3. As the development is located on land noted as LUC6 and the wider Whirinaki valley contains productive agricultural land (LUC 3, 4 and 6). To the extent that the NPS-HPL may be applicable to the proposal, the following exemptions under Section 3.9(2) apply:

(c) It is, or is for a purpose associated with, a matter of national importance under section 6 of the Act.

(d) It is on specified Māori land.

(e) It is for the purpose of protecting, maintaining, restoring or enhancing indigenous biodiversity.

The proposal is a managed retreat initiative responding to significant flood hazards that threaten the Whirinaki community. This represents a matter of national importance under section 6(h) - the management of significant risks from natural hazards. The proposal seeks to establish papakāinga on 100% Māori-owned land which accords with the definition of 'specified Māori land'. The proposal includes permanent protection of natural inland wetlands via appropriate setbacks and the implementation of an Ecological Management Plan to guide restoration planting and habitat enhancement across the entire site.

Additionally, measures will be undertaken to ensure that the proposed development, in accoradance with 3.9(3)(a) and (b):

(a) minimises any actual loss of the availability and productive capacity of highly productive land by consolidating development on elevated terraces unsuitable for productive use due to geotechnical constraints; and

(b) avoids potential reverse sensitivity effects through appropriate buffers and the managed retreat approach which removes vulnerable development from the productive valley floor.

The proposal represents a unique response to climate adaptation that will ultimately protect productive land in the valley floor from ongoing residential development pressure while ensuring community safety.

8.5.3 National Environmental Standard for Freshwater

The proposal does not require consent under the National Environmental Standard - Freshwater (NES-F) as there are no earthworks or land disturbance within a 10m setback of natural inland wetlands.

8.5.4 National Policy Statement for Freshwater Management

The NES-F must give effect to the National Policy Statement for Freshwater Management 2020 (NPS-FM). Policy 6 of the NPS-FM considers the values of natural wetlands.

Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

As confirmed in the Ecological Impact Assessment prepared by Wildlands (2025), the proposal has been designed to avoid direct impacts on natural inland wetlands. While the wastewater dispersal field will be located 15 metres away from a wetland, there will be no loss in wetland extent. The proposal includes:

- Implementation of a secondary treatment system capable of treating effluent to a high standard, reducing nitrogen and BOD levels
- A low irrigation loading rate of 2.0mm/day appropriate for the soils
- Treatment through soils with a minimum 0.6m groundwater separation
- Planting to promote uptake of nitrogen and phosphorous
- An Ecological Management Plan to guide restoration and enhancement of wetland margins

The ecological assessment concludes that with implementation of all recommended mitigation measures, the risk of adverse effects on wetland values and groundwater quality is low. The managed

retreat initiative will ultimately reduce pressure on freshwater resources by relocating development away from the flood-prone valley floor.

8.5.5 National Policy Statement for Indigenous Biodiversity

The National Policy Statement for Indigenous Biodiversity (NPS-IB) came into force August 2023. The Kauri Papakāinga is located within an area of mainly exotic vegetation. The proposal will require the clearance of limited indigenous vegetation. Natural wetlands around the site boundaries will be protected and enhanced through the implementation of an Ecological Management Plan.

Overall, it is considered that the proposal accords with the relevant provisions of the NPS-IB and will result in a net gain in indigenous biodiversity through the restoration planting.

Overall Summary

In consideration of the above and the conclusions reached in the ecological assessment, the adverse effects of the proposed activities on freshwater resources and indigenous biodiversity are less than minor when appropriate mitigation measures are implemented. The managed retreat nature of this proposal represents a proactive response to climate change that aligns with national policy direction on natural hazard management, freshwater protection, and biodiversity enhancement.

8.6 Any Other Matters

Section 104(1)(c) requires Council to have regard to any other matter that it considers relevant and reasonably necessary to determine an application. No other matters are considered relevant from the applicant.

9.0 Part 2 Matters

Section 104 is expressly subject to Part 2 of the RMA. Part 2 sets out the purpose and principles of the RMA, with a focus on:

- promoting sustainable management of natural and physical resources (section 5);
- recognising and providing for matters of national importance (section 6);
- having regard to other significant resource management matters (section 7); and
- taking into account the principles of the Treaty of Waitangi (Te Tiriti O Waitangi) (section 8).

The Court of Appeal has confirmed (in the *R J Davidson Family Trust v Marlborough District Council* decision) that when undertaking the section 104 evaluation, the consent authority "must have regard to the provisions of Part 2 when it is appropriate to do so."

9.1 Section 5 - Purpose and Principles

The Whirinaki Managed Retreat Kauri Papakāinga aligns with the purpose of the Resource Management Act 1991 as defined in Section 5, which seeks to promote the sustainable management of natural and physical resources. The proposal achieves this by enabling Te Hikutū hapū and the Whirinaki community to provide for their social, cultural, and economic wellbeing by relocating households from flood-prone areas to safer elevated sites while maintaining their connection to

ancestral lands. The proposal sustains resources for future generations by proactively responding to climate change impacts and removing vulnerable development from areas subject to increasing flood risk. The life-supporting capacity of ecosystems is protected by relocating development away from the Whirinaki River system and implementing comprehensive ecological management. Potential adverse environmental effects have been addressed through careful design, secondary wastewater treatment, and appropriate construction methodologies that avoid, remedy, or mitigate impacts.

9.2 Section 6 - Matters of National Importance

The proposal recognises and provides for several matters of national importance identified in Section 6. Section 6(e) - the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga - is fundamentally recognised through this papakāinga development on 100% Māori-owned land within the rohe, ensuring the community maintains its cultural connections while achieving safety from natural hazards. Section 6(h) regarding the management of significant risks from natural hazards is the primary driver of this proposal, with the managed retreat directly addressing flood risks that modelling shows could result in water depths up to 2.2 metres in the valley. The protection of natural character under Section 6(a) is achieved through maintaining appropriate setbacks from wetlands and implementing restoration measures through the Ecological Management Plan.

9.3 Section 7 - Other Matters

The proposal has particular regard to several matters under Section 7. Kaitiakitanga under Section 7(a) is demonstrated through Te Hikutū hapū exercising guardianship over their ancestral lands in planning and implementing this managed retreat. The ethic of stewardship under Section 7(aa) is reflected in the comprehensive approach to environmental management, including habitat restoration and enhancement. The effects of climate change under Section 7(i) have been central to the proposal's development, with the managed retreat representing proactive adaptation to increasing flood frequency and severity. The efficient use and development of natural and physical resources under Section 7(b) is achieved by consolidating development on geotechnically stable elevated land while releasing the productive valley floor from residential development pressure. The maintenance and enhancement of amenity values and environmental quality under Sections 7(c) and 7(f) are provided for through the masterplanned papakāinga design and comprehensive mitigation measures.

9.4 Section 8 - Treaty of Waitangi

Section 8 requires taking into account the principles of the Treaty of Waitangi. This proposal exemplifies Treaty principles through Te Hikutū hapū exercising tino rangatiratanga in determining the future of their community on their ancestral lands. It demonstrates active protection by the hapū safeguarding their community from natural hazards while maintaining cultural connections through the papakāinga model. The proposal represents self-determination in addressing climate risks through culturally appropriate solutions.

The proposal strongly aligns with all relevant provisions of Part 2 of the RMA. It exemplifies sustainable management that protects communities from natural hazards while maintaining cultural connections, protects and enhances ecological values, and responds proactively to climate change. The Whirinaki

Kauri Papakāinga demonstrates how managed retreat can be implemented in accordance with Treaty principles and tikanga Māori, providing a model for climate adaptation that strengthens rather than disrupts indigenous communities. The hapū-led approach ensures that solutions are culturally grounded and maintain the integrity of the community while addressing significant environmental risks.

10.0 Notification

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

- The applicant is not requesting public notification and the application does not involve any exchange of recreation reserve land under the Reserves Act 1977.
- The application is not subject to a rule or national environmental standard that precludes public notification, and the activity is not a controlled activity or restricted discretionary activity where the relevant rules preclude public notification.
- Public notification is not required as the proposed development will have less than minor adverse effects on the environment as assessed in Section 8 of this report. The assessment demonstrates that all potential adverse effects, including ecological impacts, flood hazard risks, wastewater disposal effects, and construction effects, will be appropriately avoided, remedied or mitigated to a level that is less than minor.
- There are no special circumstances that warrant the application being publicly notified.

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

- Limited notification is not mandatory under any relevant rule or national environmental standard.
- Limited notification is not precluded.
- Limited notification is not required as it is considered that the activity will not result in any adversely affected persons. The assessment of effects on persons demonstrates that the development is well separated from neighbouring properties; buildings are located outside flood hazard areas; the wastewater disposal system has been designed to avoid effects on groundwater and surface water; ecological effects will be appropriately mitigated through the Ecological Management Plan and the proposal will not generate adverse effects on adjacent landowners or the wider community.
- There are no special circumstances that warrant the application being limited notified to any other persons. The managed retreat initiative has been developed through comprehensive community engagement, and the proposal addresses a community-wide need for climate adaptation.

It is therefore considered that this application can be processed without public or limited notification. The proposal represents a proactive, community-led response to natural hazard risks that will result in less than minor adverse effects on the environment when appropriate mitigation measures are implemented. No persons are considered to be adversely affected by the proposal.

11.0 Conclusion

The proposal is a resource consent for a papakāinga comprising 12 new dwellings (14 total including existing) with associated infrastructure and wastewater disposal within 20 metres of a wetland. This managed retreat initiative addresses significant flood hazards affecting the Whirinaki community, enabling whānau to relocate to safer, flood-free locations on ancestral land.

Resource consents are sought for: controlled activity papakāinga housing exceeding density standards (Rule 8.6.5.2.2); discretionary activity integrated development on Māori freehold land (Rule 8.6.5.4.2); restricted discretionary activity earthworks of 1,635m³ with fill exceeding 1.5m (Rule 12.3.6.2); discretionary activity wastewater dispersal within 30m of wetlands (Rule 12.7.6.3); and discretionary activity private accessway serving 13 household equivalents (Rule 15.1.6C.2).

The application is supported by technical assessments, including geotechnical investigation, flood modelling, ecological impact assessment, and civil engineering design. Consultation with Te Hikutū Hapū has informed the masterplanning approach. Actual and potential environmental effects will be less than minor with mitigation measures including wastewater treatment; Ecological Management Plan implementation; appropriate wetland setbacks; and erosion and sediment control during construction.

The effects of papakāinga housing are appropriately addressed through careful dwelling location based on geotechnical suitability and flood-free positioning; 5m wide access designed to engineering standards providing safe all-weather access; and comprehensive native planting integrated with māra kai and landscape enhancement. The development density of 1.5 dwellings per hectare maintains rural character while supporting traditional cluster papakāinga living patterns.

The integrated development on Māori freehold land is supported by a Management Plan addressing infrastructure provision, environmental protection, and cultural values. Earthworks of 1,635m³ are modest in scale with appropriate erosion control and staged construction. Wastewater dispersal at 20m from wetlands incorporates treatment and subsurface irrigation with appropriate loading rates.

The proposal is consistent with District Plan objectives and policies, recognises Māori relationships with ancestral lands (s6(e) RMA), gives effect to natural hazard management (s6(h)), and has particular regard to efficient resource use, amenity values, ecosystem values, and climate change effects (s7). Cultural consultation gives effect to Treaty of Waitangi principles (s8).

Subject to recommended conditions, the proposal represents appropriate sustainable management under the Resource Management Act 1991. The development addresses significant natural hazard risk while enabling whānau to remain on ancestral land in safer locations. As such it Is considered that resource consent should be granted subject to appropriate conditions.

Signed: 

12.0 Recommended Conditions of Consent

The following conditions of consent are proposed as part of the application to help manage any potential effects of the proposal:

General Conditions

1. This consent shall be carried out in accordance with the plans and details submitted with the application.

Pre-Construction Conditions

2. Prior to the commencement of the earthworks activity, the consent holder shall hold a pre-start meeting that:
    a. Is located on the subject site;
    b. Is scheduled not less than five days before the anticipated commencement of earthworks;
    c. Includes representation from the contractors who will undertake the works; and
3. The following information shall be made available at the pre-start meeting:
    a. Timeframes for key stages of the works authorised under this consent;
    b. Resource consent conditions;
    c. Erosion and Sediment Control Plan;
    d. Construction methodology;
    e. Emergency spill procedures.

Earthworks and Construction Conditions

4. All machinery shall be operated in a way that ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance.
5. The consent holder shall ensure that sediment and erosion controls are constructed and maintained in accordance with Auckland Council's Guideline Document 2016/005 "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region" (GD05) or equivalent.
6. The consent holder shall ensure that all sediment and erosion controls are inspected:
    a. On a daily basis;
    b. Prior to any rainfall event;
    c. Following any rainfall event; and
    d. During any rainfall event to ensure the controls are working effectively.
7. There shall be no airborne or deposited dust beyond the subject site due to the earthworks activity, which in the opinion of the Council's Monitoring Officer is noxious, offensive or objectionable.
8. All noise generating activities associated with the implementation of this resource consent must not exceed the noise limits stipulated within NZS 6803:1999 Acoustics - Construction Noise.

Accidental Discovery Protocol

9. If at any time during site works, potential kōiwi (human remains), archaeological features or artefacts, or evidence of contaminated land are discovered, the following protocol shall be followed:

    a. All earthworks will cease in the immediate vicinity (at least 20m from the site of the discovery) and the Council's Monitoring Manager shall be contacted along with other relevant agencies;

    b. If the discovery is related to archaeology, a suitably qualified archaeologist shall be consulted;

    c. If the material is identified as human, archaeological or an artefact, earthworks must not resume in the affected area;

    d. If the discovery contains kōiwi, archaeology or artefacts of Māori origin, Mana Whenua representatives shall be provided information on the nature and location of the discovery;

    e. The Consent Holder shall not re-commence works in the immediate vicinity until approved by the Council's Monitoring Manager.

Appendix 1

Certificates of Title

Appendix 2

Kauri Papakainga Masterplan + Context Masterplan

Appendix 3

Kainga Plans

Appendix 4

Engineering Plans

Appendix 5

Operative District Plan Assessment

Appendix 6

Geotech Investigation Report

Appendix 7

Civil Suitability Report

Appendix 8

Ecological Impact Assessment

Appendix 9

Integrated Management Plan

Appendix 10

Consultation Summary & Affected Party Written Approvals

Appendix 11

NZ Fire Service Approval

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **NA878/274**

Part-Cancelled

Land Registration District **North Auckland**

Date Issued 19 June 1947

Prior References
NAPR189/164

Estate Fee Simple

Area 9.5228 hectares more or less

Legal Description Whirinaki 4A Block

Registered Owners

Bella Karora as to 6.188 shares

Ellen Karora as to a 6.187 shares

Teresa Karora as to 6.187 shares

Helena Hinemoa Karora as to 1.547 shares

Laurence Allan Karora as to 1.547 shares

Shaun Arthur James McKay Kaio as to a 32.125 share

Michael Karora as to a 3.0945 share

Fleur Josephine Rerekura as to a 42.125 share

Interests

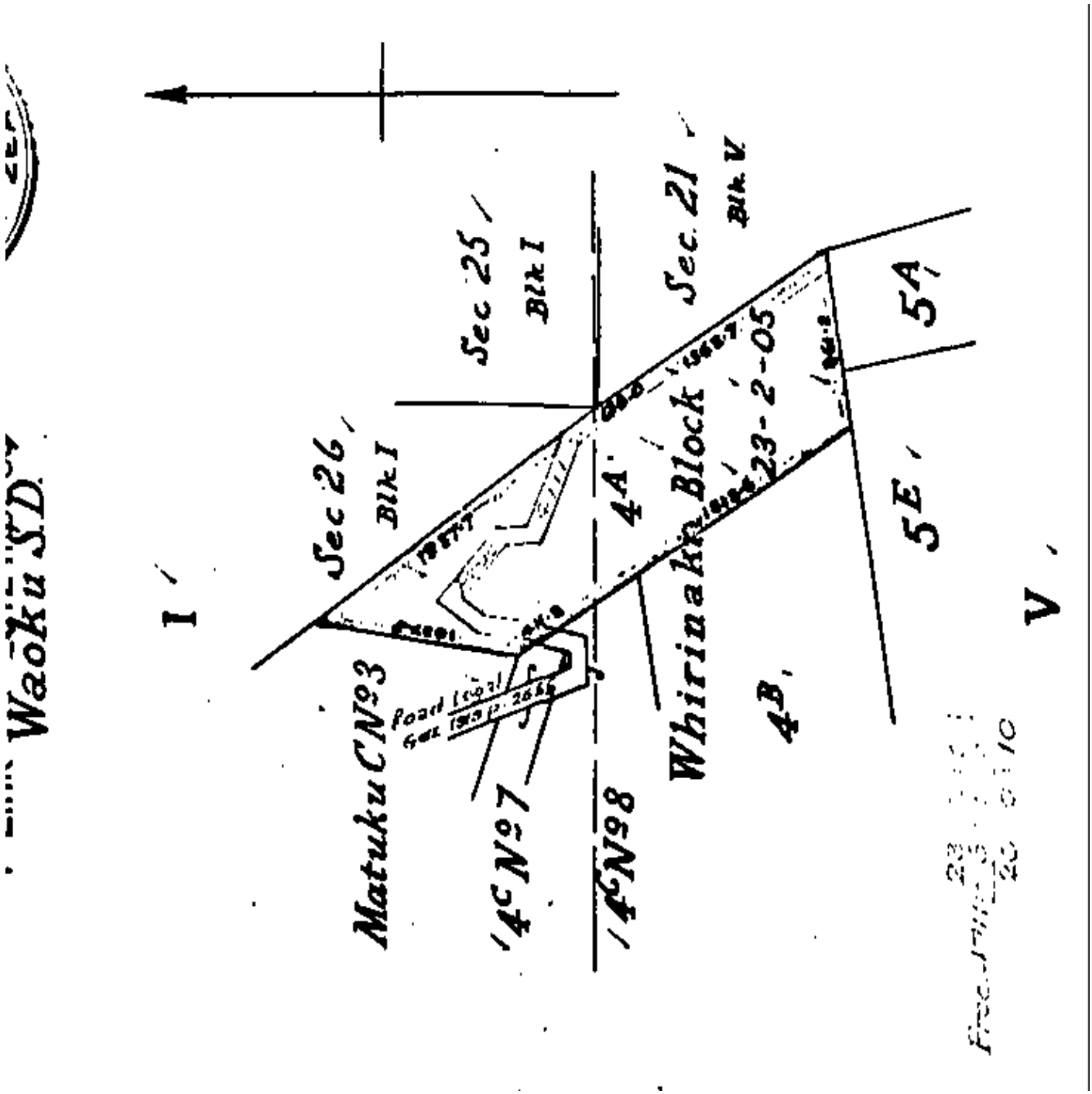
The proprietors listed above hold the shares out of a total of 99.000 shares.

4711 Proclamation taking part within land for road - 11.6.1947 at 10.00 am

B162914.4 STATUS ORDER DETERMINING THE STATUS OF THE WITHIN LAND TO BE MAORI FREEHOLD LAND - 5.4.1983 AT 11.55 AM

7315598.1 Occupation Order vesting exclusive use and occupation of part herein (4000m2) on Whirinaki 4A in Helena Karora - 11.4.2007 at 9:00 am

7315606.1 Occupation Order vesting exclusive use and occupation of part herein (4000m2) on Whirinaki 4A in Laurence Karora- 11.4.2007 at 9:00 am

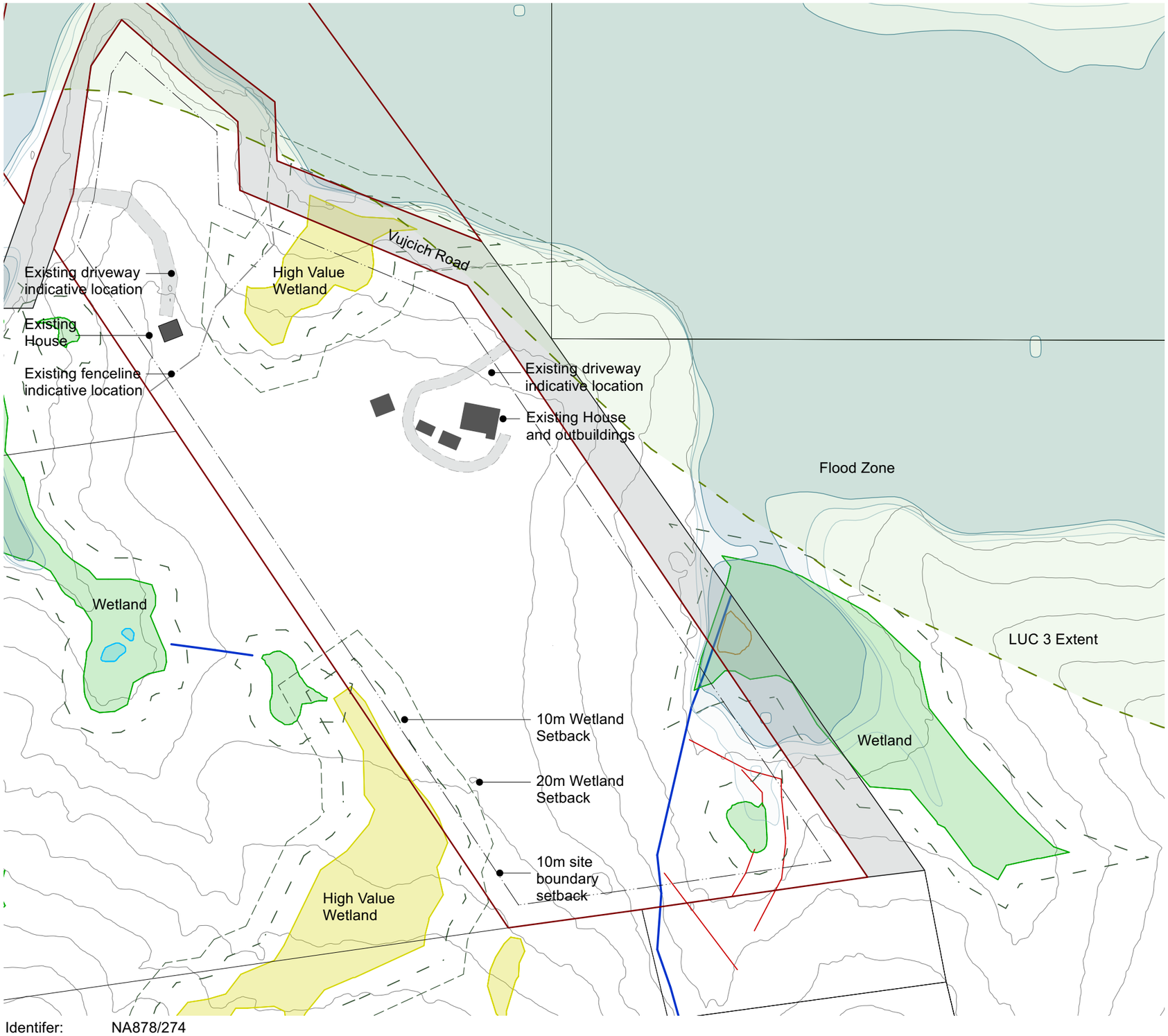

Waoku SD
I
Sec 26
Blk I
Sec 25
Blk I
Sec 21
Blk V
Matuku CN°3
4C N°7
4C N°98
Whirinaki Block
4A
4B
5A
5E
V
23-2-05

Report on Maori Land details for the following Record(s) of Title

Record(s) of Title

NA878/274	Identified as potentially Maori Freehold Land

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



Key

- Site boundary
- 10m Boundary Setback
- Existing Building
- Contours 5m
- 1 in 10 year flood
- 1 in 50 year flood
- 1 in 100 year flood
- Existing Road
- Wetland
- High Value Wetland
- Pond
- Stream
- Drain
- 10m Setback
- 20m Setback
- Land Use Capacity: LUC 3

Total Site Area:	95,228m^2	
Existing Building Coverage	450m^2	**0.5%**
Existing Impermeable Area	1200m^2	**1.3%**
Total Existing Permeable Area	93,978m^2.	**97.2%**

Identifer: NA878/274
Legal Des: Whirinaki 4A Block
Area: 95,228m^2

REVISION	DATE	NOTE
v1	06/11/2025	For Resource Consent

PROJECT: Whirinaki Managed Retreat
PROJECT #: TU_082
CLIENT: Northland Regional Council
DATE #: 31/10/2025
SCALE @ A3: 1:2000
DRAWN: KC
CHKD: ZA
DWG #: Kau 009
REVISION: v1
DWG: **Kauri Existing Constraints**

0 50 75 100 125 150 m

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Urban Design + Planning + Landscape

Key

- Site boundary
- 10m Boundary Setback
- Existing Building
- Contours 5m
- 1 in 10 year flood
- 1 in 50 year flood
- 1 in 100 year flood
- Existing Road
- Wetland
- High Value Wetland
- Pond
- Stream
- Drain
- 10m Setback
- 20m Setback
- Approved Building Platform
- Kaumatua Housing
- Whare Hui
- Māra Kai
- Pātaka
- Waste and Recycling
- New Accessway
- Carpark
- Pedestrian paths
- Existing and proposed native planting
- Wastewater Treatment Plant refer Engineering Drawings
- Wastewater Management refer Engineering Drawings
- Living Area North/West Orientation

Total Site Area:	95,228m^2	
Proposed Building Coverage	3,290m^2	3.5%
Proposed Impermeable Area	3,800m^2	4.0%
Total	**7,090m^2**	**7.5%**
Total Proposed Permeable Area	**88,138m^2**	**92.5%**

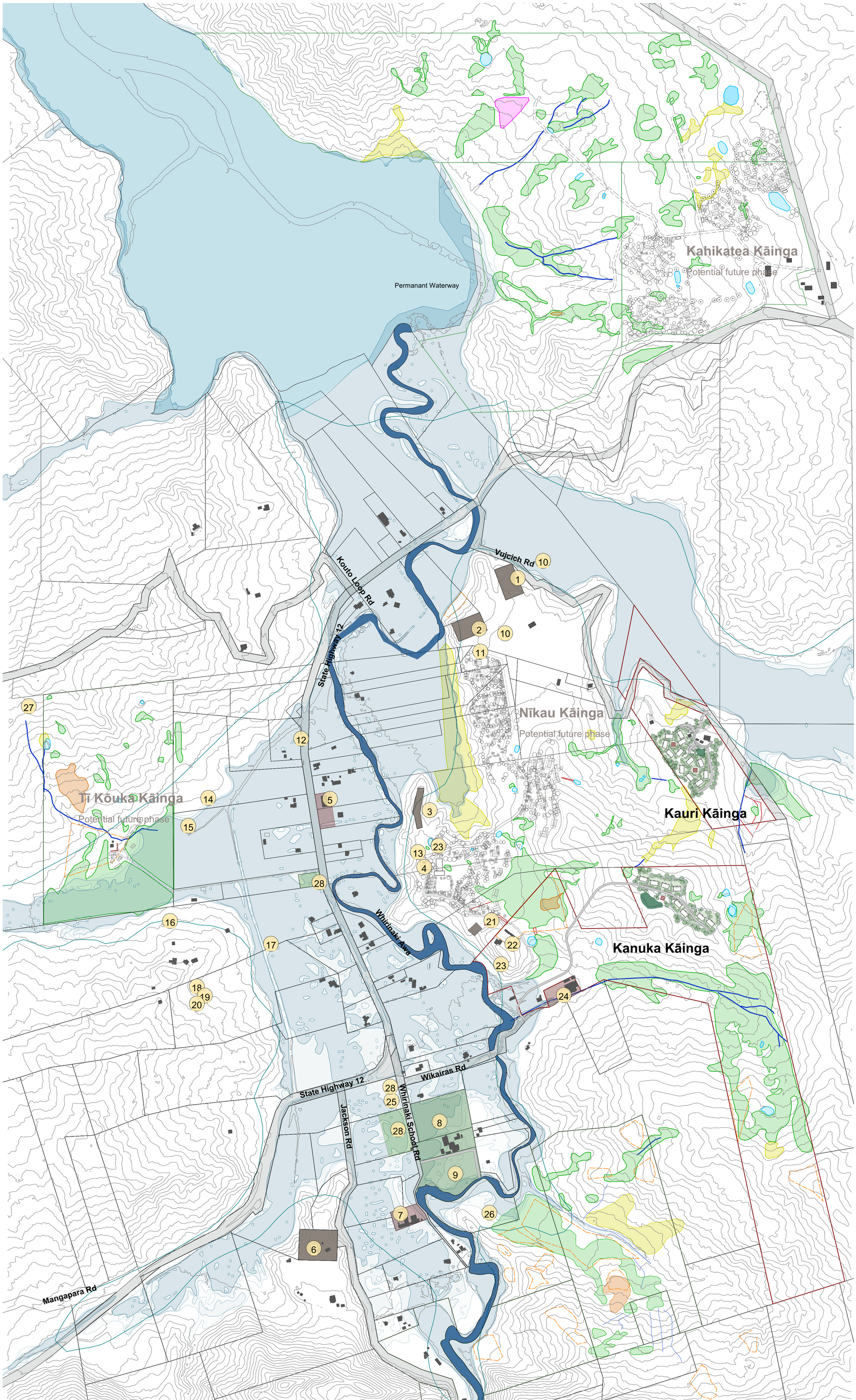
Identifer: NA878/274
Legal Des: Whirinaki 4A Block
Area: 95,228m^2

REVISION	DATE	NOTE
v1	06/11/2025	For Resource Consent

PROJECT: Whirinaki Managed Retreat
PROJECT #: TU_082
CLIENT: Northland Regional Council
DATE #: 31/10/2025
SCALE @ A3: 1:2000
DWG #: Kau 011
DWG: **Kauri Proposed Masterplan**
DRAWN: KC
CHKD: ZA
REVISION: v1

0 50 75 100 125 150 m

The Urbanist.
Urban Design + Planning + Landscape



Sites of Significance

1. Tongariro Urupā
2. Tongariro Urupā
3. Maheru Urupā
4. St Nicholas in the Fields
5. Pa Te Aroha Marae
6. Pukekoukou Urupā
7. Moria Marae
8. Rugby Field
9. Former School Site, Tennis Court
10. Akanui Te Puhaka
11. Anapatara
12. Rangipai
13. Manawakore
14. Tokatiwha
15. Patukoroatua
16. Rua Parapara
17. Awa orua
18. Tauwhitu
19. Te Puhaka
20. Wananui
21. Tangirere Wāhitapu
22. Orei
23. Piriwai
24. Matai Ara Nui
25. Taikaporua
26. Kauhoehoe
27. Pouwhakakiwa
28. Pou of Ancestors

- Existing Roads
- LINZ Parcels
- NGS likely stable land
- Whirinaki Awa
- Existing Building
- Contours 5m
- 10 year flood
- 50 year flood
- 100 year flood
- Flood Susceptable Land
- Urupā
- Marae
- Church
- Recreation
- Lot Boundary
- New house
- Māra Kai
- Whare Hui
- New Accessway
- Carpark
- Existing and Proposed Native Planting
- Wetland
- High Value Wetland
- Wetland Upland Mosaic
- Pond
- Willow Treeland
- Stream
- Drain

Phase 1: Kauri and Kanuka

REVISION	DATE	NOTE
v2.0	17/12/2025	For Resource Consent

PROJECT	Whirinaki Papakāinga Managed Retreat		PROJECT # TU_082
CLIENT	Northland Regional Council	DATE # 02-10-2025	DWG # OA 030
DWG	**Overall Prop Masterplan Phase 1**	SCALE @ A0 1:5000	
		DRAWN KC, RA	
		CHKD ZA	REVISION **v1.1**

0 100 200 300 400 500 m

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CIVIL SUITABILITY REPORT

Vujcich Road

Whirinaki

(Part Whirinaki 4A Block)

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

CIVIL SUITABILITY REPORT

Vujcich Road

Whirinaki

(Part Whirinaki 4A Block)

Report prepared for: Northland Regional Council – Kauri Block

Report reference: 19730

Date: 23 December 2025

Revision: 3

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
20/10/2025	1	Draft Issue	C Hay	S Scott Compton	M Jacobson
11/11/2025	2	Second Issue	C Hay	S Scott Compton	M Jacobson
23/12/2025	3	Resource Consent Issue	C Hay	S Scott Compton	M Jacobson

Contents

Appendices

File: 19730
23 December 2025
Revision: 3

CIVIL SUITABILITY REPORT

Vujcich Road, Whirinaki

(Part Whirinaki 4A Block)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by the Northland Regional Council to investigate the suitability of the property (Part Whirinaki 4A Block) for construction of Papakainga. The purpose of this report is to assess the preliminary water supply, firefighting water supply, accessways, stormwater attenuation and disposal and provide an on-site wastewater disposal design to serve the proposed dwellings. This report is being prepared to support resource consent applications.

The client proposes to construct/locate 12 new dwellings across the property as part of the wider Whirinaki flood relief to home flood impacted residents of Whirinaki.

2.0 Site Description

This property is located on the southern and eastern side of Vujcich Road, accessed approximately 1.2km from its intersection with State Highway 12. The property is located on a gently sloping terrace, sloping moderately to steeply to the north, east, and west. Existing dwellings and sheds are located on the property as indicated on Figure 1 below. Ground coverage is generally in dense vegetation and bush with some cleared areas generally adjacent to the existing buildings.

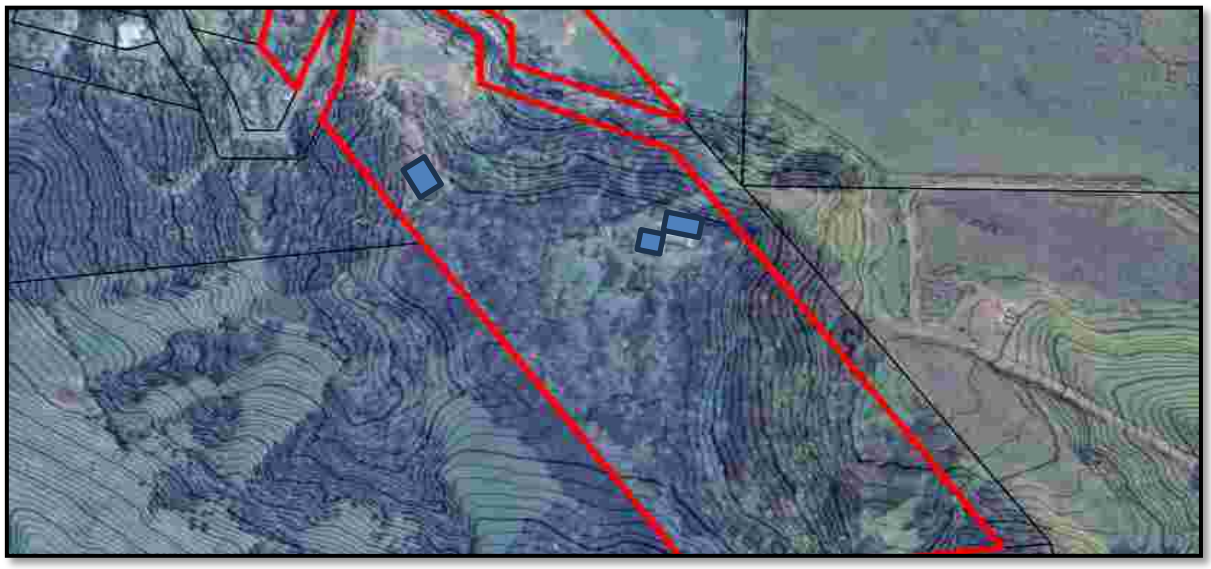


Figure 1: Aerial view of property, boundaries marked in red and existing buildings in blue.

3.0 Wastewater Disposal

3.1 Design Flows

The development proposes twelve, four-bedroom dwellings. In accordance with AS/NZS1547, an occupancy of 6 was applied to each dwelling. Allowing for 145L/person/day with 6/3 flush toilets, standard water fixtures, and no garbage grinders. The total wastewater flows for the four-bedroom dwellings are presented in Table 1 below.

Table 1: Four-bedroom Dwelling Flows

4-bedroom Dwelling	12	No.
Design Occupancy	6	No.
Total Occupancy	72	No.
Flow Allowance	145	L/person/Day
Total Flow	**10440**	**L/Day**

A system capable of providing secondary treatment shall be installed and specifically designed by the manufacturer.

A water meter should be installed to confirm and provide certainty to the accuracy of the design flow allowances.

3.2 Site Evaluation

The land available for effluent disposal is generally gently to moderately sloping (5-15°). Ground coverage at the disposal field location is currently bush/vegetation.

Where the disposal field is laid on ground slopes greater than 10°, a minimum 10m buffer zone is required downslope of the lowest dripper line. This buffer zone is to be planted where existing vegetation/plants are <1-2 plants per m².

Surface water cut off drains shall be installed upslope of the disposal field area directing surface water away from the disposal field. Any defined overland flow paths and/or existing drains encountered within the effluent disposal field area should be filled/recontoured to mitigate any areas where surface water could concentrate or pond.

Based on the subsoil investigations, RS Eng have assessed the soil at the disposal area as Category 6 as per AS/NZS1547.

3.3 Design Irrigation Field Area

A total disposal area of 5220m² is required as detailed below based on the assessed total daily flow and irrigation rate. Refer to Appendix A and C for the attached site plan and specifications. A 30% reserve area is required, being 1566m².

An effluent disposal field schematic plan should be undertaken at the detailed design stage or as part of the secondary treatment plant design by the manufacturer/supplier.

Table 2: Wastewater Disposal Calculations

Total Flow	10,440	L/day
Irrigation Rate (DIR)	2.0	L/m²/day
Irrigation Area Required	5220	m²
Irrigation Line Spacing	1.0	m

3.4 Regional Plan Compliance

Table 3 below demonstrates compliance with the Northland Regional Council's Regional Plan.

Table 3: NRC Permitted Discharge Compliance

Feature	**Permitted Activity Requirements**	**Proposed**
Identified Stormwater Flow Path	5m	>5m
River, Lake, Pond, Stream, Dam or Wetland	15m	>15m
Existing Water Supply Bore	20m	>20m
Property Boundary	1.5m	>1.5m
Groundwater	0.6m	>0.6m
10m Buffer Zone	Slopes >10°	>10°
Reserve area	30%	33%
Daily discharge	<2m³/day	10.4m³/day

3.5 Assessment of Environmental Effects

The NRC Regional Plan states that a proposed treated wastewater discharge to land that exceeds 2000L/day is a discretionary activity. The proposed discharge requires an NRC Resource Consent. The following sections have assessed the relevant matters of discretion.

4.5.1 Irrigation Loading Rate

The soil has been categorised as being Soil Category 6: 'medium to heavy clays' as per AS/NZS1547.

A low irrigation loading rate of 2.0mm/day has been considered as part of the design in accordance with the assessed soil category as per AS/NZS1547.

Existing vegetation over the entirety of the disposal field is required, where any existing vegetation is lacking (<1-2 plants per m^2), planting shall be undertaken using the recommended plants in the attached plant list. This will promote the uptake of Nitrogen and Phosphorous through the vegetation.

4.5.2 Treatment Plant

A secondary treatment system is recommended, which is capable of treating effluent to a high standard. This high level of treatment is the first mitigating factor in reducing the environmental effects of the proposed discharge, keeping Nitrogen and Biochemical Oxygen Demand (BOD) levels low. Such a system shall cater for the specific strength of the effluent.

4.5.3 Treatment Through Soils

Treated effluent from the wastewater treatment plant will be disposed of to a disposal field of which will provide treatment through the soils. The land treatment through the soils will allow to remove any BOD5, Total Suspended Solids (TSS), Nitrogen, Phosphorous, and pathogens remaining in the treated effluent.

4.5.4 Heavy Metals

The accumulation of heavy metals is typically found in large quantities within industrial or commercial zones/premises. Heavy metals within the soil profile for the proposed dwellings are not of concern for the domestic strength wastewater.

4.5.5 Effects on Groundwater Quality

A minimum 0.6m groundwater separation between the proposed effluent disposal field is available, with the groundwater table not encountered to a depth of 0.9m during our investigation at the effluent disposal field location.

Considering that the treated effluent quality is to a secondary level, percolation through the underlying subsoils, existing vegetation and planting to assist in transpiration, and low irrigation loading rate, RS Eng assess the risk of groundwater contamination as a result of the discharge of treated effluent to the effluent disposal field is low.

4.5.6 Effects on Surface Water Quality

The effluent disposal field will be sufficiently set back from existing watercourses and stormwater flow paths as required by the Northland Regional Council Discharge to Land Compliance.

The existing vegetation and planting requirements of the effluent disposal field will aid in effluent retention and the uptake of effluent, reducing the risk of effluent breakout.

4.5.7 Effects on Air Quality

It is expected that odours from the disposal field and treatment system will be no more than minor. The subsurface dripper lines are to be buried beneath the surface with planting to be undertaken which will aid in the uptake of effluent, reducing the effects of odour.

The treatment system manufacturer shall consider the risk of odour on the community and shall select a suitable treatment plant which will eliminate or reduce the risk of odour.

4.5.8 Effects on Public and Community

The effects to/on the wider community are considered to be minimal. The disposal field / drip irrigation lines are likely the most noticeable aspect of the disposal field, however of which will be formed within the existing vegetation, with planting to be completed in any areas lacking existing plants. Irrigation dripper lines will be buried below the surface (subsurface) and hidden from sight.

4.5.9 Summary

Overall, RS Eng consider the risk of potential effects of the effluent discharge on ground and surface water quality to be no more than minor. An NRC AEE-7 Part B Form is enclosed in Appendix D to supplement the Resource Consent application.

RS Eng expects that the requirement for annual / periodic monitoring of the system to be undertaken as a condition of the consent, as would be typically applied to a consent for a treatment and disposal system of this nature.

It is recommended that a water meter be installed to confirm and provide certainty regarding the accuracy of the design flow allowances.

4.0 Stormwater Assessment

4.1 Attenuation

The Far North District Council (FNDC) District Plan shows the property within the Rural Production Zone. A permitted activity under the District Plan states the following regarding stormwater management within this zone: "*The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 15%.*"

The total allowable impermeable coverage is 12178m². The proposed dwellings and accessways are not expected to exceed the allowable impermeable coverage, therefore stormwater attenuation of the proposed impermeable areas is not required. However, stormwater disposal should be managed in order not to cause slope instability or erosion, refer to Section 4.2 below.

4.2 Stormwater Disposal

Uncontrolled and concentrated stormwater discharges can result in erosion and slope instability. RS Eng recommends that stormwater is collected where possible and piped to stable drains, or dispersal structures such as riprap lined aprons or spreader bars discharging stormwater to the base of the eastern slopes.

5.0 Firefighting Water Supply

In accordance with the New Zealand Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008) the dwellings are classified as being FW2.

Minimum water storage volumes and distances to buildings have been specified in the New Zealand Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008), being minimum 90m from the permanent firefighting water supply and buildings with a minimum storage of 45m³.

As a minimum two 25,000L underground water tanks shall be installed to provide permanent firefighting water supply.

6.0 Water Supply

Potable water will be provided to each dwelling by rainwater tanks. Each dwelling shall be serviced via separate water supply tanks rather than a reticulated supply for the dwellings. Recommended water supply volumes for each dwelling are provided below.

- Three bedrooms: 30,000L Tank.
- Four Bedrooms: 2x 25,000L Tanks.

Potable water to each dwelling shall be treated in accordance with G12 of the NZ Building Code and New Zealand Drinking Water Standard. Each dwelling and associated water tanks shall have a potable water treatment system.

7.0 Flooding and Overland Flow Path Assessment

To assess the flood hazard and overland flows, RS Eng have undertaken modelling using Hec-Ras. The NRC have provided depths, elevations and hydrographs from the Priority River model which we have used replicate the model.

7.1 Hec-Ras

The modelling was completed in Hec-Ras V6.6, using the TR55 Type 1A storm with flow hydrographs upstream and tailwater downstream adjusted to be calibrated to the NRC model for this site.

The soils have been taken as Class D, for Alluvium and Northland Allochthon with a CN value of 78 adopted to represent the rural and widely undeveloped catchment. Table 4 below provides a summary of the modelling.

Table 4: Hec-Ras Model Summary

Model Type	Rain on grid
24hr Rainfall (HIRDS V4 +20%)	10%AEP+CC; 152mm 1%AEP+CC; 235mm
CN Value (MPD)	78
Terrain Model	Pre Dev – 2018 NRC LiDAR
Boundary Inlet	Flow Hydrographs 1.3km upstream
Boundary outlet	Staged hydrograph 1.5km downstream
Equation Set	SWE-ELM
Computation Interval	5s
Modelled grid	10m, refined to 1m adjacent to the area in question.

The figure below provides the flood depth and extent during a 1% AEP+CC flood event. It is noted that the buildings are expected above the flood plain and shall be suitably located outside of defined overland flow areas below. Minor ponding was noted across areas of the development. Platforms should be suitably shaped to disperse stormwater away from buildings. Alternatively, if overland flow paths are required to be diverted or passed by access, they shall be subject to design to accommodate flows.

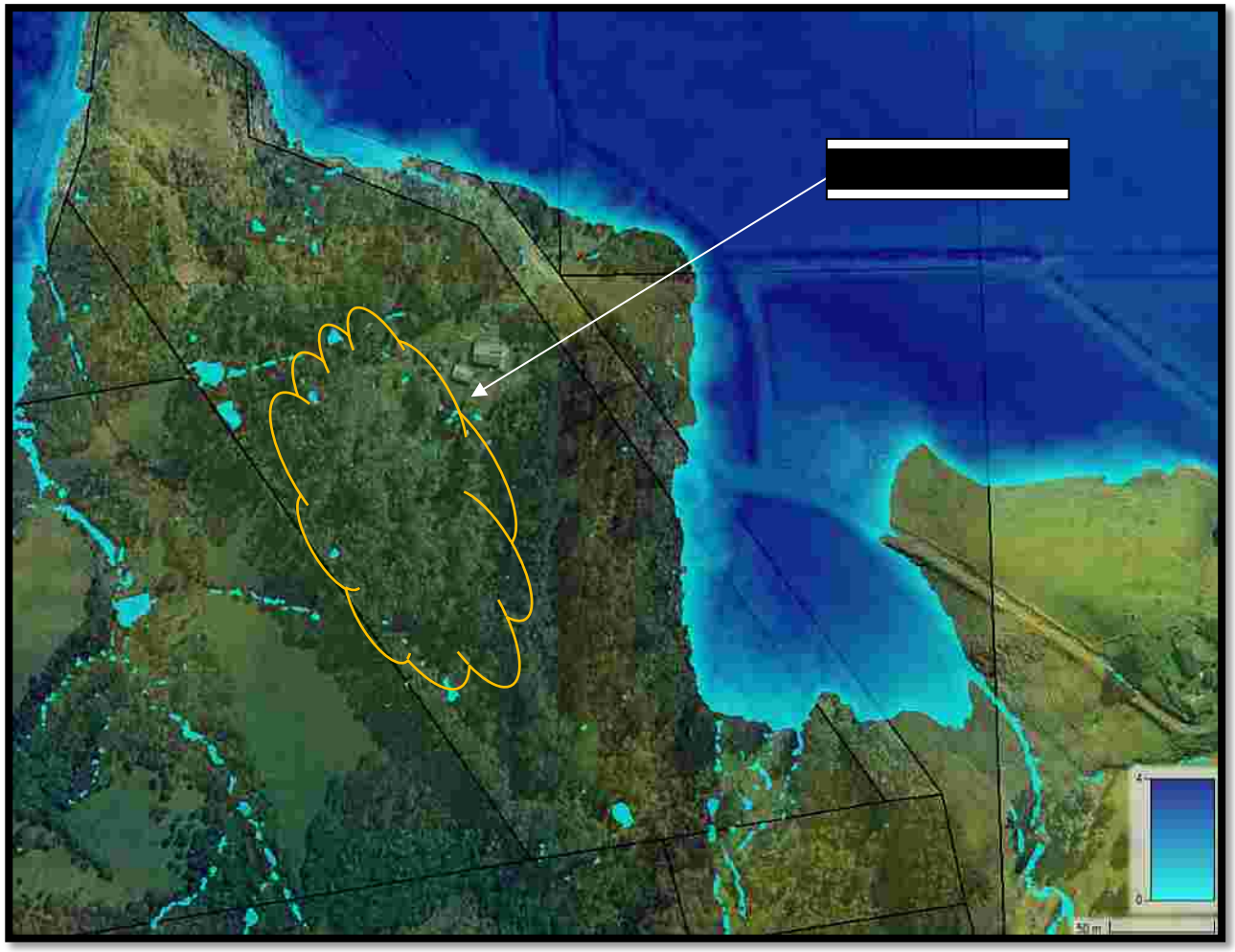


Figure 2: 1%AEP+CC extents, Kauri Block.

7.2 Existing Natural Wetlands

The proposed accessway and buildings are located clear of the mapped wetlands. Earthworks to form the proposed accessway extend near to the mapped wetlands, however, do not extend within 10m to the wetlands. Due to the proximity of the accessway earthworks to the wetlands, RS Eng have assessed Clause 52 and 54 of the National Environmental Standards for Freshwater.

Table 5: National Environmental Standards for Freshwater Summary.

52 (1) Earthworks outside, but within a 100 m setback from, a natural inland wetland is a non-complying activity if it:	
(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland; and	The accessway earthworks are setback approximately 12.5m from the mapped wetlands, with the earthworks located partly within the upslope catchment area of the wetland. This therefore won't drain all or part of the wetland.
(b) does not have another status under any of regulations 38 to 51.	Complying – earthworks area outside a 10m setback from the wetlands.
54) (c) the taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland if:	
(i) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and	Not applicable – One area of earthworks for alignment 2 of the accessway is partly upslope of the wetland area, being approximately 330m² earthworks area. The runoff from the accessway alignment 2 is to crossfall away from the wetland and piped via a culvert away from the catchment of the wetland so no potential contaminants feed into the wetland. The wetland is spring feed, with the proposed accessway diverting less than 14% of the connected catchment.
(ii) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland:	Not applicable – the minor diversion of surface water in the upslope catchment of the wetland as described in 54 (c)(i) is not likely to

	change the water level range or hydrological function of the wetland.
(d) the discharge of water into water within, or within a 100 m setback from, a natural inland wetland if:	
(i) there is a hydrological connection between the discharge and the wetland; and	Not applicable – No stormwater is to be discharged into the wetland from the proposed buildings or accessways, therefore no hydrological connection between the wetland and proposed stormwater discharges.
(ii) the discharge will enter the wetland; and	Not applicable – no stormwater from the accessway or dwelling water tank overflows are proposed to enter the wetlands, as outlined in clause (d) (i) above.
(iii) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.	Not applicable – stormwater from the accessway and dwelling water tank overflows is to be discharged well clear of the mapped wetland areas and therefore is not likely to change the natural water level range or hydrological function.

8.0 Transport

To provide access to the proposed papakainga, the existing driveway is proposed to be upgraded and extended to accommodate the proposed development. This assessment is based on two vehicle movements per day per Kainga. The proposed twelve Kainga equate to three Household Equivalents in terms of the FNDC District Plan.

8.1 Vujcich Road

Vujcich Road is accessed southeast off State Highway 12, running some 1.25km to the site. Vujcich Road is the main accessway for up to four existing Kainga and two residential dwellings. The existing width of the surface is some 4.0m, consisting of an unsealed gravelled carriageway. The existing carriageway is consistent with many Northland rural roads and is considered suitable for the proposed development. To increase safety on Vujcich Road, RS Eng recommends the following works to improve sight distances:

- RP0.50 – RHS - cut back the existing shoulder.
- RP0.55 – 0.80 – LHS – general vegetation trimming.
- RP0.85 – LHS – vegetation trimming.

- RP1.10 – RHS – cut back the existing shoulder.

8.2 Private Access

8.2.1 Accessway

In accordance with the FNDC district Plan, Appendix 3B-1, for three household equivalents. A 3.0m carriageway is required; however, a 3.5m carriageway width is proposed, with passing bays at 100m intervals. Where gradients exceed 16%, RS Eng recommend that the formation is paved.

8.2.2 Crossing

The existing crossing to Vujcich Road shall be shifted north to achieve the minimum required sight distances. Given the limited number of uses and relatively narrow widths, RS Eng assess the operational speed as 50km/hr. Refer to Sheet 1 of Appendix B for locations and Table 6 below of assessed proposed sight distances in accordance with the current FNDC District Plan and FNDC ES 2004.

Table 6: Assessed Sight Distances

Crossing	Direction	Available Sight Distance (m)	Required Sight Distance (m)
Proposed Crossing	North Sight Distance	>65m	65m
	South Sight Distance	>65m	65m

9.0 Limitations

This report has been prepared solely for the benefit of our client. The purpose is to determine the engineering suitability of the proposed dwellings, 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:

Codie Hay
Senior Technician
NZDE(Civil)

Reviewed by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

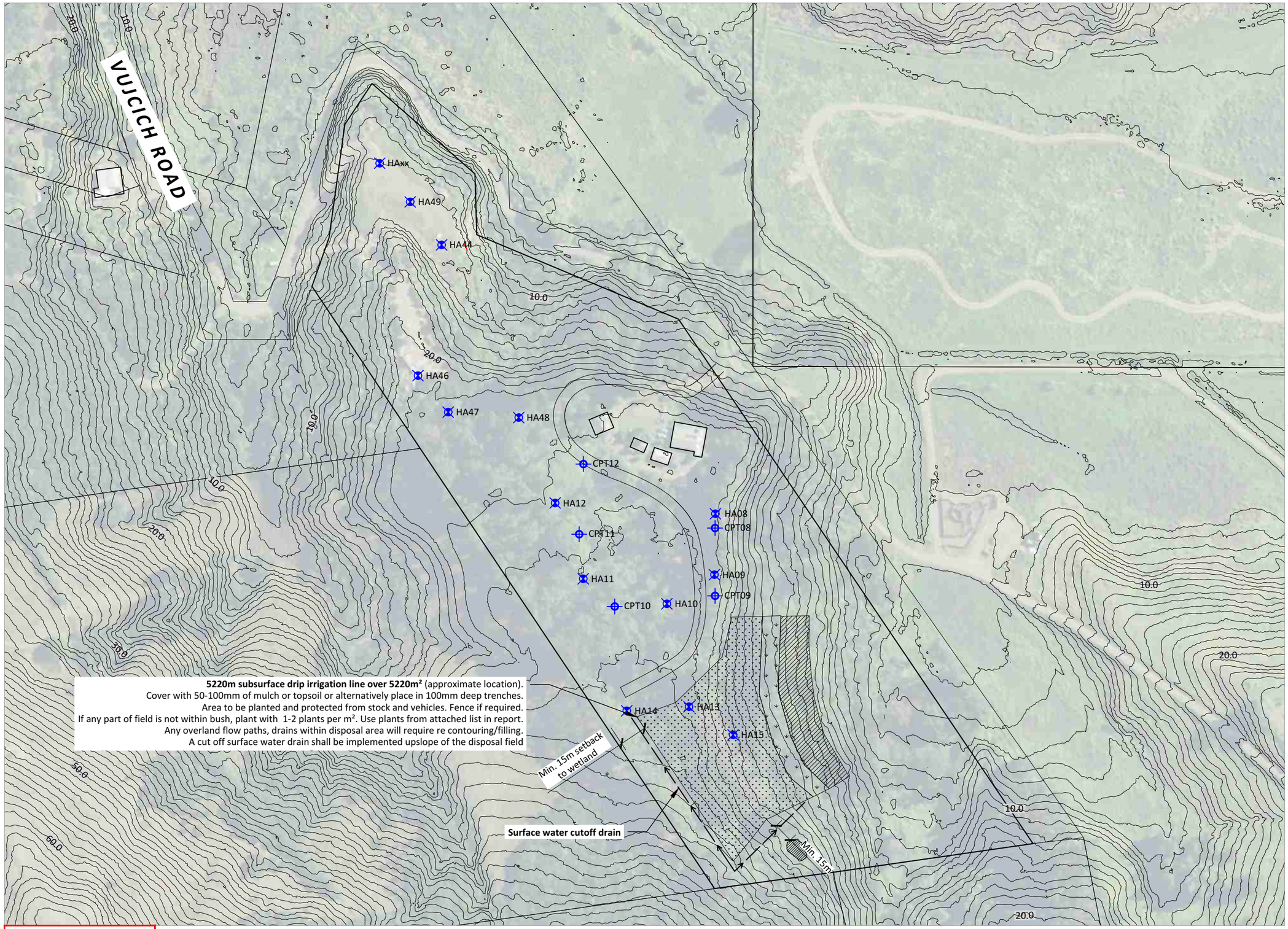
Approved by:

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

RS Eng Ltd

Appendix A

Drawings



FOR CONSENT

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

- Proposed Road
- Existing Buildings
- Proposed WWM
- Disposal Field Buffer Zone
- WWM 33% Reserve Area
- Cut off Drain
- Existing Pond
- Hand Auger Location
- Cone Penetration Test Location

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 20 40
PLAN 1:2000

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

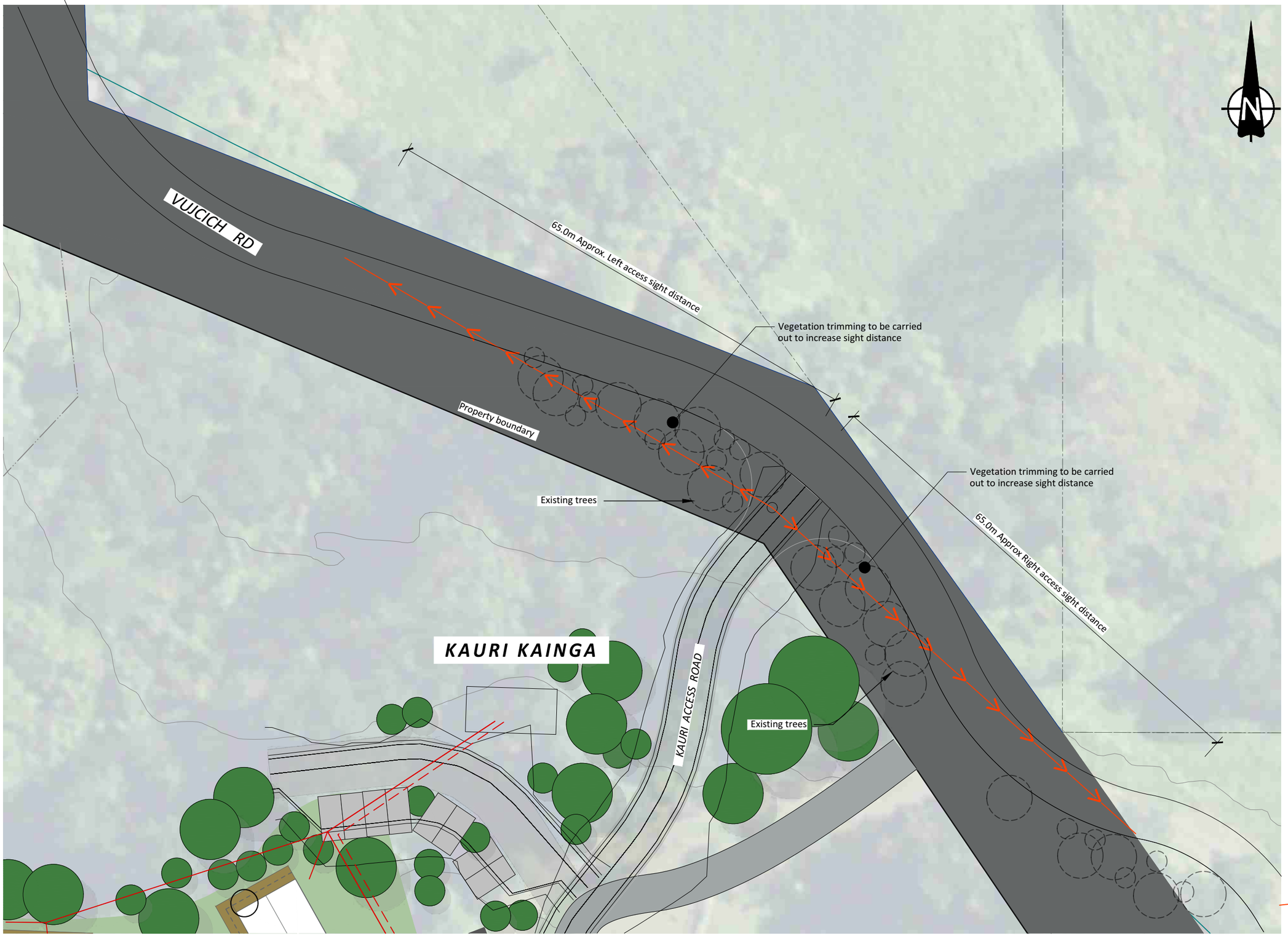
WHIRINAKI PAPAKAINGA DEVELOPMENT
SITE PLAN
KAURI BLOCK

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
11/11/2025	B	Resource Consent Issue
3/10/2025	A	Preliminary Issue

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

Scale: 1:2000
Original: A3
Job No.: 19730
Rev No.: B
Sheet No.: 01



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.

LEGEND

Sight Distance Lines

0 5 10
PLAN 1:500

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

PROPOSED PAPAKAINGA DEVELOPMENT
KAURI KAINGA
KAURI - SIGHT DISTANCE PLAN

Client: NORTHLAND REGIONAL COUNCIL

Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
11/11/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN | Rev No.: A
Original: A3 | Sheet No.: 2
Job No.: 19730

N:\02 Projects\Jobs 19000\19730 Whirinaki Papakainga Managed Retreat\CAD\DWG\19730 Civil Drawings Kauri Kainga\Sheet No. C2-08

Appendix B

Subsurface Investigations

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA08

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642788mE, 6075085mN

ELEVATION: 21.87m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO1433	WATER
TS	TOPSOIL.		0.0	TS			
Punakitere Sa	Silty CLAY, with trace sand; greyish brown. Stiff; moist; low plasticity.		0.2			106	
			0.4			51	
	Orange / white mottling.		0.6				
			0.8			106	
			1.0			56	
	Sandy CLAY; orange / white mottling. Soft to firm; moist; low plasticity.		1.2				
			1.4			57	
			1.6			18	
			1.8				
			2.0			42	
			2.2			15	
	Clayey SILT, with minor sand; purplish grey with orange specks. Stiff; moist; low plasticity.		2.4			133	
			2.6			41	
			2.8				
			3.0			121	
	Firm to stiff.		3.2			44	
	End of bore - squeezing. End Of Hole: 3.40m		3.4				
			3.6				
			3.8				
			4.0				

Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

Generated with CORE-GS by Geroc - 1 - Hand Auger - RS Standard scala & vane bars - 9/15/2025 12:02:33 PM

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA09

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

START DATE: 11/09/2025

CO-ORDINATES: 1642785mE, 6075051mN

ELEVATION: 21.21m

END DATE: 11/09/2025

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: GEO3763	Values	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200		
Punakitere Sa	Silty CLAY, with trace sand; orange / grey. Stiff; moist; low plasticity.		0.2				98 47	▼ 09/09/2025
	With minor rootlets.		1.0				63 32	
	Clayey silty SAND; grey with some orange. Medium dense; moist; non-plastic.		1.4				174 63	◁
	Wet.		1.8				87 40	
	Silty CLAY, with some sand; purplish grey. Stiff; wet; high plasticity.		2.2				98 55	
	Saturated.		2.6				95 47	
	End of bore - core loss. End Of Hole: 2.80m		2.8					
			3.0					
			3.2					
			3.4					
			3.6					
			3.8					
			4.0					

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA10

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642763mE, 6075031mN

ELEVATION: 22.73m

START DATE: 11/09/2025

END DATE: 11/09/2025

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: GEO3763	WATER
TS	TOPSOIL.		0.0				
Punakitere Sa	Silty CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.4			112 43	
	Sandy CLAY; orangish brown / grey. Firm; moist; high plasticity.		1.0			76 19	
	Clayey silty SAND. Medium dense; moist; low plasticity; with minor fibrous organics.		1.4			111 57	
	Silty CLAY, with some sand; orange / brown. Firm; moist; high plasticity.		1.8			81	
	Purplish grey. With minor fibrous organics.		2.0			35	◁
	End of bore - core loss.		2.6			60 19	
	End Of Hole: 2.70m		2.8				

Values

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA11

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642727mE, 6075041mN

ELEVATION: 23.62m

START DATE: 11/09/2025

END DATE: 11/09/2025

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: GEO3763	WATER
TS	TOPSOIL.		0.0	TS			
Punakitere Sa	Sandy CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.2 – 0.6			95, 40	
	Silty CLAY; purplish grey. Firm to stiff; moist; high plasticity.		1.0 – 1.4			142, 51, 71, 30	◁
	With minor fibrous organics .		1.6 – 2.0			104, 51	
	With trace gravel.		2.2 – 2.6			114, 16	
	End of bore - core loss.		2.8 – 3.2			73, 30	
	End Of Hole: 3.20m		3.4 – 4.0				

Scala Penetrometer: 2 4 6 8 10 12 14 16 18

Vane Shear Strength (kPa): 50 100 150 200 | Values

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA12

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

START DATE: 11/09/2025

CO-ORDINATES: 1642706mE, 6075071mN

ELEVATION: 23.08m

END DATE: 11/09/2025

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: GEO3763	WATER
TS	TOPSOIL.		0.0				
Punakitere Sa	Silty CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.2			101	
			0.4			13	
	Firm.		0.6				
			0.8			66	
	Light grey / orange mottling.		1.0			13	
			1.2				
			1.4			95	
			1.6			44	
			1.8				
	Grey . Minor fibrous organics.		2.0			65	
			2.2			32	
			2.4				
			2.6			82	
			2.8			32	
			3.0				
			3.2			82	
			3.4			32	
	Organic CLAY; dark grey / black. Soft; moist-wet; high plasticity.		3.6			44	
			3.8			16	
	End of bore - core loss. End Of Hole: 3.80m		4.0			47	
						17	

Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA13

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642776mE, 6074993mN

ELEVATION: 23.27m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: Values	WATER
TS	TOPSOIL.		0.0				Groundwater Not Encountered
Punakitere Sa	Silty CLAY; orange / brown. Firm to stiff; moist; high plasticity.		0.2				
	Orange / white mottling.		0.4				
			0.6				
			0.8				
			1.0				
	End Of Hole: 1.20m		1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				
			3.6				
			3.8				
			4.0				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18

Vane shear strength scale: 50 100 150 200

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA14

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642747mE, 6074977mN

ELEVATION: 24.44m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0		2 4 6 8 10 12 14 16 18	50 100 150 200 Values	
Punakitere Sa	Silty CLAY; orange / brown / grey. Firm to stiff; moist; high plasticity.		0.2				
	Orange / white mottling.		0.4				
			0.6				
			0.8				◁
			1.0				
	End Of Hole: 1.20m		1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				
			3.6				
			3.8				
			4.0				

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA15

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642828mE, 6074960mN

ELEVATION: 16.88m

START DATE: 09/09/2025

END DATE: 09/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Punakitere Sa	Silty CLAY. Firm to stiff; moist; low plasticity.		0.2				
	Orange / white mottling.		0.4				
			0.6				
			0.8				
			1.0				
	End Of Hole: 1.20m		1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				
			3.6				
			3.8				
			4.0				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA44

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642630mE, 6075262mN
ELEVATION: 13.39m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0					
Alluvium Deposits	Silty CLAY; orange brown and grey. Firm to stiff; moist; high plasticity.		0.2 0.4 0.6 0.8 1.0				85 34 79 27	
	With minor sand, with trace gravel. Gravel, fine.		1.2 1.4				64 24	◁
	With trace sand; grey with orange streaks.		1.6 1.8				82 30	
	With minor carbonaceous.		2.0 2.2 2.4 2.6 2.8				58 17 62 26	
	Silty CLAY; greyish blue. Firm; moist; high plasticity.		3.0 3.2 3.4				70 27	
	Sandy CLAY; dark blueish grey. Firm; moist to wet; high plasticity; sand, fine.		3.6 3.8				98 46	
	End Of Hole: 4.00m		4.0					

SCALA PENETROMETER: 2 4 6 8 10 12 14 16 18
VANE SHEAR STRENGTH (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA45

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642649mE, 6075242mN
ELEVATION: 13.18m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
Alluvium Deposits	Silty CLAY; dark grey with light brown and orange brown staining. Stiff; low plasticity.		0.0			107	
	Silty CLAY, with minor gravel; light grey with light brown streaks. Firm to stiff; high plasticity; gravel, subangular.		0.6			61	
			1.0			110	
	Silty CLAY, with minor carbonaceous; light grey. Firm; high plasticity.		1.4			58	
			1.6			67	
			2.0			34	
	Groundwater inflow.		2.2			64	
			2.4			34	
			2.6			73	◁
			2.8			30	
			3.0			61	
			3.2			34	
			3.4			82	
			3.6			46	
			3.8			61	
	End Of Hole: 4.00m		4.0			52	

Scala Penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane Shear Strength scale: 50 100 150 200 Values

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA46

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642636mE, 6075170mN
ELEVATION: 20.35m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0					
Alluvium Deposits	Silty CLAY; orange brown and grey. Firm to stiff; moist; high plasticity.		0.2 – 1.2				120 50 105 58	
	Light grey with orange streaks.		1.4 – 2.4				125 49 87 30	◁
	With trace sand and gravel. Gravel, fine.		2.6 – 3.0				79 20 85 40	
	Silty CLAY, with minor carbonaceous; dark brown, poor retrieval, falling off auger. Firm; moist to wet; high plasticity.		3.2 – 3.6				61 21	
	End Of Hole: 3.60m		3.8 – 4.0					

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale: 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

Generated with CORE-GS by Geroc - 1 - Hand Auger - RS Standard scala & vane bars - 10/2/2025 4:07:47 PM

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA47

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642659mE, 6075152mN
ELEVATION: 21.08m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0					
Alluvium Deposits	Clayey SILT, with trace sand; light brown with orange brown streaks. Stiff; moist; low plasticity.		0.2					
	Silty CLAY, with trace sand; light grey with orange brown streaks. Firm to stiff; moist; high plasticity.		0.4				122	
			0.6				67	
			0.8					
			1.0				101	
			1.2				61	
			1.4					
			1.6				94	
			1.8				70	
			2.0					
			2.2				88	
			2.4				64	
	Silty CLAY, with some carbonaceous, with trace sand; brown with orange brown streaks, occasional blue green staining. Firm to stiff; moist to wet; low plasticity.		2.6				101	
			2.8				58	◁
			3.0					
	Clayey SILT, with trace sand; dark grey, poor retrieval, falling off auger. Wet to saturated; low plasticity.		3.2				76	
			3.4				40	
	End Of Hole: 3.50m		3.6				107	
			3.8				46	
			4.0					

SCALA PENETROMETER: 2 4 6 8 10 12 14 16 18
VANE SHEAR STRENGTH (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA48

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642687mE, 6075151mN
ELEVATION: 21.49m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0	TS				
Alluvium Deposits	Silty CLAY; orange brown. Stiff; moist; high plasticity.		0.2 – 0.8				149 52	
	Silty sandy CLAY; orange and grey. Stiff; moist; high plasticity.		0.8 – 1.8				152 56 168 53	
	Groundwater inflow, decreased sand.		1.8					◁
	Silty CLAY, with some carbonaceous; light grey. Firm to stiff; moist; high plasticity.		1.8 – 3.0				122 61 113 46	
	Yellowish grey.		3.0 – 3.6				107 46 110 27	
	Carbonaceous CLAY; brownish grey. Firm; moist; high plasticity.		3.6 – 4.0				85 34	
	End Of Hole: 4.00m		4.0					

SCALA PENETROMETER: 2 4 6 8 10 12 14 16 18
VANE SHEAR STRENGTH (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd

HAND AUGER LOG

HOLE NO.: HA49

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642620mE, 6075278mN
ELEVATION: 13.01m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
FILL	Clayey SILT, with some topsoil, with trace gravel. Gravel, angular.		0.2				
Alluvium Deposits	Silty CLAY; light brown with orange brown streaks. Stiff; moist; high plasticity.		0.4, 0.6, 0.8, 1.0			107, 67	
	Clayey SILT, with some sand; light brown with orange brown streaks. Stiff; moist; low plasticity.		1.2, 1.4			101, 46	
	Silty CLAY, with minor carbonaceous, with trace sand; light grey. Firm to stiff; moist; high plasticity.		1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8			131, 85, 122, 73, 98, 61	Groundwater Not Encountered
	Minor angular gravels, minor sand.		3.0, 3.2, 3.4			152, 67, 107, 58	
	Clayey SILT, with minor sand; brown . Stiff; moist; low plasticity.		3.6, 3.8			125, 55	
	End Of Hole: 4.00m		4.0				

Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

Appendix C

On-site Wastewater Disposal Details

Irrigation Field Installation Details

- Use a system producing secondary treated effluent.
- **Use 5220m (minimum) of Sub Surface Pressure Compensating Drip irrigation line**, with Arkal filters, flushing and air release valves fitted.
- Irrigation line is to be laid in a 50-100mm (minimum) trench (sub surface) or covered in mulch surface).
- Irrigation line is to be laid parallel with the contour.
- Disposal Field to be Planted where not within existing vegetation, refer to report.
- System to be installed and maintained as per manufacturer's recommendations including regular de-sludging of the primary treatment tank.
- Disposal area to be protected from stock and vehicles.
- Refer to "How to look after your septic tank" (published by the Northland Regional Council) when protecting the disposal area.
- The system will require the use of water reduction fixtures, i.e. dual flush 6/3 litre water closets, shower-flow restrictors, aerator tap fittings and water conserving automatic washing machines.

Irrigation Line Specification

- Distribution is to be via drip irrigation line with self-compensating pressure drip emitters.
- Install an Arkal disc filter at the outlet of the treatment system. Install pressure checkpoints on either side of the filter to allow for gauges to check for blockages. Install pressure checkpoints at the end of each lateral.
- Install either manual or automatic flushing valves at the end of each lateral. Install air release valves in the high points of the irrigation field.
- Allow 5m head loss from semi-blocked filter and ensure 12m of end pressure for the lowest emitter in the field.
- Ensure there is laminar flow through all lines in the field. Ensure flushing velocity is greater than 0.5m/s.
- **Use drip irrigation line with 1.0m dripper spacing and 1.0m spacing between laterals.**

Suitable Plant Species for Evapo – Transpiration Systems

(Source: NRC *"Looking after your household Sewerage System")*

Native Shrubs and Trees

- **Coprosma**
- **Hebe**
- **Manuka**
- **Weeping Mapou**
- **Flax (Fast)**
- **Pokaka (slow)**
- **Cabbage Tree (fast)**
- **Rangiora (fast)**
- **Lacebark (fast)**
- **Ribbonwood (fast)**
- **Poataniwha**
- **Heketara**
- **Poataniweta**
- **Kohuhu (fast)**

Grasses

- **Jointed Twig Sedge**
- **Longwood Tussock**
- **Pukio**
- **Toetoe (native species)**
- **Umbrella Sedge**
- **Oioi**
- **Hooksedge**

Introduced Species

- **Canna Lilies**
- **Taro**
- **Aralia**
- **Fuschia**
- **Philodendrons**
- **Begonias**

Appendix D

Assessment of Environmental Effects (AEE)

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

Part B:
Assessment of Environmental Effects
Discharge Treated Sewage Effluent to Land

This application is made under Section 88/Section 127 of the Resource Management Act 1991

To: Consents Department
Northland Regional Council
Private Bag 9021
Te Mai
Whangārei 0143

Whangārei office: 09 470 1200
0800 002 004
Email: info@nrc.govt.nz
Website: www.nrc.govt.nz

PART B – ASSESSMENT OF ENVIRONMENTAL EFFECTS

Your application must include an Assessment of Effects on the Environment. This form is a guide to help you prepare one.

An assessment of effects is required so that you and others can understand what happens to the environment when you discharge domestic wastewater ("treated sewage effluent") to land. This will help you to propose ways to minimise those effects to the council's satisfaction.

The degree of detail required is in proportion to the scale of the environmental effects of your proposal. If you are required to apply for a consent to discharge sewage effluent into or onto land, then you will most probably need a qualified engineer (or similar) to design your on-site system. The information requested below is the minimum detail that your engineer must supply.

Please note that the word *"environment"* includes the surrounding waterways and groundwater, surrounding coastal water, adjoining land, any surrounding resource users, and local iwi.

It is advised that you make an appointment with an appropriate council officer to discuss your application prior to lodging it. This will help you to supply all the required information at the onset and ensure the efficient processing of your application.

A. Description of the Proposed Activity

A.1 What is the intended water supply?

- ☑ Rainwater collection
- ☐ Community or bore water supply
- ☐ Other *(please specify)* : _____

A.2 What is the source of the wastewater? *(please tick the appropriate box and answer those questions)*

☐ **Domestic House**

How many bedrooms are there in the house? _____

Will the house be permanently occupied? ☐ Yes ☐ No

☐ **Small Motel/Campground/Hostel/Marae/Sports Club**

What is the maximum number of occupants that your facility can accommodate? _____

How frequently does this maximum occupancy occur and for what length of time? _____

What is the typical number of occupants during the other periods of the year? _____

☐ **Shared On-site Systems/Subdivisions**

How many individual lots are/will the treatment and disposal system be servicing? _____

What will be the average number of bedrooms per house? _____

What is the area of the lot on which the discharge will occur? _____

☑ **Other**

Provide details of the source of effluent, the number of persons contributing to the wastewater and the source of water supply for the facility.

Twelve, four bedroom dwellings discharging effluent to one treatment system. Six people per dwelling has been allowed in the design totalling 72 occupants for the system.

A.3 What is the likely maximum daily volume of wastewater to be discharged? 10440 litres

The Wastewater Treatment System

A.4 What is your Proposed Wastewater Treatment System?
(please tick appropriate box and answer the associated questions)

☐ **Septic Tank**

What is the capacity of the tank? _____ litres

Will an effluent filter be fitted on the outlet? ☐ Yes ☐ No

☐ **Aerated Wastewater Treatment System (AWTS)**

What brand is the AWTS? _____

Will a programmed maintenance contract be entered into with the treatment systems manufacturer or agent? ☐ Yes ☐ No

☑ **Other,** what level of treatment do you consider the wastewater receives through your *"other"* treatment system?

☐ Primary

☐ Secondary

Describe the proposed *"other"* treatment system

Advanced secondary treatment

The Wastewater Disposal System

A.5 What is your proposed disposal system?
(please tick the appropriate box and answer the associated questions)

☐ **Soakage Trench/Bed System**

What are the dimensions of the proposed soakage trenches/beds?

Width _____ m
Depth _____ m

What is the total length of all the soakage trenches/beds? _____ m

How will the soakage trench/bed system be loaded?

☐ Trickle
☐ Pump
☐ Dose loaded via a syphon

Has a 100% reserve area of undeveloped land been allowed for in the disposal system design?

☐ Yes
☐ No, what percentage has been allowed for and why?

_____
_____
_____

What is the proposed loading rate to the trenches/beds? _____ mm/day

☑ **Irrigation Lines**

What area will the irrigation lines cover? 5220 m²

What is the distance between adjacent irrigation lines? 1.0 m

What is the distance between adjacent drip emitters along the irrigation line? 1.0 m

What brand is the irrigation line? Netafim

What is the proposed aerial loading rate to the disposal area? 2.0 mm/day

Has a 30% reserve area of undeveloped land been allowed for in the disposal system design?

☑ Yes
☐ No, what percentage has been allowed for and why?

_____
_____
_____

☐ **Other** *(please describe)*

_____
_____
_____

A.6 **What is the intended ground cover within the disposal area after the disposal system is operational?** *(i.e. what plant species do you intend to plant, if any)*

Disposal area located in existing bush area, any area not within bush should be planted with 1-2 plants per m^2, suitable plants are provided in the plant lists attached in the RS Eng Three Waters Report.

B. Site Details

B.1 You **must** attach a map that shows the following:

- The location of your lot in relation to the nearest town.
- The legal property boundaries of your lot and the distance of your disposal system (including reserve area) from those boundaries.
- The layout of your disposal system (including reserve area) within your lot boundaries.
- The location of any groundwater bores within 20 metres of your disposal system (including reserve area).
- The location of any surface water (i.e. streams, roadside drains, lakes and rivers) within 20 metres of your disposal system (including reserve area).

B.2 **What is the map reference of the proposed disposal system?** *(if known)*

NZMS 260 Series map number:

Easting _____ (seven digit number)

Northing _____ (seven digit number)

B.3 **Which District Council is the property administered under?**

☐ Kaipara ☑ Far North ☐ Whangārei

B.4 **What is the slope of the proposed disposal area?**

☑ Flat

☑ Slightly sloping (5°–15°)

☐ Steep (>15°)

B.5 **Are any drainage controls required?**

☑ Yes, describe

Surface water cut off drains will be required upslope of the disposal field area where the slope falls to the gentle area.

☐ No, state why not

B.6 Was a soakage test (percolation test) performed at the location of the proposed disposal system? *(please tick the appropriate box and answer those questions)*

☐ Yes

What was the date of the test? _____

What were the weather conditions prior to the soakage test? _____

What is the average soakage rate of the disposal area? _____ mm/hr
(please ensure the individual soakage test results are included with this application)

Are the locations of the soakage tests marked on the map that shows the layout of the disposal system?

☐ Yes

☐ No, state why not

_____

_____

☑ No, what are the reasons for not performing a soakage test?

Visual and soil characteristics as outlined and NZS1547.

_____

_____

B.7 Was any groundwater encountered during the site investigation?

☐ No ☑ Yes, at what depth? 0.9m BGL at the disposal field location _____ metres

B.8 What is the estimated winter groundwater level for the disposal area? >0.6m _____ metres

How was this winter groundwater level determined?

Based on subsoil investigations, geology, geomorphology of the property and surrounding area.

_____

_____

B.9 Has a detailed soil profile been included with this application form?

☑ Yes

☐ No, state why not _____

B.10 What is the estimated soil category of the disposal area?

☐ 1: Gravel and sands, Rapidly draining

☐ 2: Sandy loams, Well drained

☐ 3: Loams, Moderately well drained

☐ 4: Clay loams, Imperfectly drained

☐ 5: Light clays, Poorly drained

☑ 6: Medium to heavy clays, Very poorly drained

Please state the criteria used for selecting the above soil category.
Subsoil investigations and obervations at the effluent disposal field location.

C. Assessment of Effects on the Environment

An assessment of effects should be proportional to the scale and significance of the proposed activity. Where your discharge could have an adverse effect on the environment, a detailed environmental assessment is required.

C.1 Affected Parties

Note: If you are proposing to dispose of your wastewater using a deep soakage system the determination of affected parties can be more complex, especially with relation to groundwater users. It is recommended that you contact the council to help determine who the affected parties from your proposal may be.

Are there any groundwater bores within 20 metres of any part of the disposal system (including reserve area) that are not owned by the applicant?

☐ Yes ☑ No

If you have answered **Yes**, then you will need to gain the written approvals of all the owners of neighbouring groundwater bores identified by the above question.

If written approvals cannot be obtained from all affected parties, describe what effect your discharge may have on the neighbouring groundwater bore and the steps you propose to take to minimise (i.e. mitigate) these effects *(attach a separate sheet if necessary)*

C.2 Given the estimated winter groundwater level (see Question B8) and your proposed treatment and disposal system, what is the risk of groundwater contamination occurring and why?

No more than minor, refer to attached RS Eng report.

C.3 What is the smallest horizontal separation distance between the disposal system (including reserve area) and any nearby watercourse, including roadside water table drains?

15m _____ metres

C.4 Given the smallest horizontal separation distance to the nearest surface watercourse and your proposed treatment and disposal system (including reserve area), what is the risk of surface water contamination occurring and why?

No more than minor, refer to attached RS Eng civil suitability report. _____

C.5 Consultation

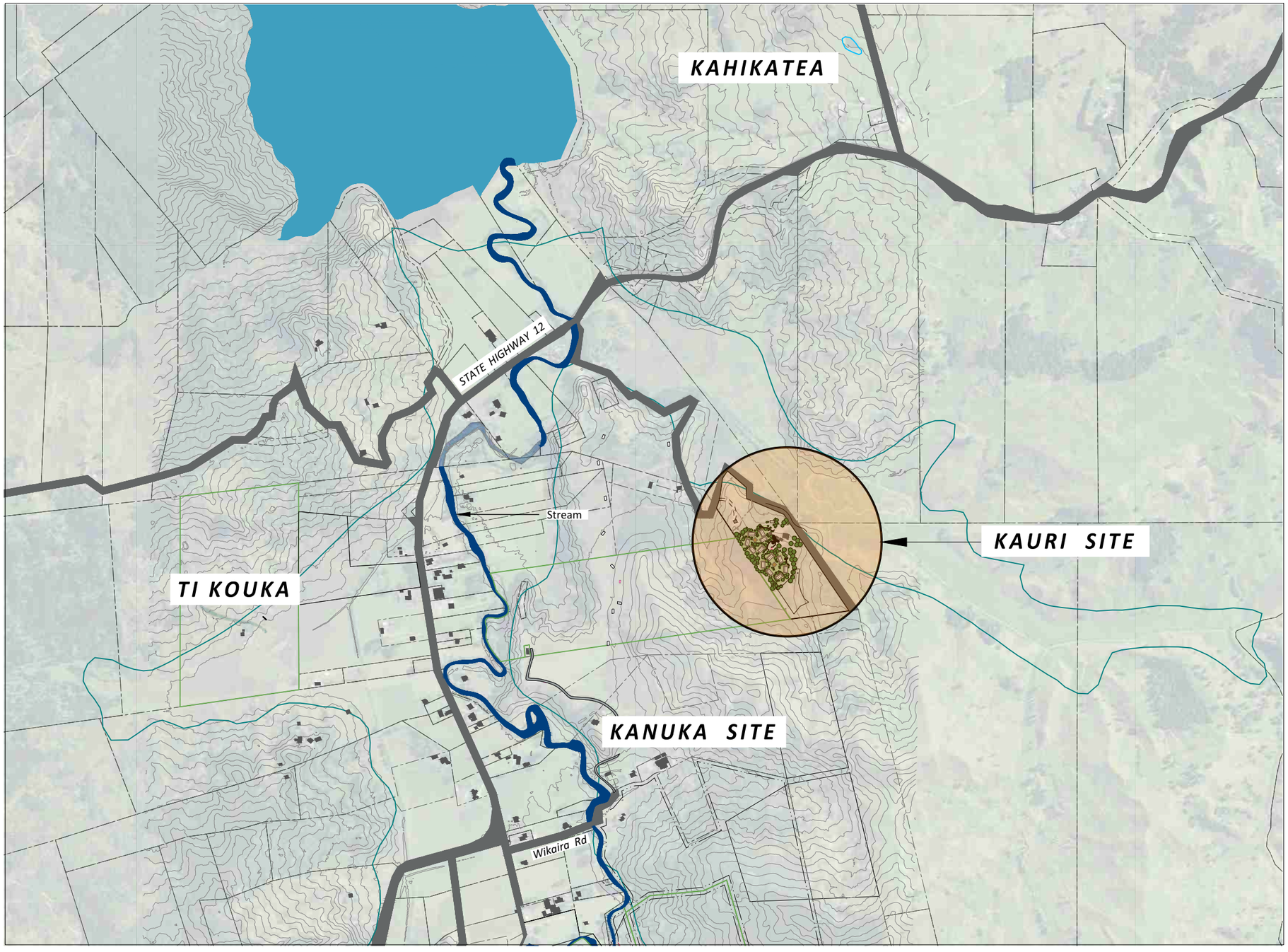
Have you consulted with any of the following potentially affected parties?

	Yes	No
Neighbours	☐	☑
Department of Conservation *(if relevant)*	☐	☑
Fish and Game Council *(if relevant)*	☐	☑
District Council *(if relevant)*	☐	☑
Local iwi *(specify)*: _____	☐	☑
Other *(specify)*: _____	☐	☑

Please ensure all of the relevant questions on this form have been answered fully.

If you have any queries relating to information requirements or wish to meet with a council consents officer, please contact a Duty Planner at the Northland Regional Council.

Northland Regional Council offices:			
Whangārei Office 36 Water Street Whangārei 0110 **P** 0800 002 004 **E** info@nrc.govt.nz www.nrc.govt.nz	**Dargaville Office** Ground Floor 32 Hokianga Road Dargaville 0310 **P** 09 439 3300	**Kaitāia Office** 192 Commerce Street Kaitāia 0410 **P** 09 408 6600	**Waipapa Office** Shop 9 12 Klinac Lane Waipapa 0295 **P** 0800 002 004



DETAILS		
JOB NO.	19730	
DATE	22/09/2025	
REVISION	A	First issue

SHEET INDEX			
NO.	SHEET NAME	REV	DATE
C0-00	EXISTING FEATURE PLAN	A	22/09/2025
C0-01	OVERALL PROPOSED PLAN	A	22/09/2025
C2-01	KAURI-GENERAL ARRANGEMENT PLAN	A	22/09/2025
C2-02	KAURI-LONGITUDINAL SECTION	A	22/09/2025
C2-03	KAURI-LONGITUDINAL SECTIONS	A	22/09/2025
C2-04	KAURI-TYPICAL CROSS SECTION	A	22/09/2025
C2-05	KAURI-EARTHWORK PLAN	A	22/09/2025
C2-06	KAURI-WASTEWATER MANAGEMENT PLAN	A	22/09/2025
C2-07	KAURI-SIGHT DISTANCE PLAN	A	22/09/2025

PROPOSED PAPAKAINGA DEVELOPMENT

CIVIL DRAWINGS - KAURI KAINGA

NORTHLAND REGIONAL COUNCIL

WHIRINAKI, HOKIANGA

RS Eng Ltd

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

N:\02 Projects\Jobs 19000\19730 Whirinaki Papakainga Managed Retreat\CAD\DWG\19730 Civil Drawings Kauri Kainga\Cover page

KAHIKATEA

STATE HIGHWAY 12

KOUTU LOOP RD

Vujcich Rd

Part Whirinaki
4A Block
ID 5136666

KAURI SITE

Part Whirinaki
4C8 Block
ID 6854422

Property boundary

STATE HIGHWAY 12

Stream

Whirinaki 4B5
Block
ID 5007686

TI KOUKA

Whirinaki
5L2B2 Block
ID 7262194

KANUKA

Whirinaki 5F5
Block
ID 5136673

Mangapara Rd

Wikaira Rd

Jackson Rd

Whirinaki School Rd

WORK IN PROGRESS

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.

N

0 100 200
PLAN 1:10000

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
EXISTING FEATURE PLAN

Client: NORTHLAND REGIONAL COUNCIL

Location: WHIRINAKI
HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: 1:10,000
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C0-00

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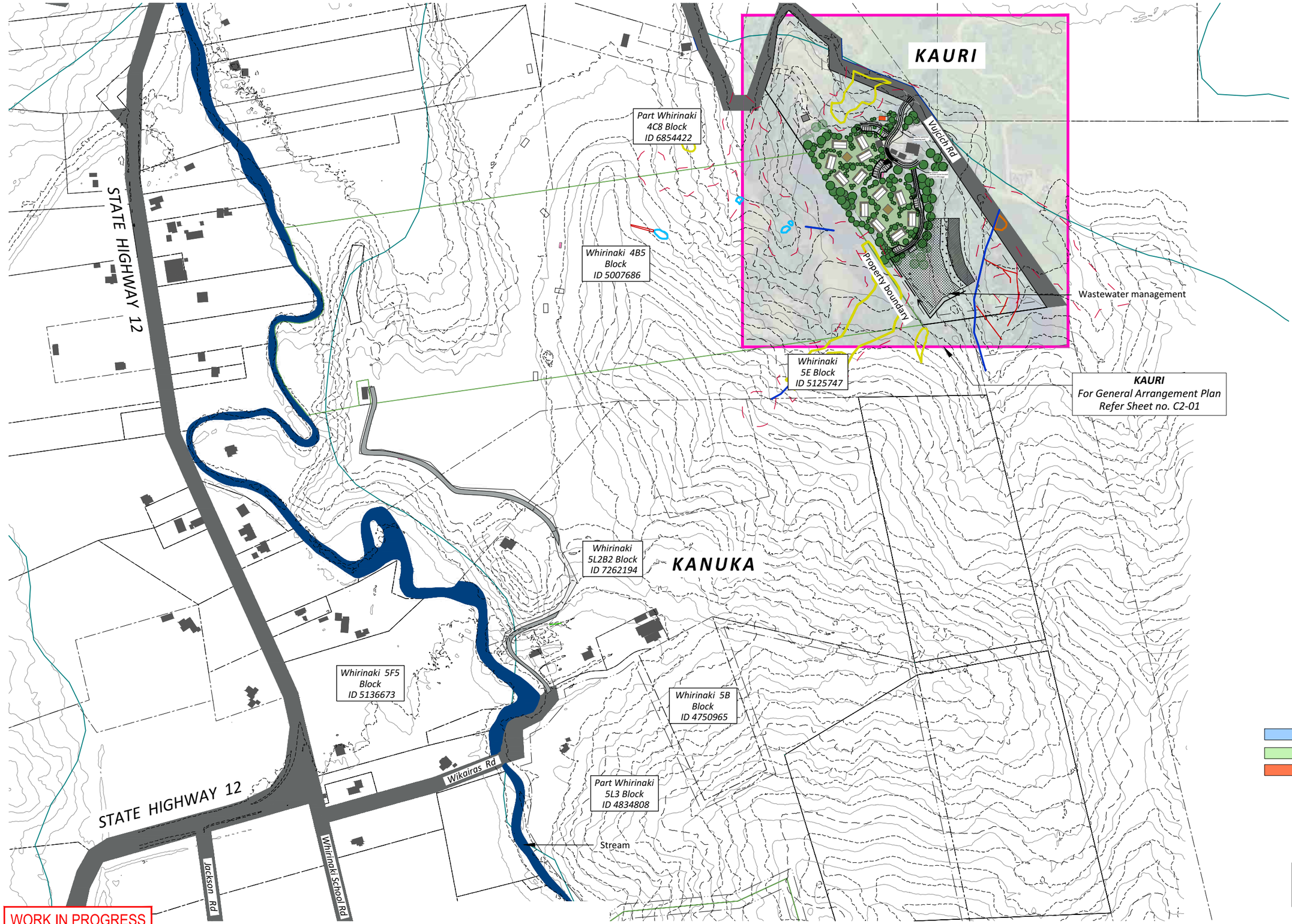

KAURI
For General Arrangement Plan
Refer Sheet no. C2-01

NOTES:

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- These drawings are to be read in conjunction with specifications - plans take precedence.

LEGEND

- Existing Dam (Indicative)
- Wetland
- Proposed Wastewater treatment plant

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 50 100
PLAN 1:5000

WORK IN PROGRESS

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
GENERAL ARRANGEMENT - LAYOUT PLAN

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: 1:5,000
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C0-01

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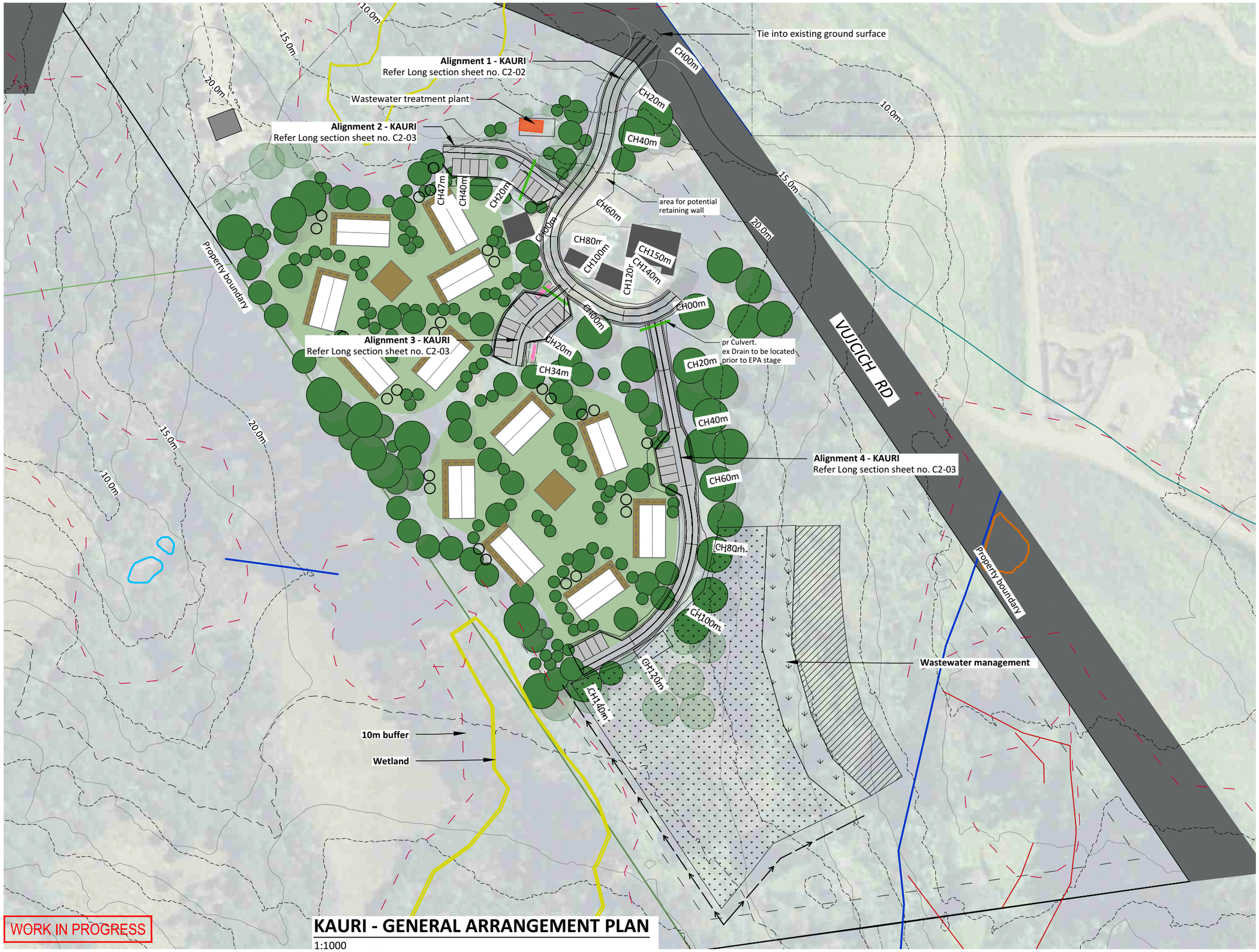

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LEGEND

- Proposed Carriageway
- Existing Dam (Indicative)
- Proposed Wastewater treatment plant

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 12.5 25
PLAN 1:1250

WORK IN PROGRESS

KAURI - GENERAL ARRANGEMENT PLAN

1:1000

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - GENERAL ARRANGEMENT PLAN

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Rev No.: A
Original: A3
Sheet No.: C2-01
Job No.: 19730

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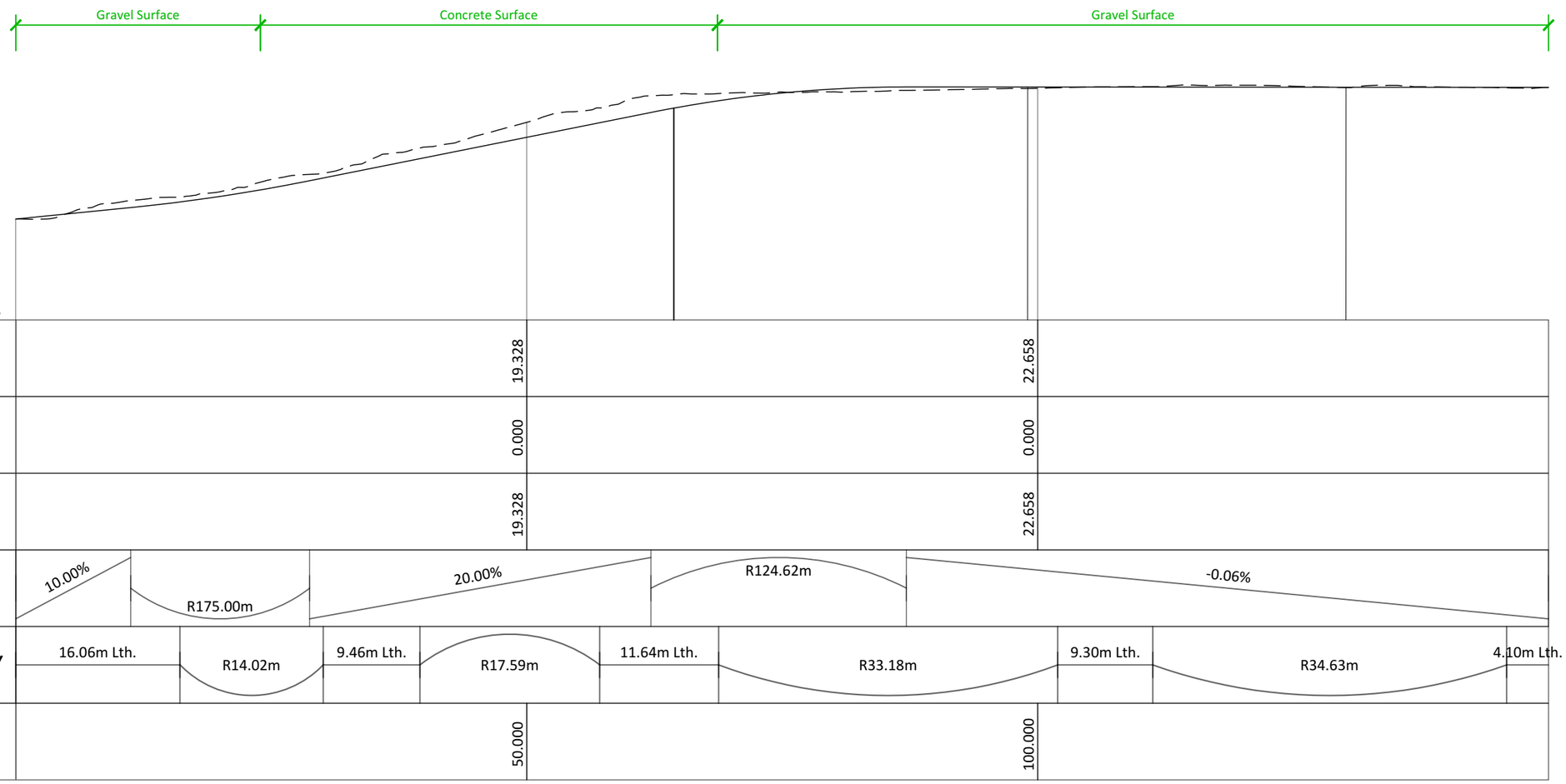

ALIGNMENT 1 - LONG SECTION

1:500

0 5 10
SECTION (V) 1:500

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - LONGITUDINAL SECTION

Client: NORTHLAND REGIONAL COUNCIL

Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Original: A3
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Rev No.: A
Sheet No.: C2-02

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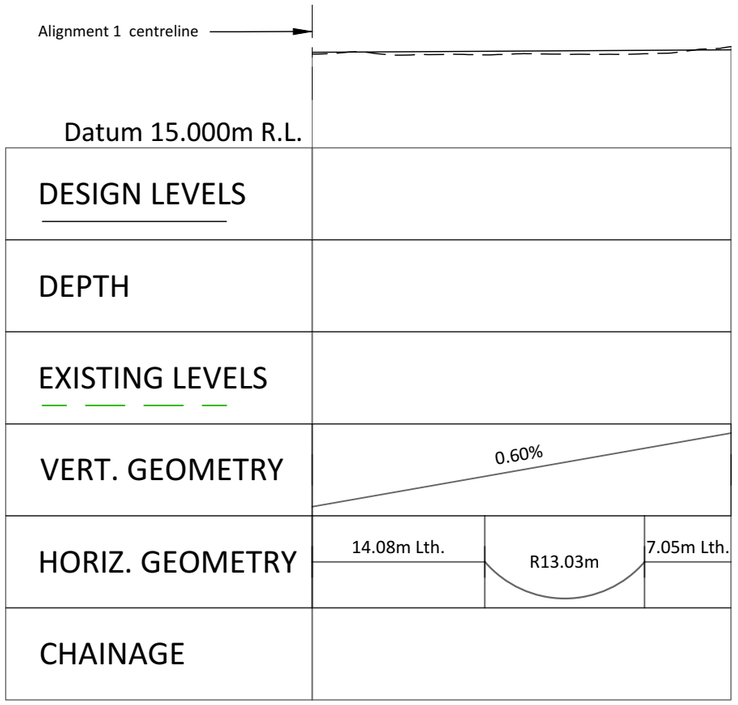

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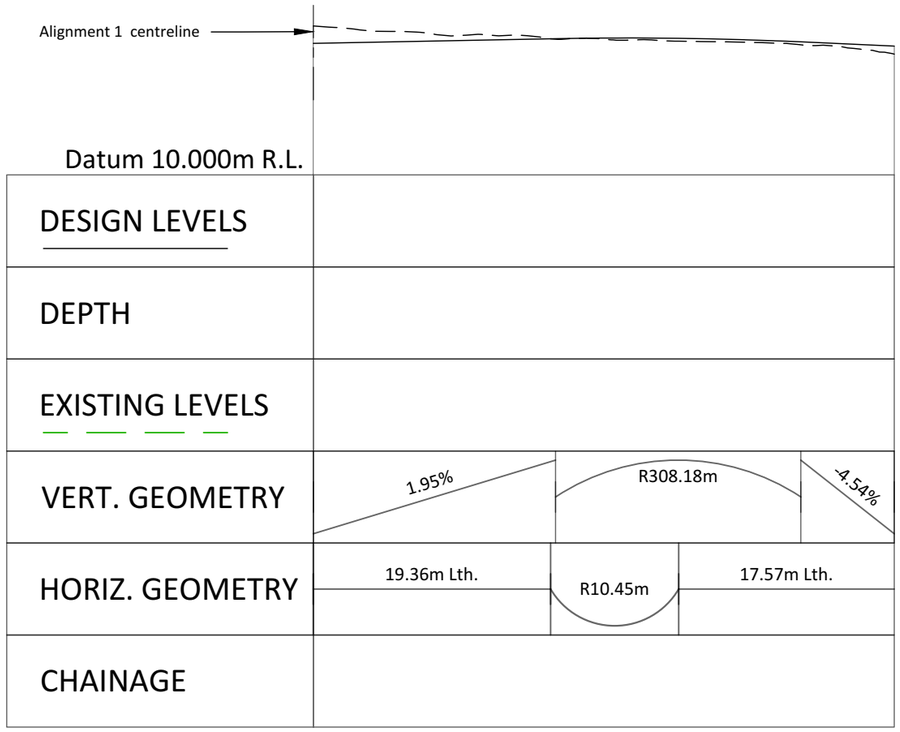

ALIGNMENT 2 - LONG SECTION

1:500

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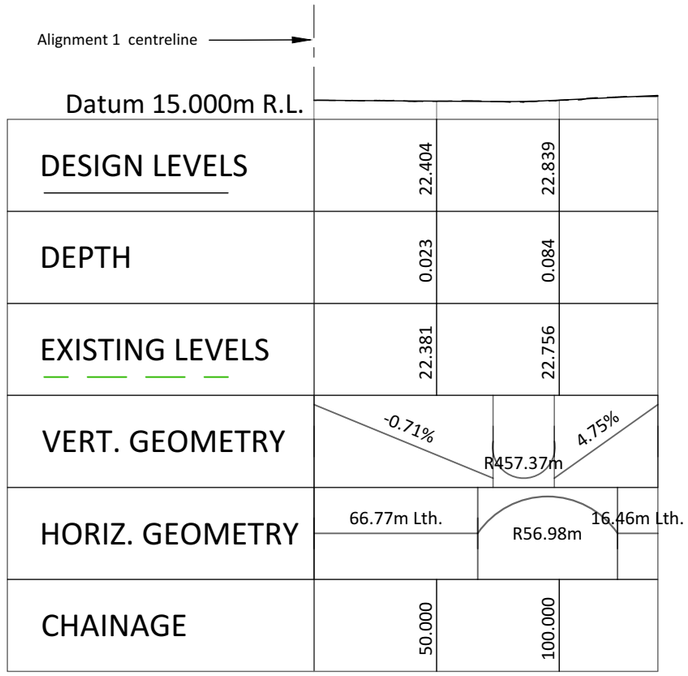

ALIGNMENT 4 - LONG SECTION

1:500

0 5 10
SECTION (V) 1:500

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - LONGITUDINAL SECTIONS

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: 1:500 | Rev No.: A
Original: A3 | Sheet No.: C2-03
Job No.: 19730

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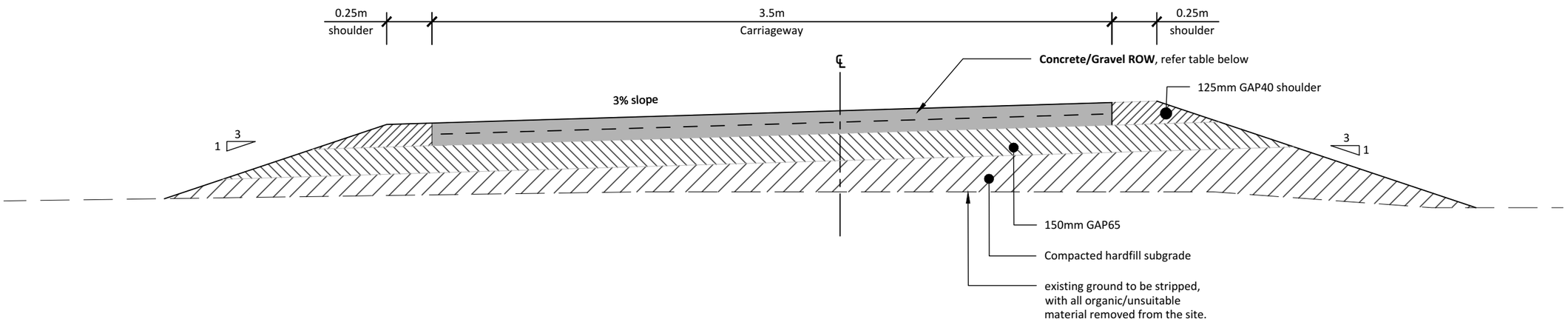

PROPOSED CONCRETE ACCESS ROAD (KAURI) - TYPICAL CROSS SECTION

1:25

Gravel Pavement (Residential)		
Subgrade	**CBR 5**	**CBR 3**
SURFACE	50mm GAP20 running course	50mm GAP20 running course
BASECOURSE	150mm compacted GAP40, achieving min 15 C.I.V.	150mm compacted GAP40, achieving min 15 C.I.V.
SUBBASE	-	250mm Compacted GAP65
ENGINEERED FILL	Compacted Hardfill or Compacted Earthfill (to Engineer's Approval	Compacted Hardfill or Compacted Earthfill (to Engineer's Approval

Concrete Pavement (Residential)		
Subgrade	**CBR 5**	**CBR 3**
STRUCTURE	125mm thick 30MPa Concrete - 668 mesh centrally placed	125mm thick 30MPa Concrete - 668 mesh centrally placed
SURFACE	30MPa Concrete, U5 broom finish.	30MPa Concrete, U5 broom finish.
BASECOURSE	150mm compacted GAP40, achieving min 15 C.I.V.	150mm compacted GAP40, achieving min 15 C.I.V.
SUBBASE	-	250mm Compacted GAP65
ENGINEERED FILL	Compacted Hardfill or Compacted Earthfill (to Engineer's Approval	Compacted Hardfill or Compacted Earthfill (to Engineer's Approval

WORK IN PROGRESS

0 25 50 SECTION (H) 1:2500

0 25 50 SECTION (V) 1:2500

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - TYPICAL CROSS SECTION

Client: NORTHLAND REGIONAL COUNCIL

Location: WHIRINAKI
HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C2-04

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NOTES:

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ALIGNMENT 1 - ELEVATIONS TABLE			
Number	Minimum Elevation	Maximum Elevation	Color
1	-3.408	-2.000	
2	-2.000	-1.500	
3	-1.500	-1.000	
4	-1.000	-0.500	
5	-0.500	-0.050	
6	0.050	0.500	
7	0.500	1.134	

Total Earthworks Areas:
4,040m²

Total Earthworks Volumes :
1,315m³ Cut
320m³ Fill

1,635m³ Total Volumes

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

KAURI - EARTHWORK PLAN

1:1000

0 10 20
PLAN 1:1000

WORK IN PROGRESS

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - EARTHWORK PLAN

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C2-05

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LEGEND

- Proposed Carriageway
- Existing Dam (Indicative)
- Wetland
- Proposed Wastewater treatment plant
- Roofwater Storage Tanks
- Stormwater Disposal Lines

Contour Interval:	1.0m
Vertical Datum:	NZVD2016
Survey Data Source:	LiDAR (2018)

0 10 20
PLAN 1:1000

WORK IN PROGRESS

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - STORMWATER MANAGEMENT PLAN

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Rev No.: A
Original: A3
Sheet No.: C2-06
Job No.: 19730

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LEGEND

- Proposed Carriageway
- Proposed Wastewater treatment plant
- Roofwater Storage Tanks
- Gravity Sewer line
- Pumped sewer line

Contour Interval:	1.0m
Vertical Datum:	NZVD2016
Survey Data Source:	LiDAR (2018)

0 10 20
PLAN 1:1000

WORK IN PROGRESS

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - WASTEWATER MANAGEMENT PLAN

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

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Scale: AS SHOWN	Rev No.: A
Original: A3	Sheet No.: C2-07
Job No.: 19730	

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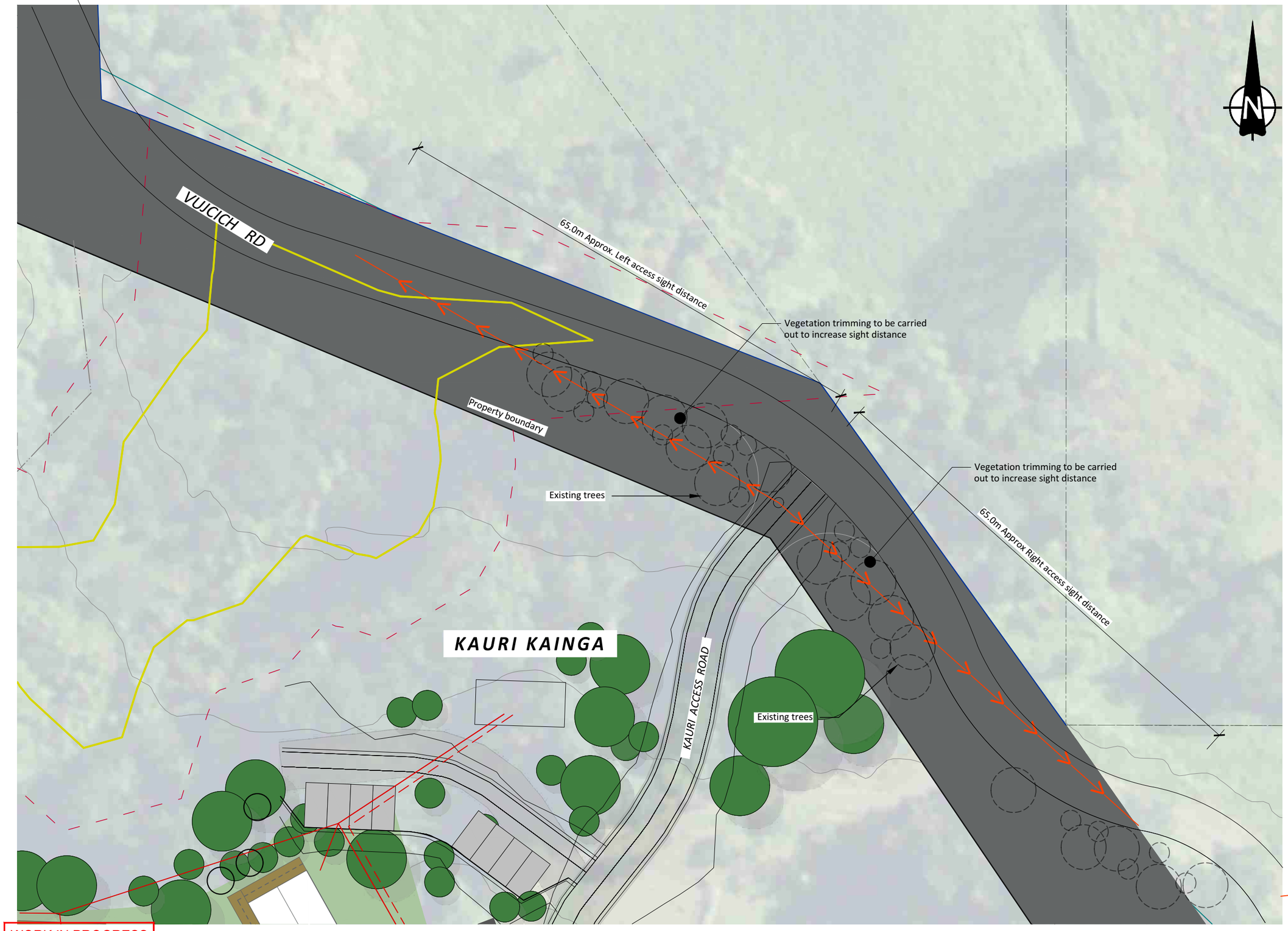

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LEGEND

Sight Distance Lines

WORK IN PROGRESS

0 5 10
PLAN 1:500

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - SIGHT DISTANCE PLAN

Client: NORTHLAND REGIONAL COUNCIL

Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First Issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C2-08

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GEOTECHNICAL INVESTIGATION REPORT

Vujcich Road

Whirinaki

(Part Whirinaki 4A Block)

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

GEOTECHNICAL INVESTIGATION REPORT

Vujcich Road

Whirinaki

(Part Whirinaki 4A Block)

Report prepared for: Northland Regional Council – Kauri Block

Report reference: 19730

Date: 11 November 2025

Revision: 1

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
11/11/2025	1	Resource Consent Issue	C Hay	S Scott Compton	M Jacobson

Contents

Appendices

File: 19730
11 November 2025
Revision: 1

GEOTECHNICAL INVESTIGATION REPORT

Vujcich Road, Whirinaki

(Part Whirinaki 4A Block)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by the Northland Regional Council to assess the property (Part Whirinaki 4A Block) for the construction of a Papakainga. The purpose of this report is to assess the geotechnical suitability of the building sites making foundation, earthworks recommendations.

The client proposes to construct 12 new dwellings across the property. The dwellings are to be supported on timber pile foundations.

2.0 Site Description

This property is located on the southern and eastern side of Vujcich Road, accessed approximately 1.2km from its intersection with State Highway 12. The property is located on a gently sloping terrace, flanked by moderate to steep slopes, falling to the north and east. Existing dwellings and sheds are located on the property as indicated on Figure 1 below. Ground coverage is generally in dense vegetation and bush with some cleared areas generally adjacent to the existing buildings.

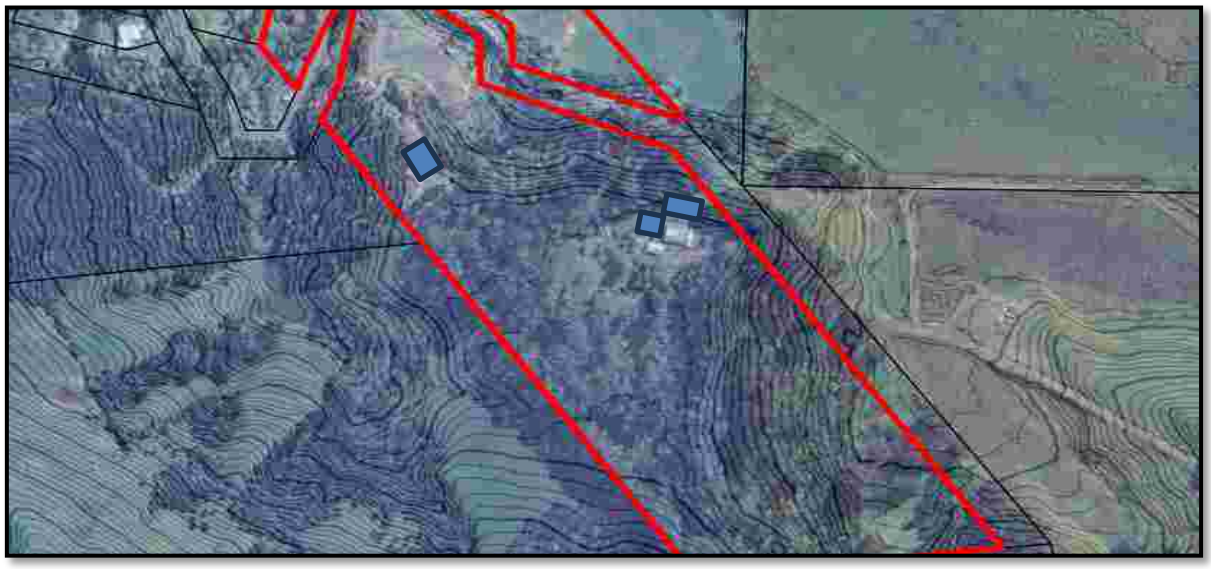


Figure 1: Aerial view of property, boundaries marked in red and existing buildings in blue.

3.0 Desk Study

[redacted] Referenced/Reviewed Documents

The following documents have been referenced in this report:

- GNS – Geology Of The Kaitaia Area – Isaac – 1996.

[redacted] Site Geology

The GNS 1:250,000 scale New Zealand Geology Web Map indicates that the property is located within an area that is underlain by the Mangakahia Complex, which has been described as follows: *"Weakly indurated metre-bedded quartzose, micaceous sandstone, with minor conglomerate, and interbeds of blue-grey mudstone."*

The investigation has, however, encountered Pleistocene Alluvium, overlying the mapped Mangakahia Complex.

[redacted] Aerial Photography

RS Eng has undertaken a review of historical aerial photography, specifically images, from 1939, 1968, 1987, and recent Google Earth Imagery. See Figure 2 below of the 1968 image. Several notable features were observed, listed below.

- Soil creep and slope instability were evident over the steeper slopes around the property. Evidence of potential relic slope instability has been annotated on Figure 2 below.
- The existing dwelling and buildings on the property were constructed sometime between 1987 and 2005.
- During the 1987 imagery, a pond appears to have been constructed adjacent to the southern boundary.

Figure 2: 1968 Aerial Image *(Source: www.retrolens.nz)*
(Orange extents of relic scarp features).

4.0 Field Investigation

Technicians from this office visited the property on 9 September 2025 and 29 September 2025 to undertake a walkover inspection and fourteen hand augers. The walkover inspection did not note any concern at the building area in relation to the proposal.

The hand augers were dug to a maximum depth of 4.0m 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.

Six Cone Penetration Tests (CPTs) were undertaken by Underground Investigation on 11 September 2025 to depths between 20m and 28m BGL.

The investigation logs and results are attached in Appendix B.

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 between 0.1m to 0.3m BGL, varying across the property.
- Pleistocene Alluvium generally consisting of firm to stiff silty clays, sandy clays, and clayey silts, with isolated layers of medium dense clayey silty sands and soft organic clays were encountered to depths up to 28m BGL. In-Situ Undrained Shear Strengths recorded between 15kPa to greater than 150kPa
- The Mangakahia Complex mudstone is inferred to underlie alluvium from depths of 30-40m BGL.
- Groundwater inflow was encountered between depths of 0.6m to 2.0m BGL.

6.0 Geotechnical Assessment

Liquefaction

Sand, sandy gravels and sandy silts are potentially at risk of liquefaction induced by earthquake ground shaking. Soils potentially prone to liquefaction are generally classified by a normalised soil behaviours index (Ic) less than 2.6, assessed using the CPT.

The proposed dwellings are an Importance Level 2 structure, as per AS1170. The following values of peak ground acceleration and magnitude are based on MBIE Geotechnical Engineering Module 1, November 2021.

In accordance with MBIE Geotechnical Engineering Module 3, using the software package, CLiq V.3 analysis was undertaken to assess the potential of earthquake induced liquefaction settlement using Boulanger and Idriss (2014). The results of the analysis are presented in Table 1 below.

Table 1: Liquefaction Analysis/Results.

Seismic Event	PGA	M_w	Liquefaction Potential (LPI)	Liquefaction Severity (LSN)	Free Field Settlement	Free Field Settlement (Limited to 10mBGL)
ULS	0.19g	6.5	<1 Low risk	<1 Little to no expression	0.5-2cm	0-0.5cm
500yr	0.13g	5.8	0 Low risk	<0.5 Little to no expression	0-0.3cm	0-0.3cm
SLS	0.03g	5.8	0 Low Risk	0 No expression	0cm	0cm

During a ULS seismic event, up to 2cm of vertical settlement has been assessed. Liquefaction triggering during the SLS seismic event is not likely. Given the depth of non-liquefiable soils underlying the site, the risk of liquefaction damage to the proposed buildings is considered as low.

Slope Stability

The property is located on a gently sloping Pleistocene age alluvium terrace. Slopes to the east, north, and west of the terrace generally fall moderately to steeply (12-20°).

The alluvial terrace infills a paleo valley formed by erosion during periods of low sea level. The steep slopes surrounding the terrace were formed by erosion and slope instability due to the oversteepening of the slopes by erosional downcutting of the paleo valley.

The slopes likely reside with a marginal factor of safety against slope instability. To provide building sites with a suitable margin of safety, RS Eng recommends building setbacks from the crest of moderate to steep slopes. To assess the setback, slope stability analysis has been undertaken. The assessed no-build zones are detailed on Sheet 1 of Appendix A.

6.1.1 Slope Stability Analysis

To assess the suitability and stability of the moderate to steep alluvial slopes, slope stability analysis has been undertaken on one cross section, (shown on Sheet 1 of Appendix A) using Slide2 V9. The cross section selected is assessed as a critical/representative location based on the investigations and geomorphology. Target Factor of Safety (FoS) criteria are presented in Table 2 below.

Table 2: Factor of Safety Criteria

Load Case	FoS Target
Long Term (Normal Groundwater Scenario)	≥1.5
Temporary (Extreme Groundwater Scenario)	≥1.3
500yr Seismic (1 in 500yr – PGA=0.19g, from MBIE Module 1 / NZTA B.M.)	≥1.1 or acceptable displacement

The selected material parameters are presented in Table 3. The material parameters are based on our experience with similar materials and investigations undertaken on the property, and the performance of the existing slopes.

Table 3: Slope Stability Analysis Soil Parameters

Material	Material Parameters		
	γ (kN/m³)	Effective Stress	
		c' (kPa)	Φ' (°)
Alluvium (stiff clay crust)	18	5	30
Alluvium (soft clays)	15	3	21
Alluvium (Firm – stiff clays)	17	3	24
Alluvium (Firm – silty sands)	18	0	36

Normal groundwater conditions have been modelled approximately 5-8mbgl. In the extreme case, the very stiff clays have been modelled as saturated.

Case No.	Case Name	Target FoS	Build Area – FoS Achieved
2	Design Extreme	1.3	>1.3
3	Design Normal	1.5	>1.5
4	Design Seismic	Acceptable displacement	Ky=0.042

Slopes below the building area achieved a yield acceleration of 0.042, resulting in displacements of up to 10cm, considered acceptable for a residential building during a ULS seismic event.

The stability analysis concludes that the building areas have a suitable FoS against slope instability. However, the buildings should be setback a minimum of 5m from the moderate to steep slopes. The analysis results are included in Appendix C.

Static Settlement

The property is generally underlain by 1.5m-2m of stiff to very stiff moderately over consolidated silty clays and clayey silts at the surface. From this depth, soft to firm silty clays and clayey silts assessed to be lightly over consolidated were encountered to the investigated depth up to approximately 28m BGL.

Taking average long-term building loads limited to 10kPa, with no filling above original ground level, settlements have been assessed. Vertical settlements have been assessed from the CPT data using the software CPeT-IT, expected up to 40mm, with differential settlements expected to be less than the NZ Building Code limits of 1V:240H.

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 a visual tactile assessment made during the subsoil investigation, and laboratory test results in this geology within similar terrain, RS Eng considers the soils as being Class H1 (highly expansive) as per AS 2870.

7.0 Engineering Recommendations

Further Geotechnical Assessment

At the building consent stage, further investigation shall be undertaken to confirm foundation design recommendations at all building sites.

Building Restrictions

No build zones have been identified on the moderate to steep slopes over the property. No buildings shall be located within 5m of the moderate to steep slopes. Refer to Sheet 1 in Appendix A detailing the building zones.

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 Site."*

Earthworks

To form access to and create building platforms for the proposed building/s, earthworks are proposed. To suitably develop the building area, RS Eng recommend as follows.

- The building sites and driveway should be shaped to assist in stormwater run-off and avoid ponding of surface water.
- Cuts should be limited to a maximum of 2.0m, without specific geotechnical assessment.
- Filling above existing ground level should not be undertaken where within 5m to buildings.
- Where fills are proposed >5m from buildings, filling should be limited to a maximum of 0.5m, without further geotechnical assessment.
- Cut and fill batters should be sloped at angles less than 1V to 3H.
- Steep temporary excavations should not be left unsupported with impending bad weather or for extended periods of time, typically less than 3 days.
- Site works shall generally be completed in accordance with NZS 4431.

Shallow Foundations

It is proposed to construct timber floor dwellings on timber pile foundations. To suitably found the proposed construction, RS Eng make the following recommendations.

- Timber pile foundations shall be specifically designed to account for reduced bearing capacities as outlined below.
- Timber pile foundations shall extend to a minimum of 0.9m BGL to account for highly expansive soils.

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

- 150kPa Ultimate Bearing Capacity (Geotechnical Ultimate).
- 75kPa Dependable Bearing Capacity (Ultimate Limit State).
- 50kPa Allowable Bearing Capacity (Serviceability Limit State).

Timber Pole 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 Table 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 4: Assessed Retaining Wall Design Parameters.

Parameter	**Pleistocene Alluvium**
Soil Density (kN/m^3)	19
Friction Angle (°)	26
Drained Cohesion, (kPa)	0
Undrained Shear Strength (kPa)	40

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

Stormwater Disposal

Uncontrolled and concentrated stormwater discharges can result in erosion and slope instability. Stormwater is expected to be collected from roofs where possible and piped to water tanks in order to supply the development. RS Eng recommends that stormwater overflow from the water tanks be piped any open drains, or to the base of the eastern slopes towards an existing overland flow path. Outlets should consider energy dissipation, such as riprap lined outlets, aprons etc. Under no circumstances shall uncontrolled stormwater be discharged to sloping ground.

8.0 Conclusions

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

We also conclude that in terms of Section 106 of the Resource Management Act 1991 and subject to the recommendations of this report that:

(a) the land in respect of which a consent is sought, or any structure on the land, is not or is not likely to be subject to material damage by subsidence or slippage from any source; and

(b) any subsequent use that is likely to be made of the land is not likely to accelerate, worsen, or result in material damage to the land, other land, or structure by subsidence or slippage from any source.

9.0 Limitations

This report has been prepared solely for the benefit of our client. The purpose is to determine the engineering suitability of the proposed Papakainga, 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.

Prepared by:

Codie Hay
Senior Technician
NZDE(Civil)

Reviewed by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

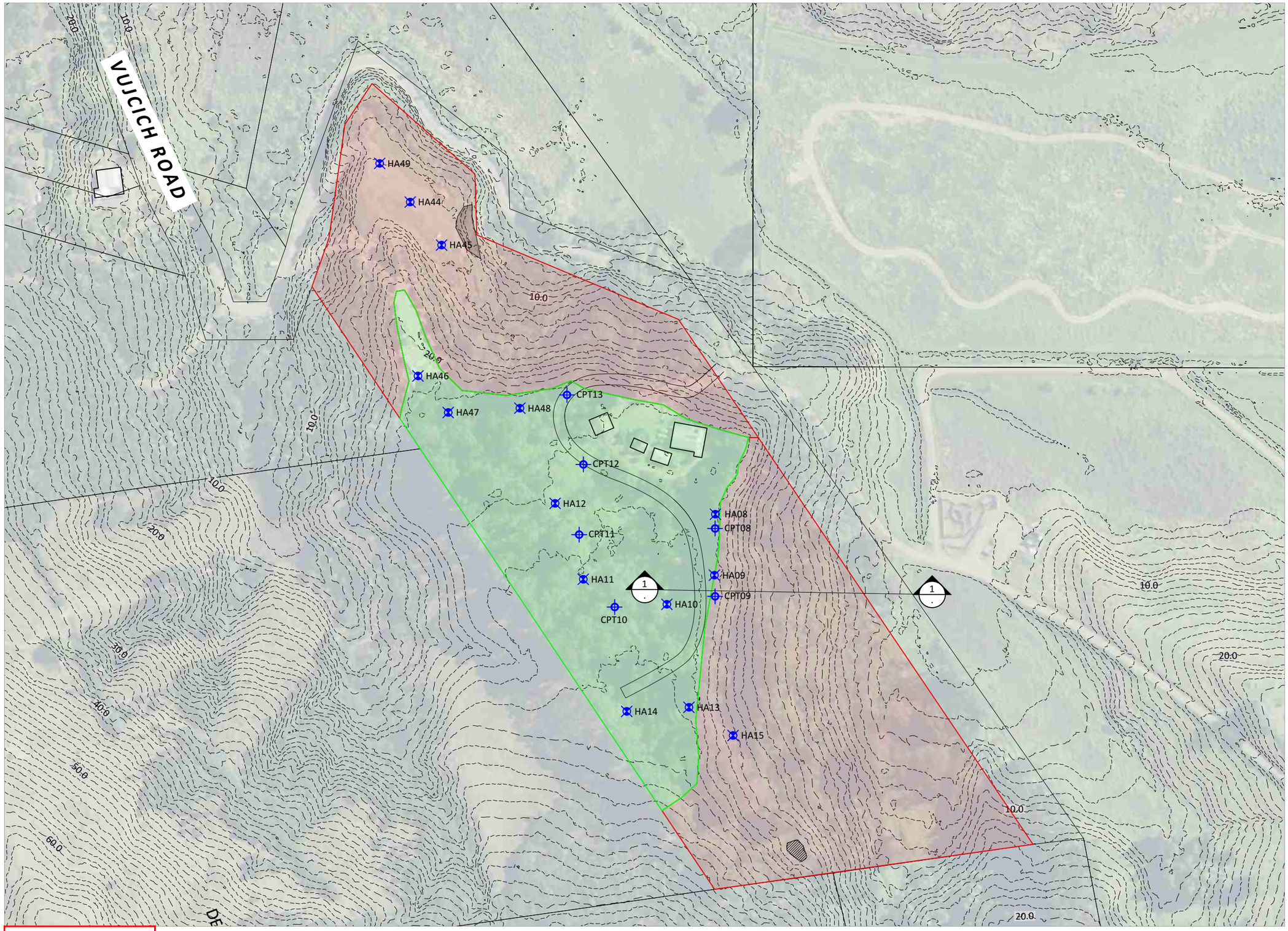
Approved by:

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

- Proposed Road
- Existing Buildings
- Hazard Zone 1 (Typical foundations)
- Hazard Zone 2 (No build)
- Existing Pond
- Approx. Existing Fill Area
- Hand Auger Location
- Cone Penetration Test Location

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 20 40
PLAN 1:2000

FOR CONSENT

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

WHIRINAKI PAPAKAINGA DEVELOPMENT
SITE PLAN
KAURI BLOCK

Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
11/11/2025	A	Resource Consent Issue

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

Scale: 1:2000
Original: A3
Job No.: 19730
Rev No.: A
Sheet No.: C01

Appendix B

Investigations

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

HAND AUGER LOG

HOLE NO.: HA08

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642788mE, 6075085mN

ELEVATION: 21.87m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO1433	WATER
TS	TOPSOIL.		0.0	TS			
Punakitere Sa	Silty CLAY, with trace sand; greyish brown. Stiff; moist; low plasticity.		0.2 – 0.6			106, 51	
	Orange / white mottling.		0.6 – 1.0			106, 56	
	Sandy CLAY; orange / white mottling. Soft to firm; moist; low plasticity.		1.0 – 2.0			57, 18; 42, 15	◁
	Clayey SILT, with minor sand; purplish grey with orange specks. Stiff; moist; low plasticity.		2.0 – 3.0			133, 41; 121, 44	
	Firm to stiff.		3.0 – 3.2				
	End of bore - squeezing. End Of Hole: 3.40m		3.2 – 3.4				

Scala penetrometer scale: 2, 4, 6, 8, 10, 12, 14, 16, 18

Vane shear strength scale (kPa): 50, 100, 150, 200; Values

Depth scale (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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2 Seaview Road, Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA09

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642785mE, 6075051mN

ELEVATION: 21.21m

START DATE: 11/09/2025

END DATE: 11/09/2025

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: GEO3763	Values	WATER
TS	TOPSOIL.		0.0					
Punakitere Sa	Silty CLAY, with trace sand; orange / grey. Stiff; moist; low plasticity.		0.2 – 0.8				98 47	▼ 09/09/2025
	With minor rootlets.		1.0 – 1.2				63 32	
	Clayey silty SAND; grey with some orange. Medium dense; moist; non-plastic.		1.4 – 1.6				174 63	◁
	Wet.		1.8 – 2.0				87 40	
	Silty CLAY, with some sand; purplish grey. Stiff; wet; high plasticity.		2.2 – 2.4				98 55	
	Saturated.		2.6				95 47	
	End of bore - core loss. End Of Hole: 2.80m		2.8 – 4.0					

Scala Penetrometer: 2 4 6 8 10 12 14 16 18 (Blows / 0mm)

Vane Shear Strength (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA10

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642763mE, 6075031mN

ELEVATION: 22.73m

START DATE: 11/09/2025

END DATE: 11/09/2025

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: GEO3763	Values	WATER
TS	TOPSOIL.		0.0					
Punakitere Sa	Silty CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.4				112 43	
	Sandy CLAY; orangish brown / grey. Firm; moist; high plasticity.		1.0				76 19	
	Clayey silty SAND. Medium dense; moist; low plasticity; with minor fibrous organics.		1.4				111 57	
	Silty CLAY, with some sand; orange / brown. Firm; moist; high plasticity.		1.8				81	
	Purplish grey. With minor fibrous organics.		2.0				35	◁
	End of bore - core loss.		2.6				60 19	
	End Of Hole: 2.70m		2.8					
			3.0					
			3.2					
			3.4					
			3.6					
			3.8					
			4.0					

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA11

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642727mE, 6075041mN

ELEVATION: 23.62m

START DATE: 11/09/2025

END DATE: 11/09/2025

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: GEO3763	Values	WATER
TS	TOPSOIL.		0.0	TS				
Punakitere Sa	Sandy CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.2 – 0.6				95, 40	
	Silty CLAY; purplish grey. Firm to stiff; moist; high plasticity.		1.0 – 1.4				142, 51, 71, 30	◁
	With minor fibrous organics .		1.6 – 1.8					
	With trace gravel.		2.0 – 2.6				104, 51, 114, 16	
	End of bore - core loss.		2.8 – 3.2				73, 30	
	End Of Hole: 3.20m		3.4 – 4.0					

Scala penetrometer: 2 4 6 8 10 12 14 16 18 (Blows / 0mm)

Vane shear strength (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA12

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

START DATE: 11/09/2025

CO-ORDINATES: 1642706mE, 6075071mN

ELEVATION: 23.08m

END DATE: 11/09/2025

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: GEO3763	Values	WATER
TS	TOPSOIL.		0.0	TS				
Punakitere Sa	Silty CLAY, with trace rootlets; orange / brown. Stiff; moist; low plasticity.		0.2					
			0.4				101	
	Firm.		0.6				13	◁
			0.8					
	Light grey / orange mottling.		1.0				66	
			1.2				13	
			1.4				95	
			1.6				44	
			1.8					
	Grey . Minor fibrous organics.		2.0				65	
			2.2				32	
			2.4				82	
			2.6				32	
			2.8					
			3.0				82	
			3.2				32	
	Organic CLAY; dark grey / black. Soft; moist-wet; high plasticity.		3.4				44	
			3.6				16	
			3.8				47	
	End of bore - core loss. End Of Hole: 3.80m		4.0				17	

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA13

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642776mE, 6074993mN

ELEVATION: 23.27m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Punakitere Sa	Silty CLAY; orange / brown. Firm to stiff; moist; high plasticity.		0.2				
	Orange / white mottling.		0.4				
			0.6				
			0.8				
			1.0				
	End Of Hole: 1.20m		1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				
			3.6				
			3.8				
			4.0				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA14

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642747mE, 6074977mN

ELEVATION: 24.44m

START DATE: 11/09/2025

END DATE: 11/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0		2 4 6 8 10 12 14 16 18	50 100 150 200 Values	
Punakitere Sa	Silty CLAY; orange / brown / grey. Firm to stiff; moist; high plasticity.		0.2				
	Orange / white mottling.		0.4				
			0.6				
			0.8				◁
			1.0				
	End Of Hole: 1.20m		1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				
			3.6				
			3.8				
			4.0				

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA15

CLIENT:

PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat

CO-ORDINATES: 1642828mE, 6074960mN

ELEVATION: 16.88m

START DATE: 09/09/2025

END DATE: 09/09/2025

LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND
TS	TOPSOIL.		0	TS
Punakitere Sa	Silty CLAY. Firm to stiff; moist; low plasticity.		0.2	
	Orange / white mottling.		0.4	
			0.6	
			0.8	
			1.0	
	End Of Hole: 1.20m		1.2	
			1.4	
			1.6	
			1.8	
			2.0	
			2.2	
			2.4	
			2.6	
			2.8	
			3.0	
			3.2	
			3.4	
			3.6	
			3.8	
			4.0	

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

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

WATER

Groundwater Not Encountered

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA44

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642630mE, 6075262mN
ELEVATION: 13.39m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0					
Alluvium Deposits	Silty CLAY; orange brown and grey. Firm to stiff; moist; high plasticity.		0.2 – 1.2				85 34 79 27	
	With minor sand, with trace gravel. Gravel, fine.		1.2 – 1.6				64 24	◁
	With trace sand; grey with orange streaks.		1.6 – 2.0				82 30	
	With minor carbonaceous.		2.0 – 3.0				58 17 62 26	
	Silty CLAY; greyish blue. Firm; moist; high plasticity.		3.0 – 3.6				70 27	
	Sandy CLAY; dark blueish grey. Firm; moist to wet; high plasticity; sand, fine.		3.6 – 4.0				98 46	
	End Of Hole: 4.00m		4.0					

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA45

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642649mE, 6075242mN
ELEVATION: 13.18m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
Alluvium Deposits	Silty CLAY; dark grey with light brown and orange brown staining. Stiff; low plasticity.		0.0		2 4 6 8 10 12 14 16 18	50 100 150 200 Values	
			0.2			107	
			0.4			61	
	Silty CLAY, with minor gravel; light grey with light brown streaks. Firm to stiff; high plasticity; gravel, subangular.		0.6			110	
			0.8			58	
			1.0			67	
			1.2			34	
			1.4			64	
	Silty CLAY, with minor carbonaceous; light grey. Firm; high plasticity.		1.6			34	
			1.8			73	
			2.0			30	
			2.2			61	
			2.4			34	
	Groundwater inflow.		2.6			82	
			2.8			46	
			3.0			61	
			3.2			52	
			3.4				
			3.6				
			3.8				
	End Of Hole: 4.00m		4.0				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA46

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations

JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642636mE, 6075170mN
ELEVATION: 20.35m

START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0					
Alluvium Deposits	Silty CLAY; orange brown and grey. Firm to stiff; moist; high plasticity.		0.2 – 1.2				120 50 105 58	
	Light grey with orange streaks.		1.4 – 2.4				125 49 87 30	◁
	With trace sand and gravel. Gravel, fine.		2.6 – 3.0				79 20 85 40	
	Silty CLAY, with minor carbonaceous; dark brown, poor retrieval, falling off auger. Firm; moist to wet; high plasticity.		3.2 – 3.6				61 21	
	End Of Hole: 3.60m		3.6					

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale (kPa): 50 100 150 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA47

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642659mE, 6075152mN
ELEVATION: 21.08m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
TS	Topsoil.		0.0					
Alluvium Deposits	Clayey SILT, with trace sand; light brown with orange brown streaks. Stiff; moist; low plasticity.		0.2					
	Silty CLAY, with trace sand; light grey with orange brown streaks. Firm to stiff; moist; high plasticity.		0.4				122	
			0.6				67	
			0.8					
			1.0				101	
			1.2				61	
			1.4					
			1.6				94	
			1.8				70	
			2.0					
			2.2				88	
			2.4				64	
	Silty CLAY, with some carbonaceous, with trace sand; brown with orange brown streaks, occasional blue green staining. Firm to stiff; moist to wet; low plasticity.		2.6				101	◁
			2.8				58	
			3.0					
	Clayey SILT, with trace sand; dark grey, poor retrieval, falling off auger. Wet to saturated; low plasticity.		3.2				76	
			3.4				40	
			3.6					
	End Of Hole: 3.50m		3.8				107	
			4.0				46	

Scala penetrometer scale: 2, 4, 6, 8, 10, 12, 14, 16, 18
Vane shear strength scale: 50, 100, 150, 200

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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

HAND AUGER LOG

HOLE NO.: HA48

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642687mE, 6075151mN
ELEVATION: 21.49m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: MD

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	Topsoil.		0.0				
Alluvium Deposits	Silty CLAY; orange brown. Stiff; moist; high plasticity.		0.2 – 0.8			149, 52	
	Silty sandy CLAY; orange and grey. Stiff; moist; high plasticity.		0.8 – 1.8			152, 56; 168, 53	
	Groundwater inflow, decreased sand.		1.8				◁
	Silty CLAY, with some carbonaceous; light grey. Firm to stiff; moist; high plasticity.		1.8 – 3.0			122, 61; 113, 46	
	Yellowish grey.		3.0 – 3.6			107, 46; 110, 27	
	Carbonaceous CLAY; brownish grey. Firm; moist; high plasticity.		3.6 – 4.0			85, 34	
	End Of Hole: 4.00m		4.0				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale (kPa): 50 100 150 200 Values

PHOTO(S)

REMARKS

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

Generated with CORE-GS by Geroc - 1 - Hand Auger - RS Standard scala & vane bars - 10/2/2025 4:07:50 PM

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

HAND AUGER LOG

HOLE NO.: HA49

CLIENT: Northland Regional Council
PROJECT: Geotechnical Investigations
JOB NO.: 19730

SITE LOCATION: Whirinaki Papakainga Managed Retreat
CO-ORDINATES: 1642620mE, 6075278mN
ELEVATION: 13.01m
START DATE: 29/09/2025
END DATE: 29/09/2025
LOGGED BY: CH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
FILL	Clayey SILT, with some topsoil, with trace gravel. Gravel, angular.		0.2				
Alluvium Deposits	Silty CLAY; light brown with orange brown streaks. Stiff; moist; high plasticity.		0.4, 0.6, 0.8, 1.0			107, 67	
	Clayey SILT, with some sand; light brown with orange brown streaks. Stiff; moist; low plasticity.		1.2, 1.4			101, 46	
	Silty CLAY, with minor carbonaceous, with trace sand; light grey. Firm to stiff; moist; high plasticity.		1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8			131, 85, 122, 73, 98, 61	Groundwater Not Encountered
	Minor angular gravels, minor sand.		3.0, 3.2, 3.4			152, 67, 107, 58	
	Clayey SILT, with minor sand; brown . Stiff; moist; low plasticity.		3.6, 3.8			125, 55	
	End Of Hole: 4.00m		4.0				

Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

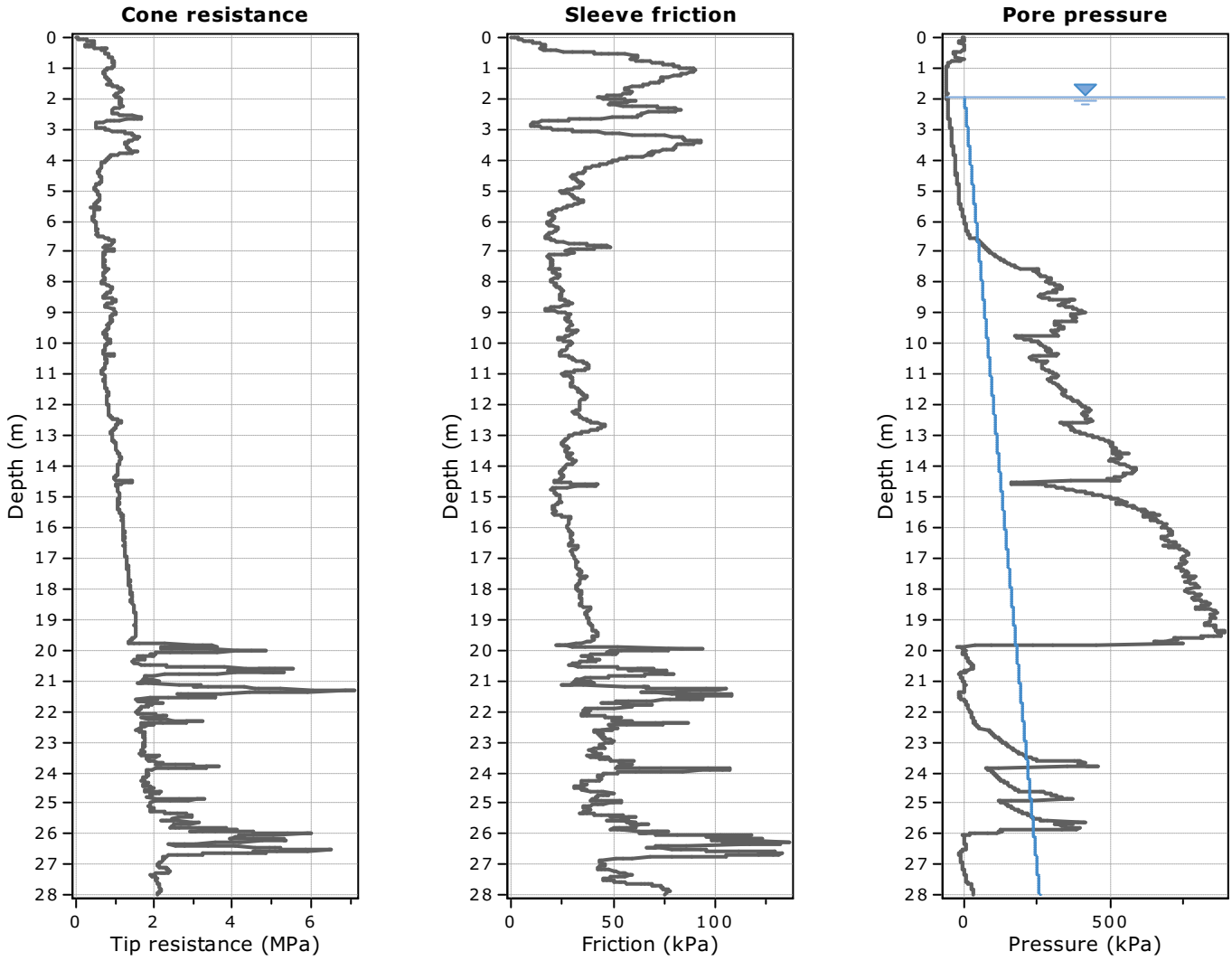
INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

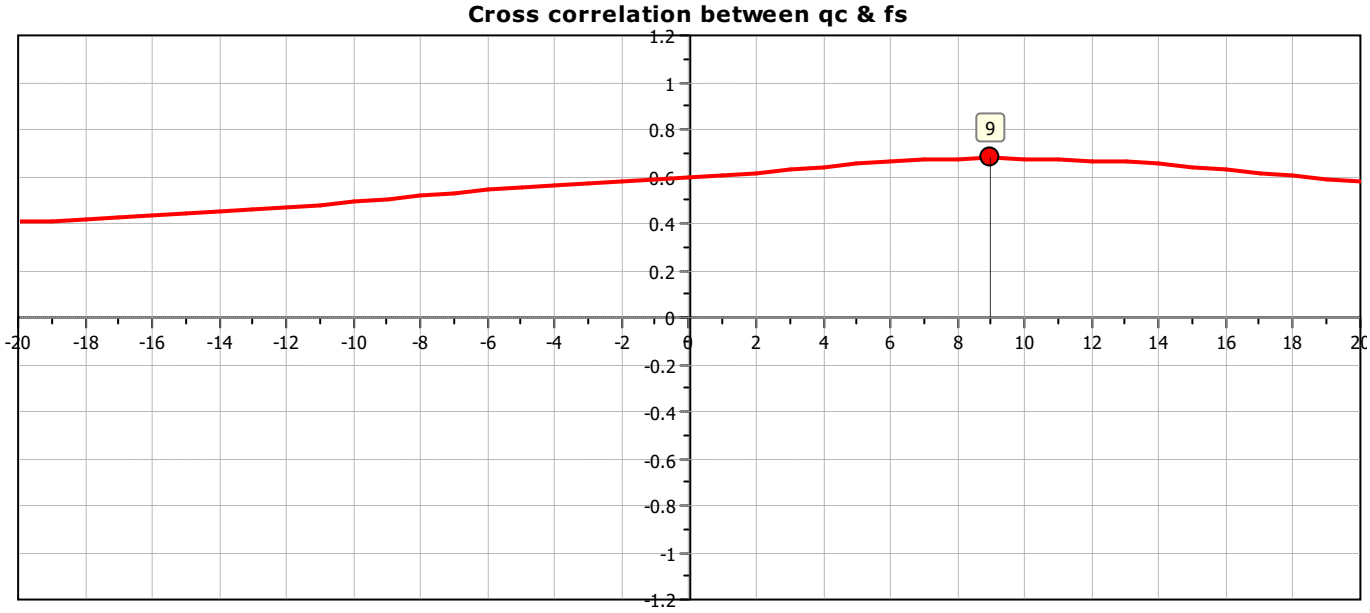
Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT08
Total depth: 27.98 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



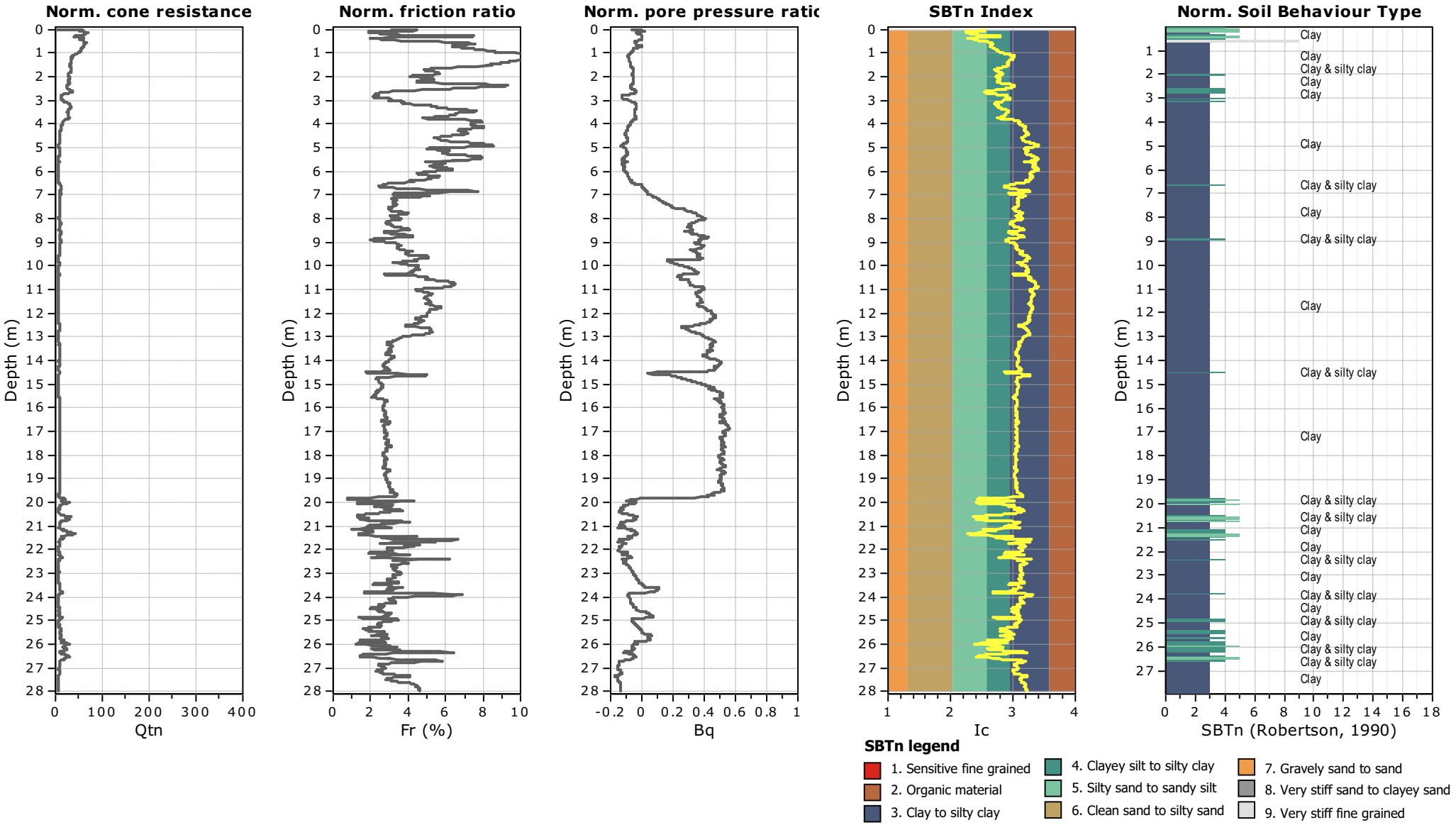
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT08
Total depth: 27.98 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

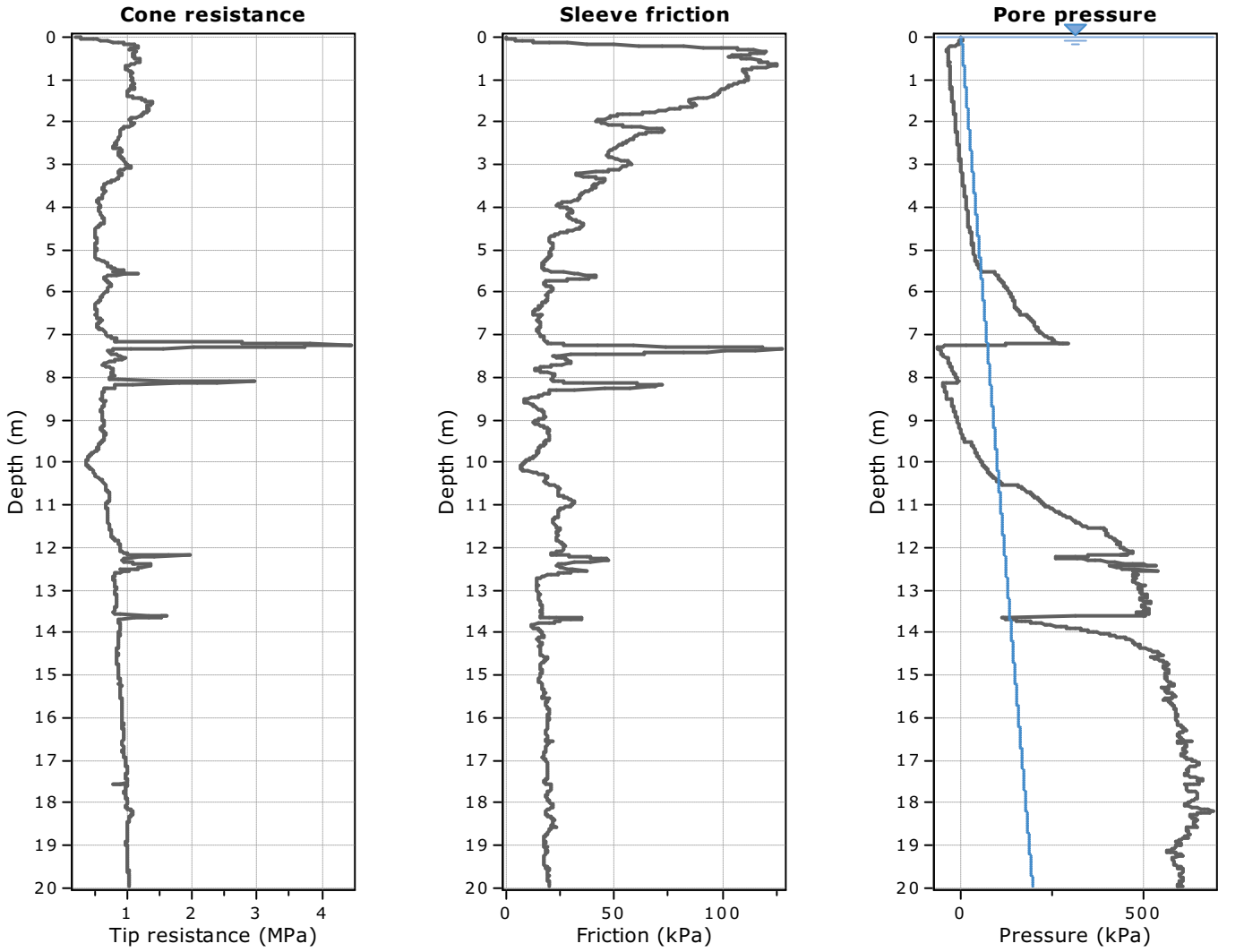
Project:
Location:



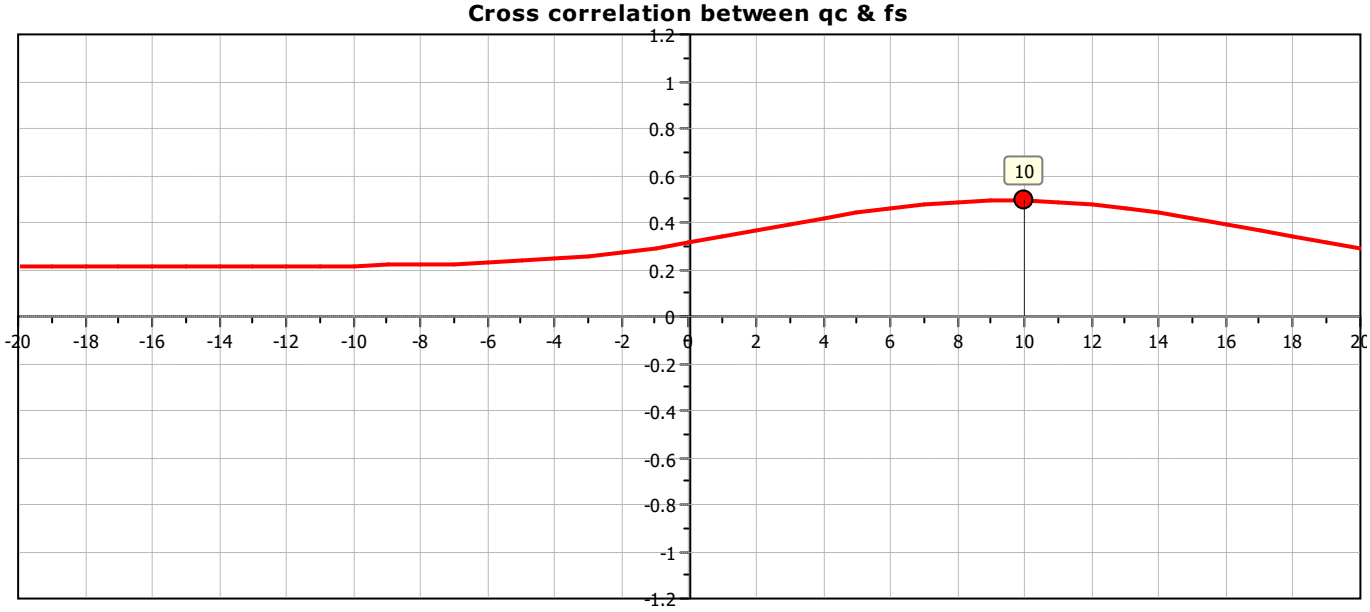
Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT09
Total depth: 19.96 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



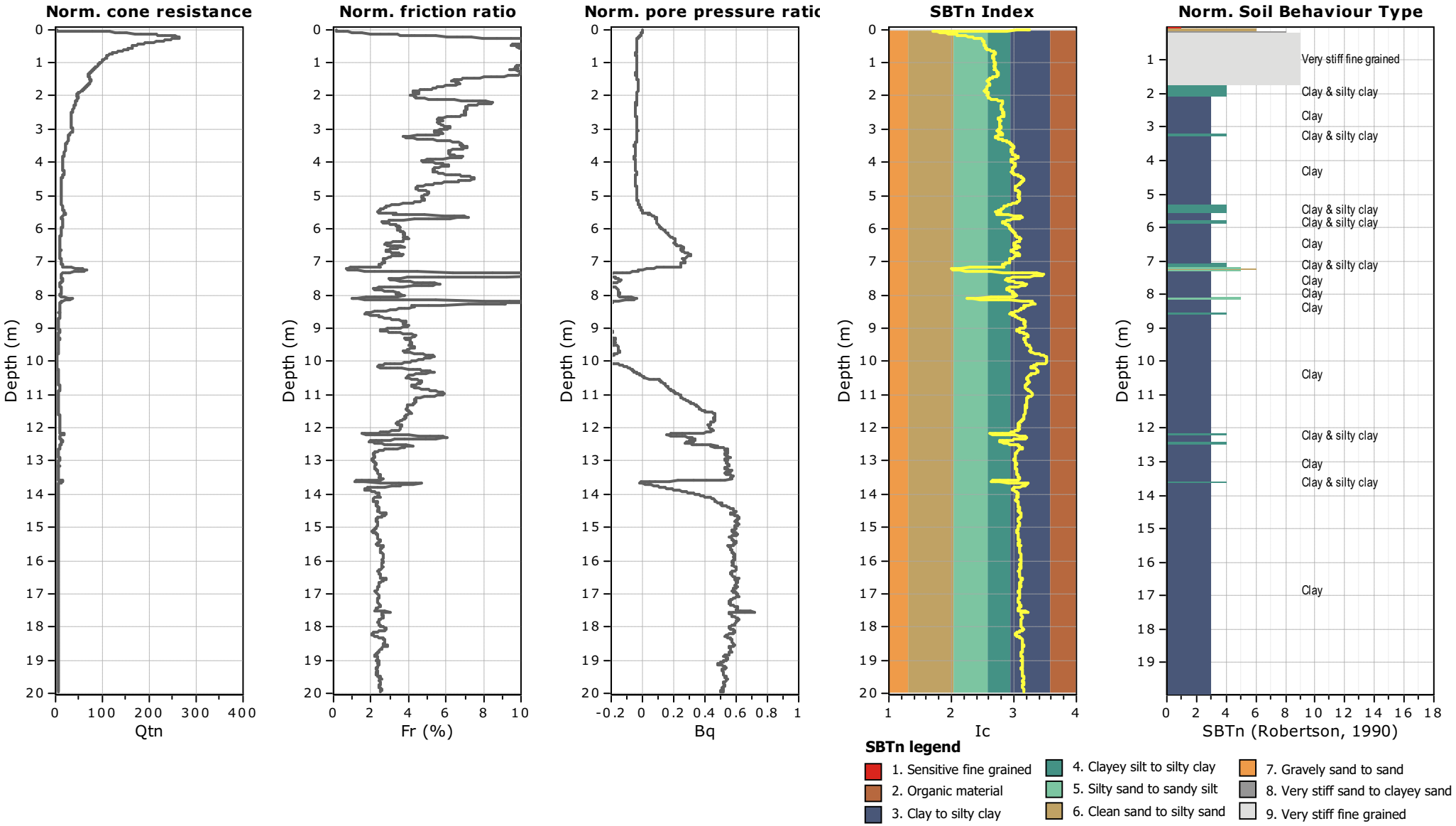
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT09
Total depth: 19.96 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

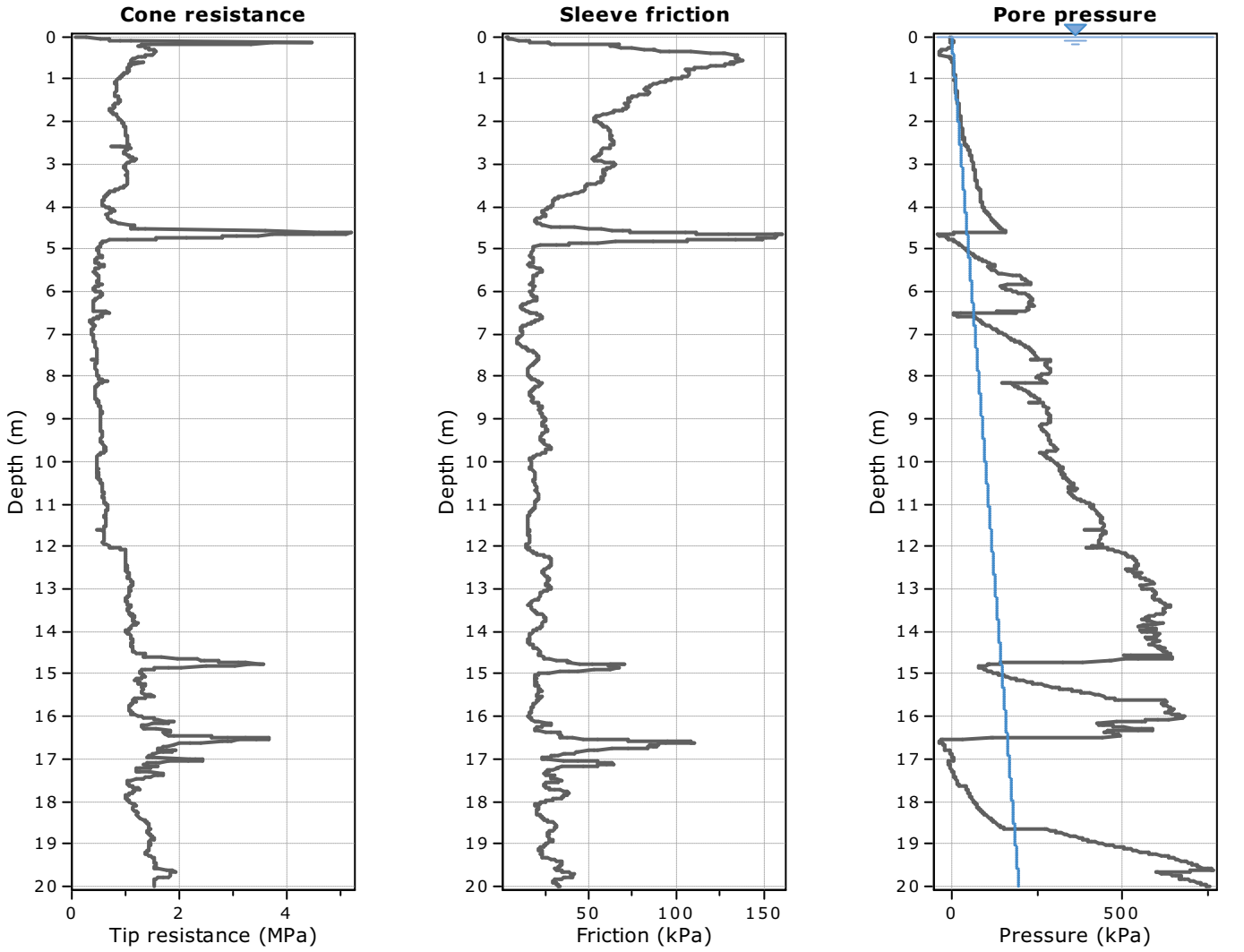
Project:
Location:



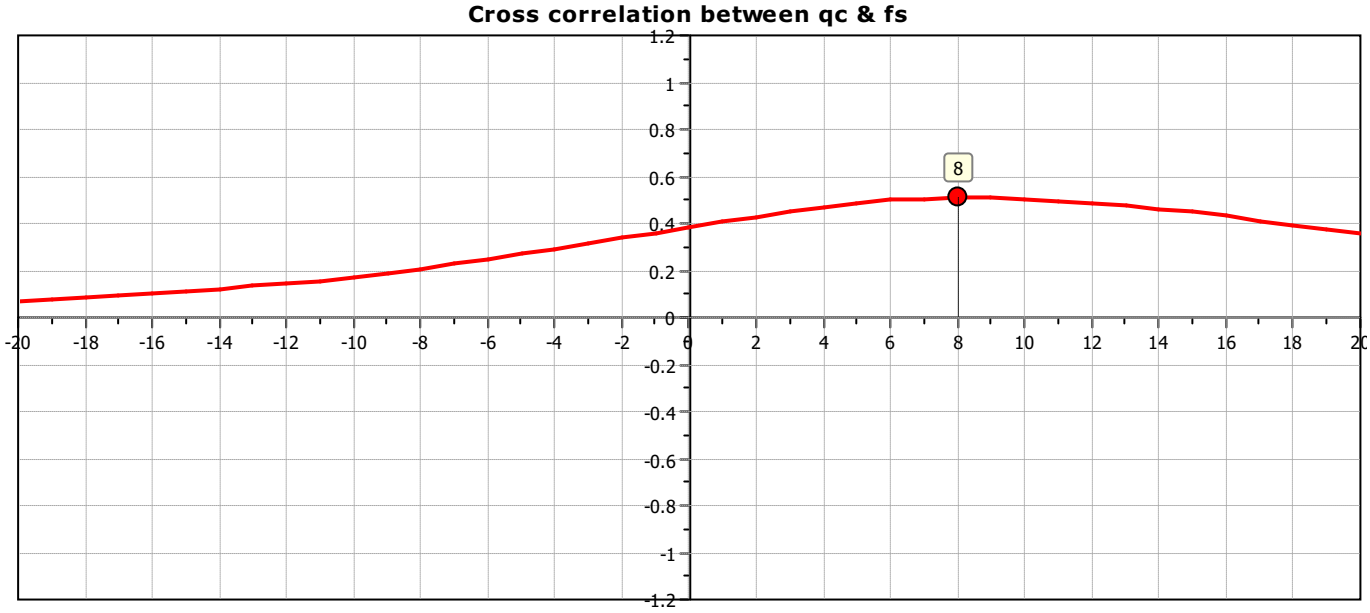
Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT10
Total depth: 20.00 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT10
Total depth: 20.00 m, Date: 12/09/2025
Surface Elevation: 0.00 m
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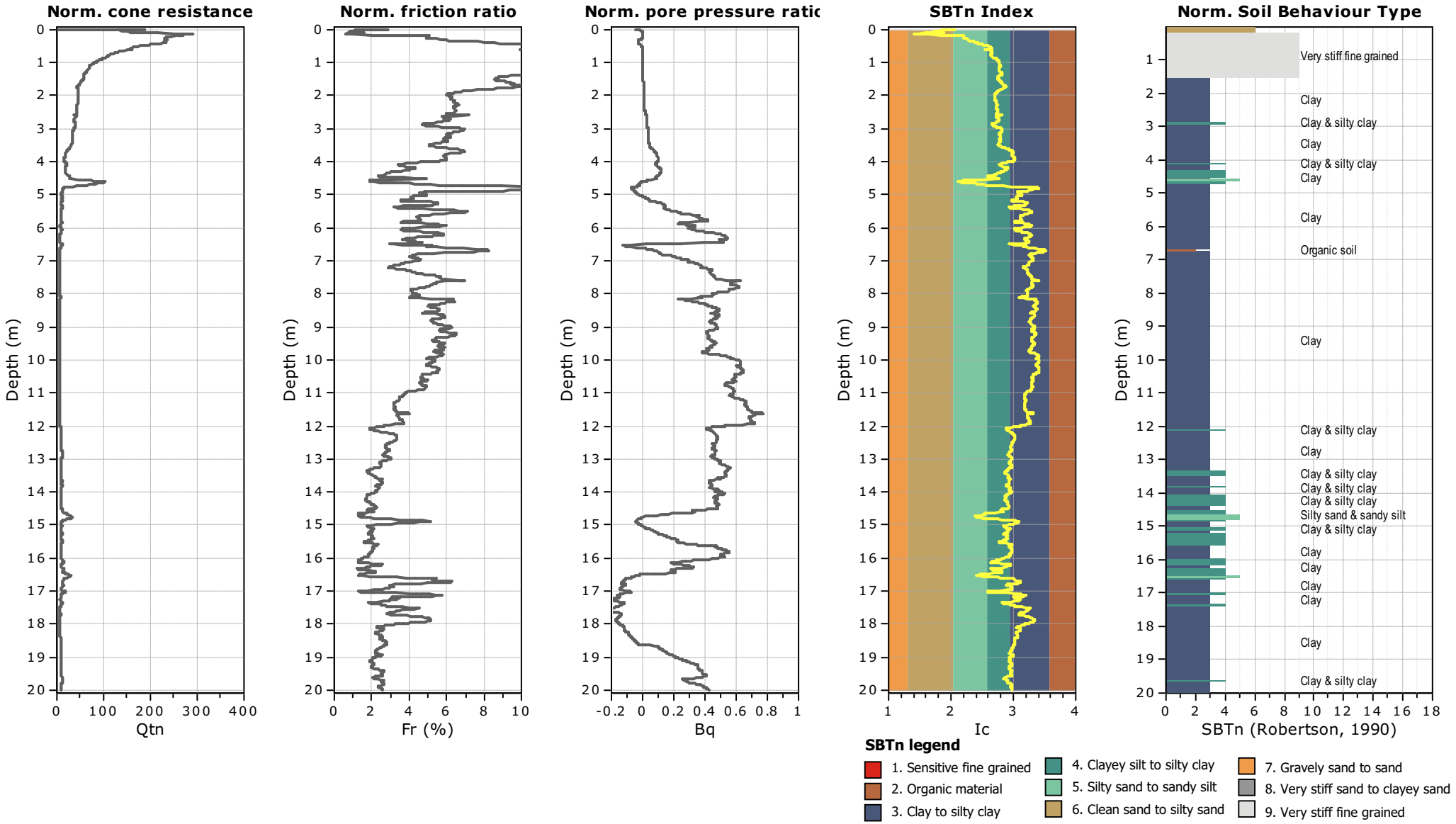
Cone Type:
Cone Operator:

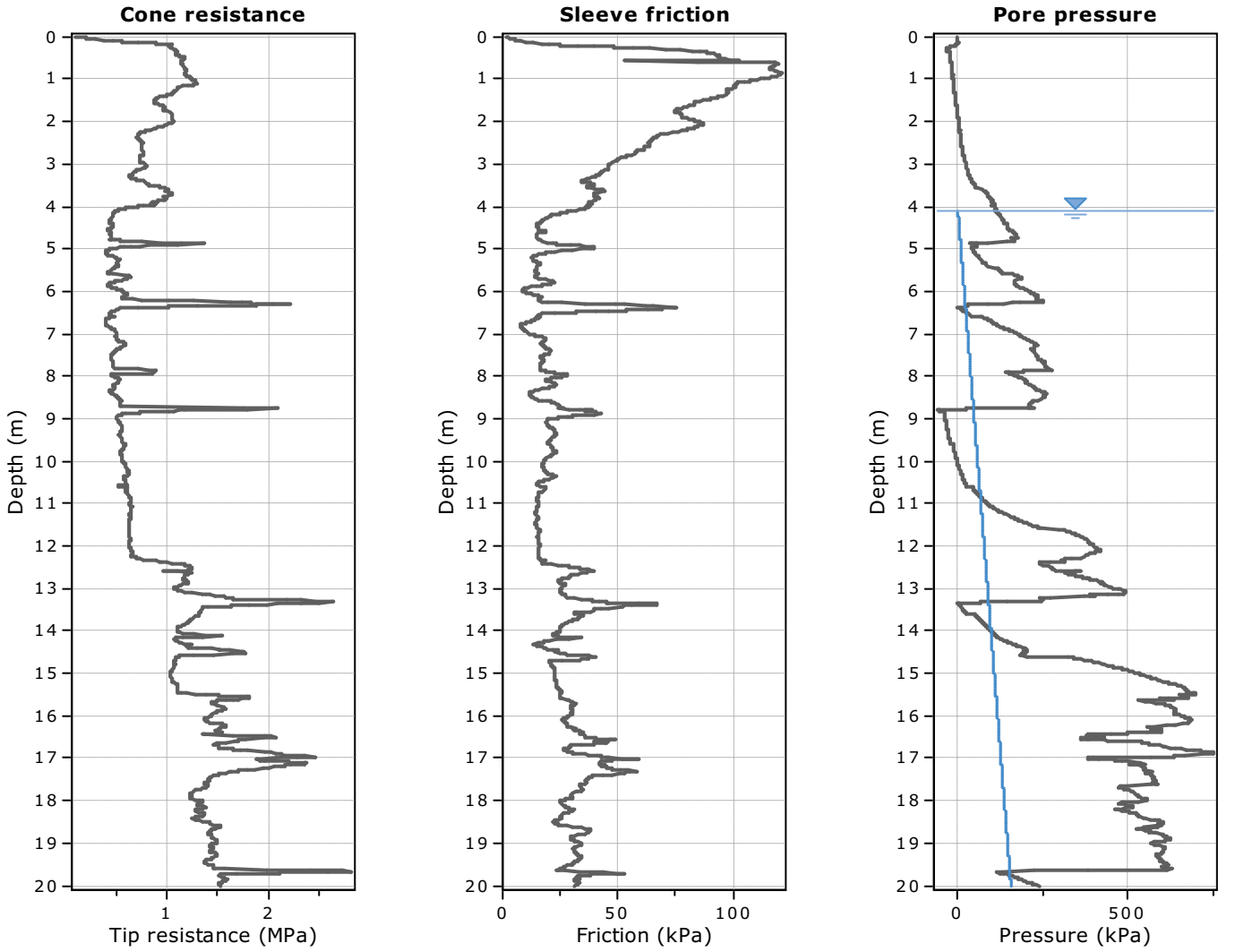
Project:
Location:



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT11
Total depth: 20.02 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



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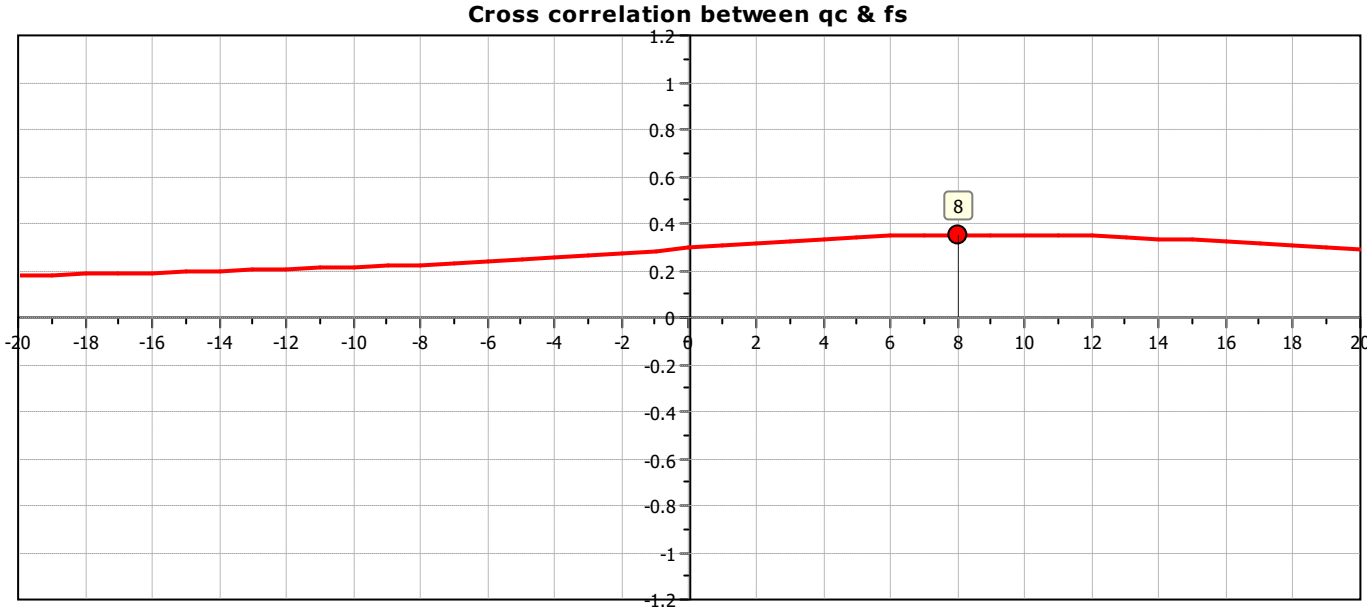
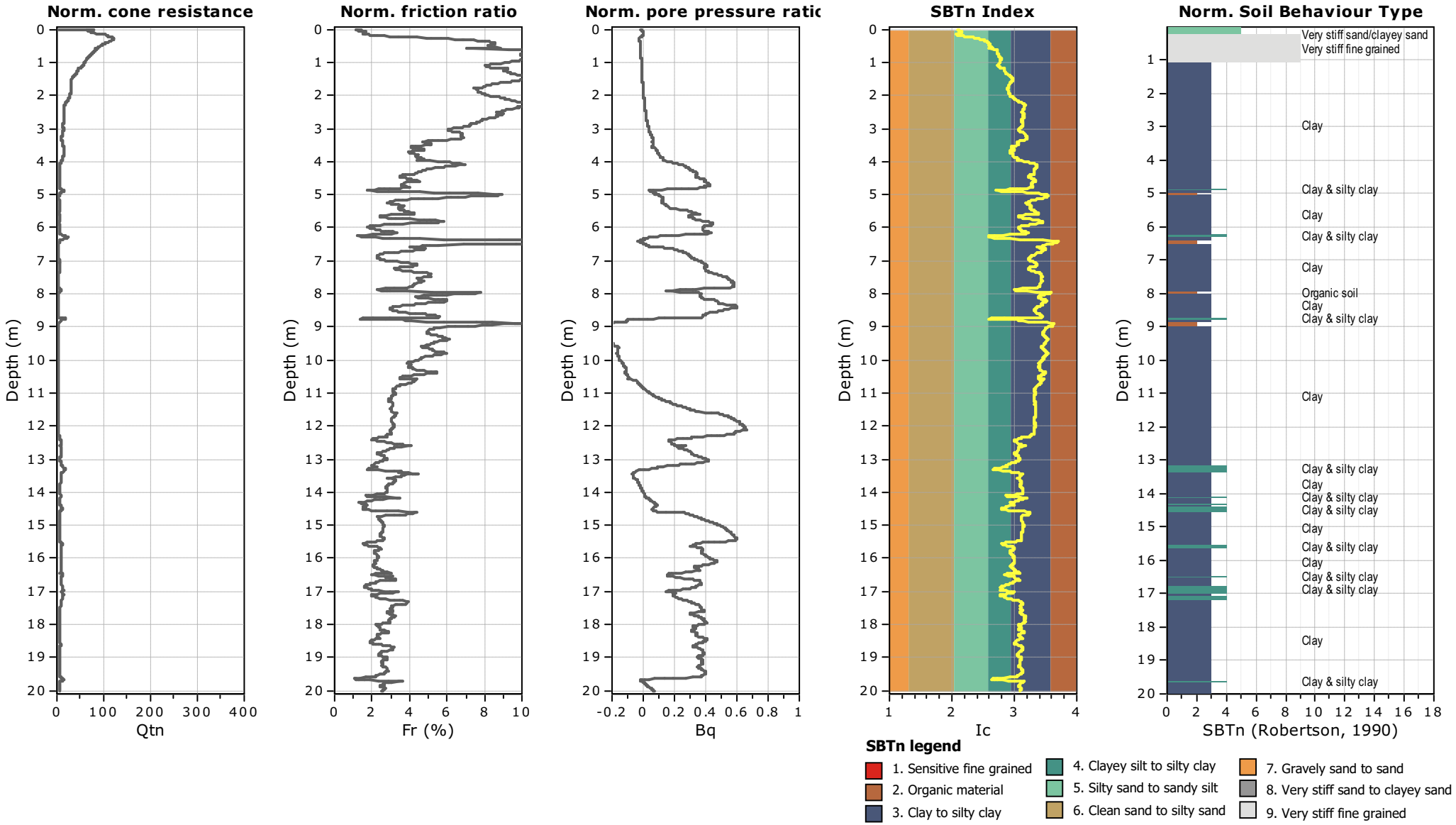


Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT11
Total depth: 20.02 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

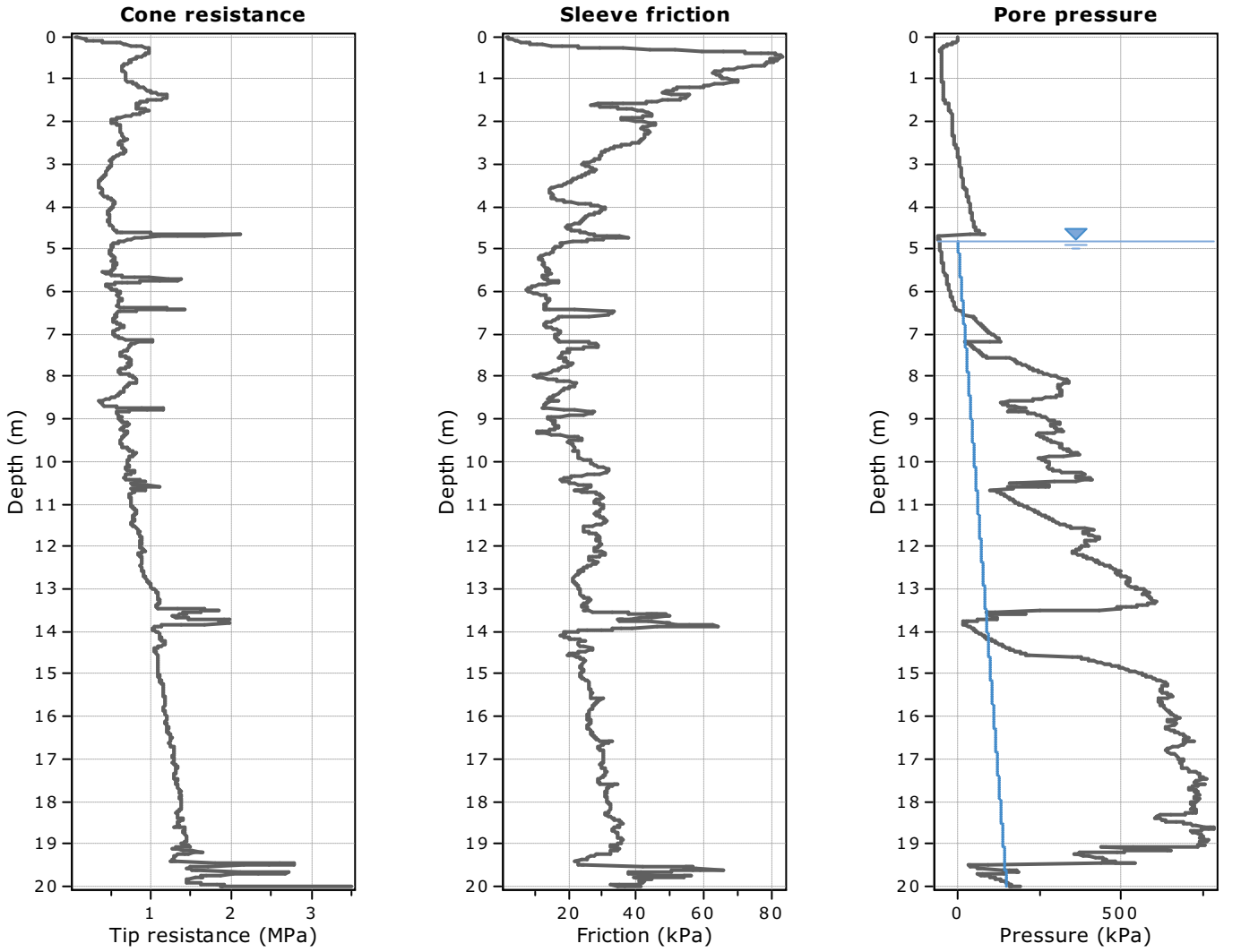
Project:
Location:



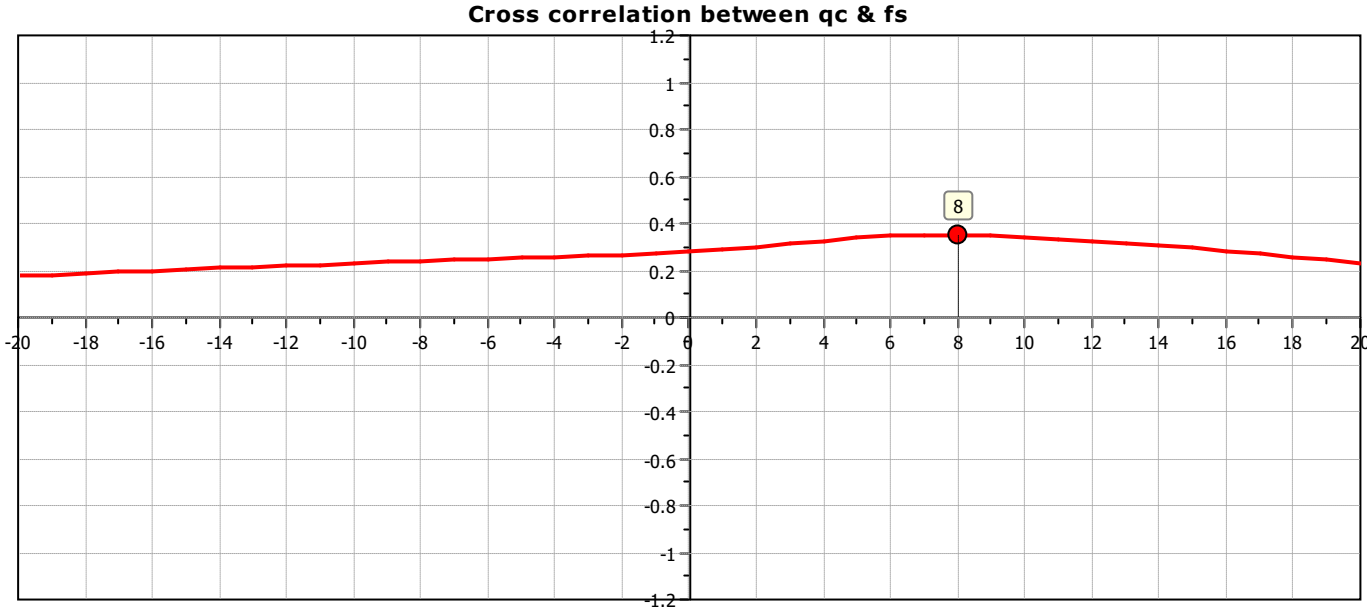
Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT12
Total depth: 20.00 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



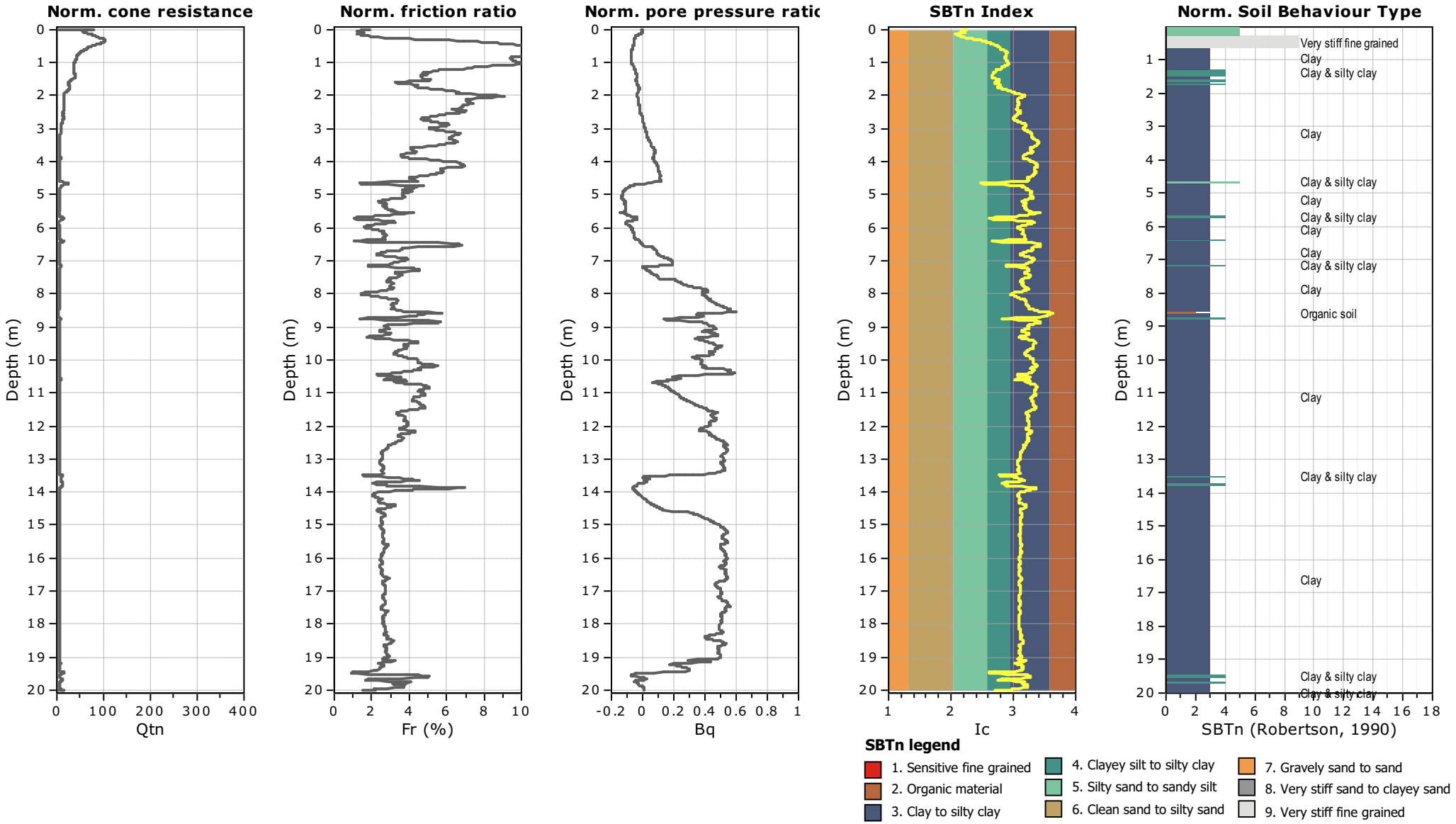
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT12
Total depth: 20.00 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

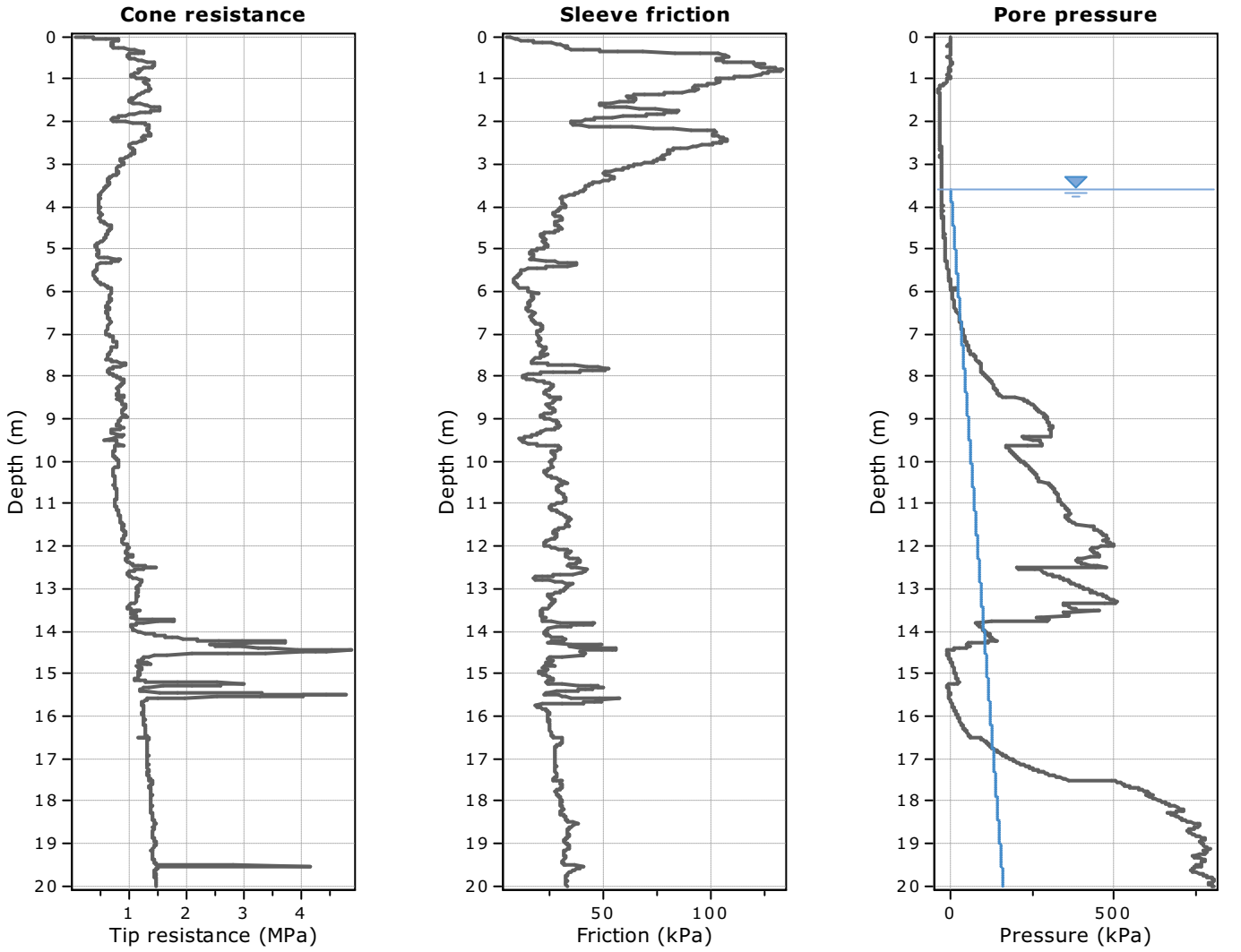
Project:
Location:



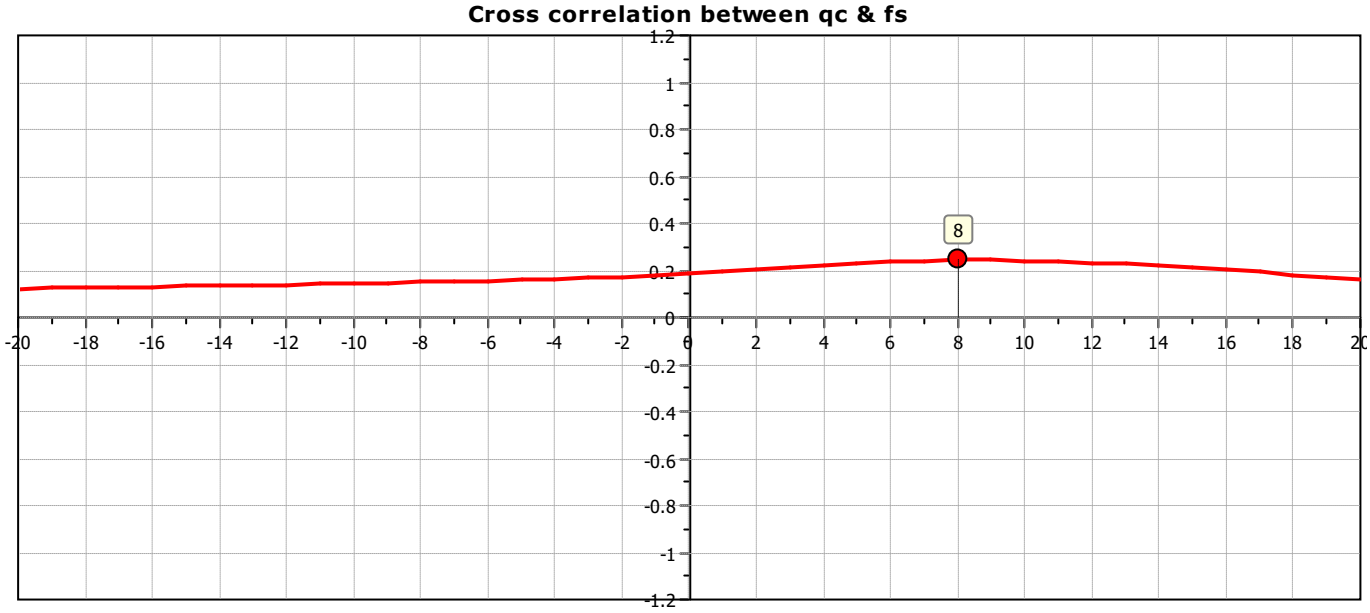
Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

CPT: CPT13
Total depth: 20.01 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



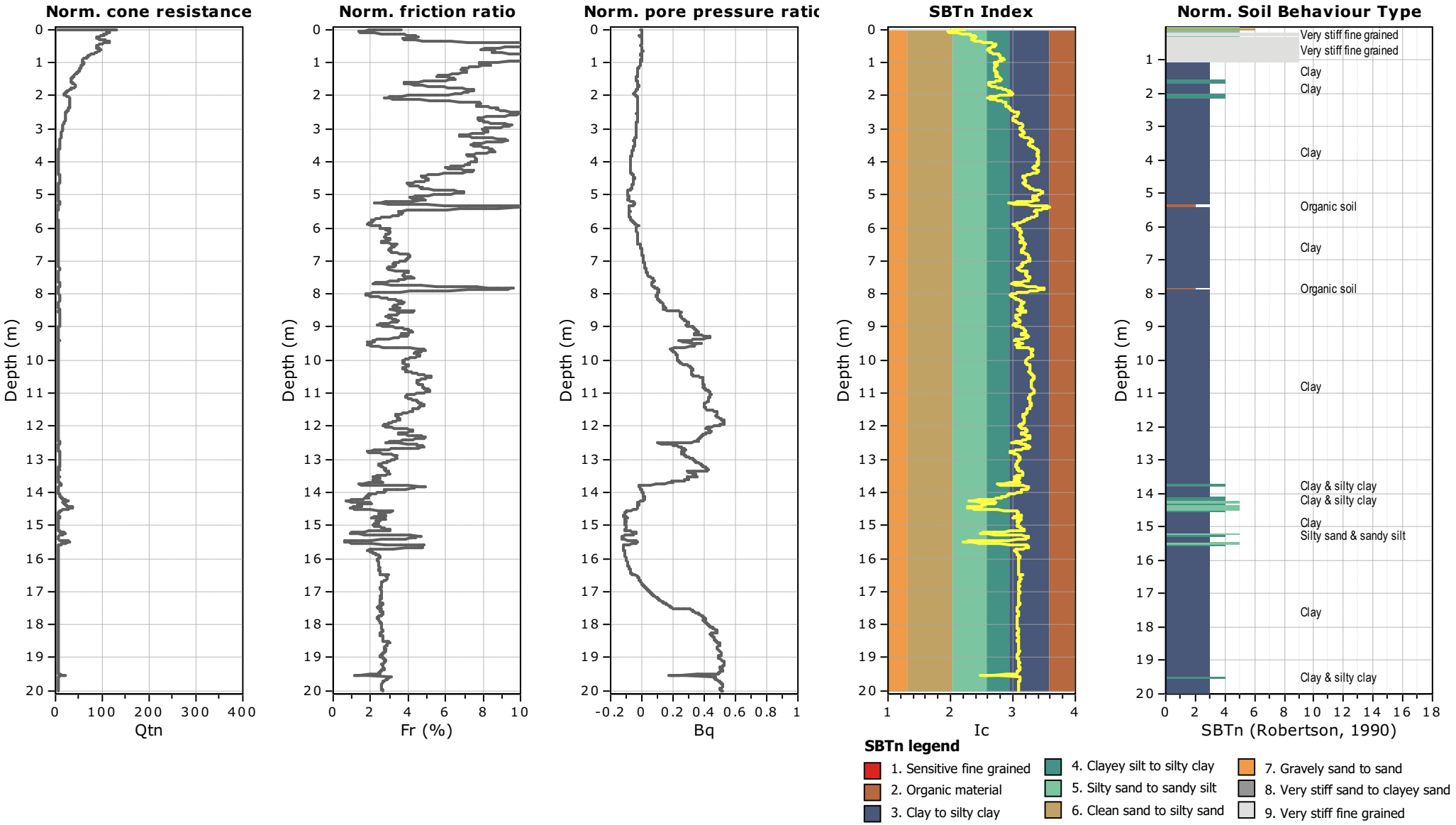
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Underground Investigation Ltd
Cone Penetration Testing
craig@undergroundinvestigation.co.nz
+64211473249

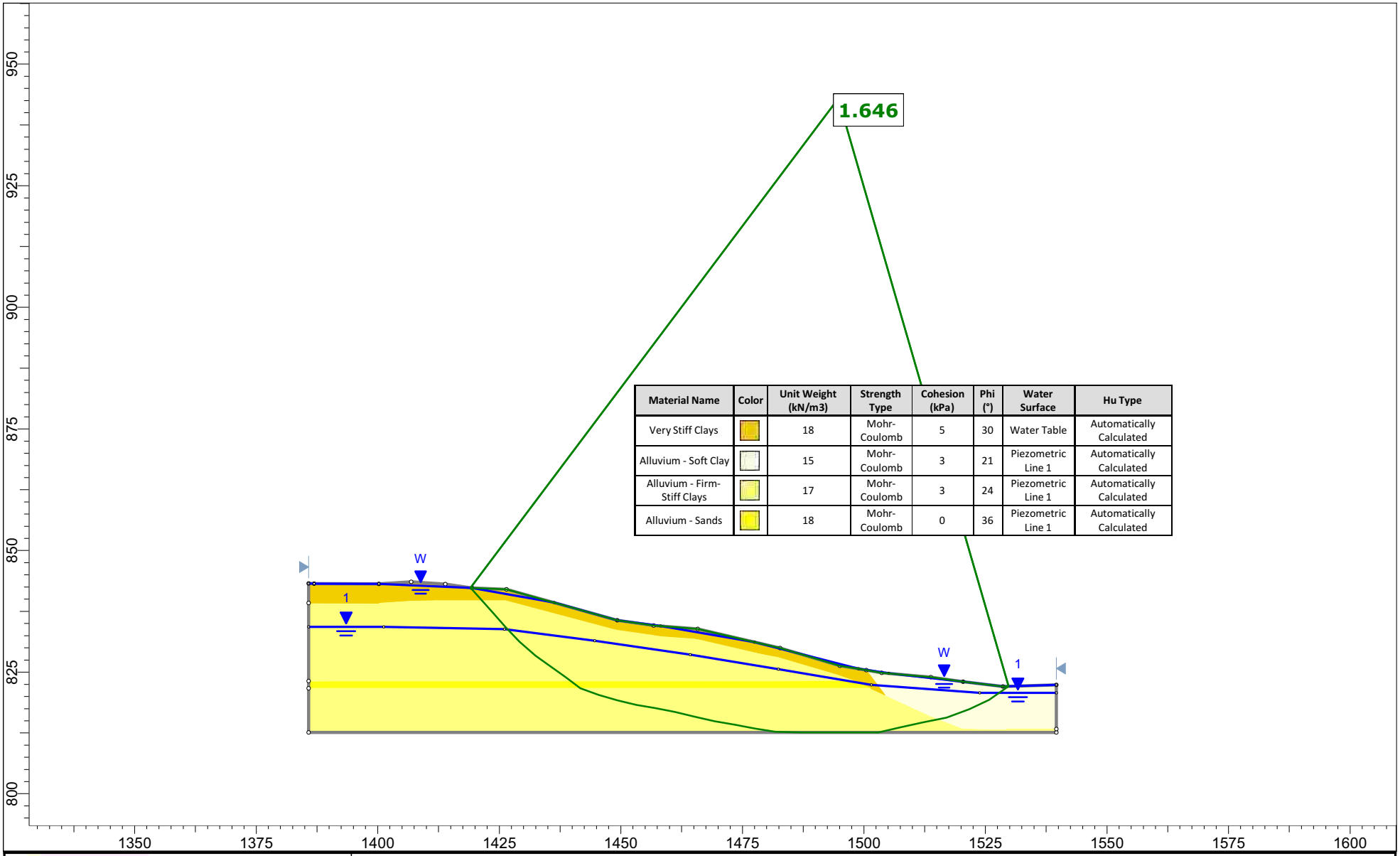
CPT: CPT13
Total depth: 20.01 m, Date: 12/09/2025
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project:
Location:



Appendix C

Stability Analysis

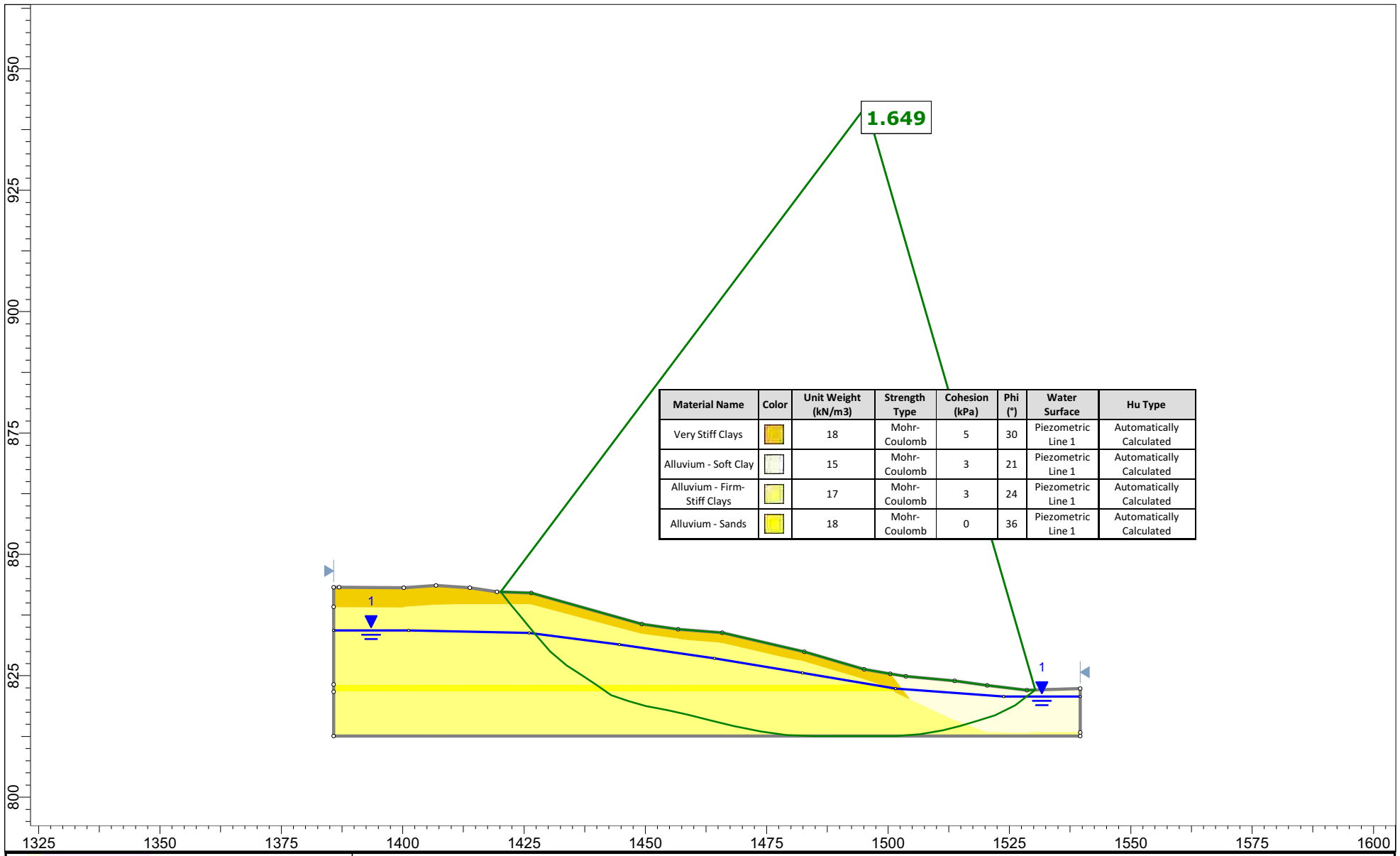


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Very Stiff Clays		18	Mohr-Coulomb	5	30	Water Table	Automatically Calculated
Alluvium - Soft Clay		15	Mohr-Coulomb	3	21	Piezometric Line 1	Automatically Calculated
Alluvium - Firm-Stiff Clays		17	Mohr-Coulomb	3	24	Piezometric Line 1	Automatically Calculated
Alluvium - Sands		18	Mohr-Coulomb	0	36	Piezometric Line 1	Automatically Calculated

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

SLIDEINTERPRET 9.031

Project	RS19730 - Kauri Block		
Group	Group 1	*Scenario*	Extreme GW Case
Drawn By		*Company*	
Date	9/06/2025, 12:39:29 pm	*File Name*	S1 C 0001 2025-10-11.slmd

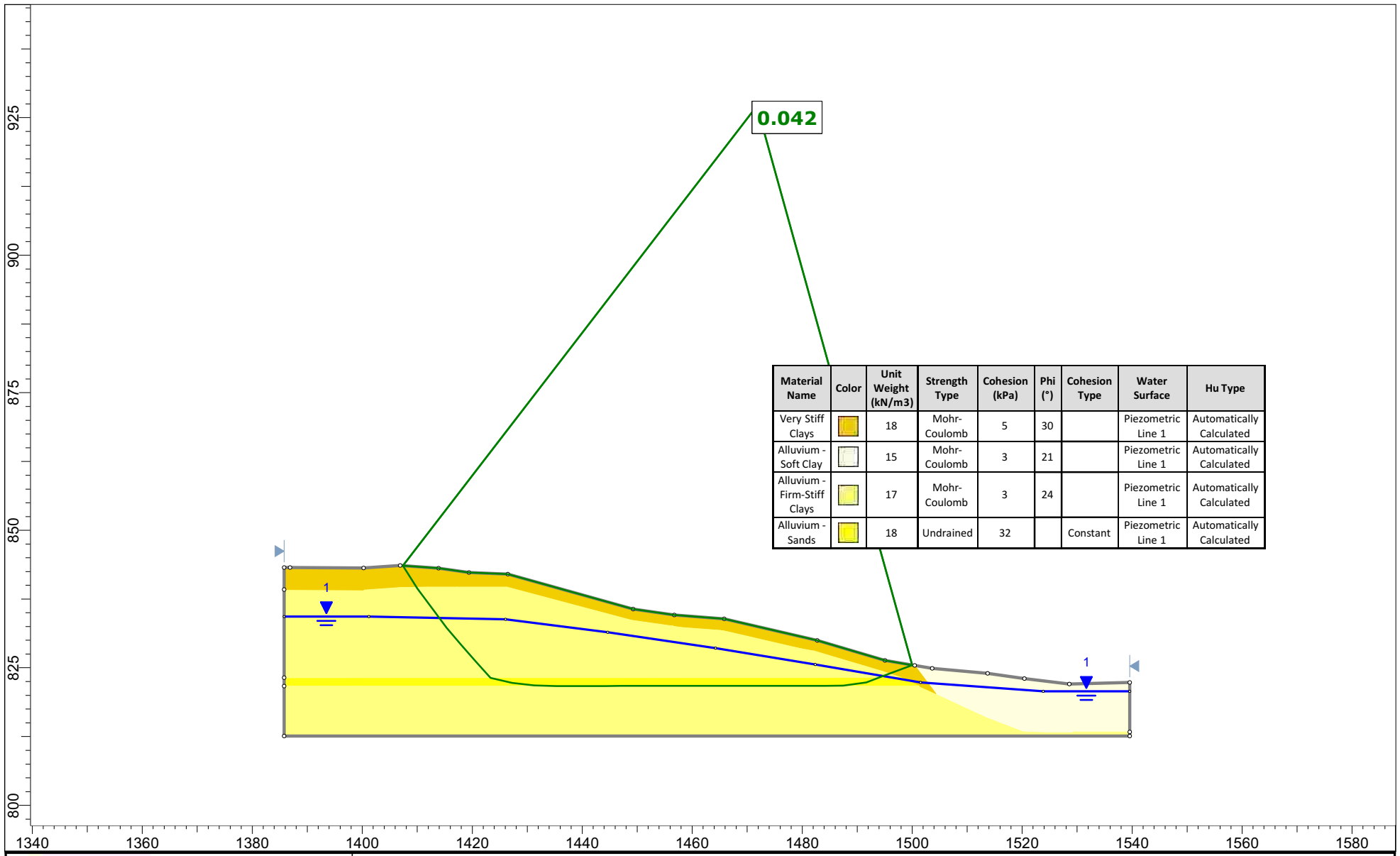


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Very Stiff Clays		18	Mohr-Coulomb	5	30	Piezometric Line 1	Automatically Calculated
Alluvium - Soft Clay		15	Mohr-Coulomb	3	21	Piezometric Line 1	Automatically Calculated
Alluvium - Firm-Stiff Clays		17	Mohr-Coulomb	3	24	Piezometric Line 1	Automatically Calculated
Alluvium - Sands		18	Mohr-Coulomb	0	36	Piezometric Line 1	Automatically Calculated

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

SLIDEINTERPRET 9.031

Project	RS19730 - Kauri Block		
Group	Group 1	*Scenario*	Normal GW Case
Drawn By		*Company*	
Date	9/06/2025, 12:39:29 pm	*File Name*	S1 C 0001 2025-10-11.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Cohesion Type	Water Surface	Hu Type
Very Stiff Clays		18	Mohr-Coulomb	5	30		Piezometric Line 1	Automatically Calculated
Alluvium - Soft Clay		15	Mohr-Coulomb	3	21		Piezometric Line 1	Automatically Calculated
Alluvium - Firm-Stiff Clays		17	Mohr-Coulomb	3	24		Piezometric Line 1	Automatically Calculated
Alluvium - Sands		18	Undrained	32		Constant	Piezometric Line 1	Automatically Calculated

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

SLIDEINTERPRET 9.031

Project	RS19730 - Kauri Block		
Group	Group 1	*Scenario*	Seismic Case
Drawn By		*Company*	
Date	9/06/2025, 12:39:29 pm	*File Name*	S1 C 003 2025-10-11.slmd

Non-Reticulated Firefighting Water Supplies, Vehicular Access & Vegetation Risk Reduction Application for New and Existing Residential Dwellings and Sub-Divisions

Applicant Information

Applicants Information	
Name:	RS Eng Ltd - Nathan Walker
Address:	2 Seaview Road, Whangarei 0110
Contact Details:	094383273
Return Email Address:	nathan@rseng.co.nz

Property Details

Property Details	
Address of Property:	Kauri Kainga - Vujcich Road, Whirinaki
Lot Number/s:	Whirinaki 4A Block
Dwelling Size: (Area = Length & Width)	162m2 (x12 dwellings)
Number of levels: (Single / Multiple)	Single

Fire & Emergency New Zealand
Approved
Date 11-12-25 Initial EA

Contents

Firefighting Water Supplies and Vegetation Risk Reduction Waiver

"Fire and Emergency New Zealand strongly recommends the installation of automatic fire detection system devices such as smoke alarms for early warning of a fire and fire suppression systems such as sprinklers in buildings (irrespective of the water supply) to provide maximum protection to life and property".

Waiver Explanation Intent

Fire and Emergency New Zealand [FENZ] use the New Zealand Fire Service [NZFS] Code of Practice for firefighting water supplies (SNZ PAS 5409:2008) (The Code) as a tool to establish the quantity of water required for firefighting purposes in relation to a specific hazard (Dwelling, Building) based on its fire hazard classification regardless if they are located within urban fire districts with a reticulated water supply or a non-reticulated water supply in rural areas. The code has been adopted by the Territorial Authorities and Water Supply Authorities. The code can be used by developers and property owners to assess the adequacy of the firefighting water supply for new or existing buildings.

The Community Risk Manager under the delegated authority of the Fire Region Manager and District Manager is responsible for approving applications in relation to firefighting water supplies. The Community Risk Manager may accept a variation or reduction in the amount of water required for firefighting for example; a single level dwelling measuring 200^{m2} requires 45,000L of firefighter water under the code, however the Community Risk Manager in Northland will except a reduction to 10,000L.

This application form is used for the assessment of proposed water supplies for firefighting in non-reticulated areas only and is referenced from (Appendix B – Alternative Firefighting Water Sources) of the code. This application also provides fire risk reduction guidance in relation to vegetation and the 20-metre dripline rule under the Territorial Authority's District Plan. Fire and Emergency New Zealand are not a consenting authority and the final determination rests with the Territorial Authority.

For more information in relation to the code of practice for Firefighting Water supplies, Emergency Vehicle Access requirements, Home Fire Safety advice and Vegetation Risk Reduction Strategies visit www.fireandemergency.nz

1. Fire Appliance Access to alternative firefighting water sources - Expected Parking Place & Turning circle

Fire and Emergency have specific requirements for fire appliance access to buildings and the firefighting water supply. This area is termed the hard stand. The roading gradient should not exceed 16%. The roading surface should be sealed, able to take the weight of a 14 to 20-tonne truck and trafficable at all times. The minimum roading width should not be less than 4 m and the property entrance no less 3.5 metres wide. The height clearance along access ways must exceed 4 metres with no obstructions for example; trees, hanging cables, and overhanging eaves.

1 (a) Fire Appliance Access / Right of Way	
Is there at least 4 metres clearance overhead free from obstructions?	☒YES ☐NO
Is the access at least 4 metres wide?	☒YES ☐NO
Is the surface designed to support a 20-tonne truck?	☒YES ☐NO
Are the gradients less than 16%	☒YES ☐NO
Fire Appliance parking distance from the proposed water supply is road adjacent to tanks metres	

Internal FENZ Risk Reduction comments only:

Acceptable

If access to the proposed firefighting water supply is not achievable using a fire appliance, firefighters will need to use portable fire pumps. Firefighters will require at least a one-metre wide clear path / walkway to carry equipment to the water supply, and a working area of two metres by two metres for firefighting equipment to be set up and operated.

1 (b) Restricted access to firefighting water supply, portable pumps required
Has suitable access been provided? ☒YES ☐ NO
Comments: Acceptable

Internal FENZ Risk Reduction comments only:

Acceptable

2. Firefighting Water Supplies (FFWS)

What are you proposing to use as your firefighting water supply?

2 (a) Water Supply Single Dwelling	
Tank	☒ Concrete Tank ☐ Plastic Tank ☒ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500 mm above ground) ☐ Fully Buried (access through filler spout) Volume of dedicated firefighting water Click or tap here to enter text.litres

Internal FENZ Risk Reduction comments only:

N/A

2 (b) Water Supply Multi-Title Subdivision Lots / Communal Supply	
Tank Farm	☐ Concrete Tank ☐ Plastic Tank ☒ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500mm above ground) ☐ Fully Buried (access through filler spout) Number of tanks provided 2 Number of Tank Farms provided 2 Water volume at each Tank Farm 25,000 Litres Volume of dedicated firefighting water 50,000 litres

Internal FENZ Risk Reduction comments only:

Acceptable but FENZ recommends a 3rd FF water tank is setup near the middle intersection of alignment 3 and alignment .

2 (c) Alternative Water Supply	
Pond:	Volume of water: Click or tap here to enter text.
Pool:	Volume of water: Click or tap here to enter text.
Other:	Specify: Click or tap here to enter text.
	Volume of water: Click or tap here to enter text.

Internal FENZ Risk Reduction comments only:

N/A

3. Water Supply Location

The code requires the available water supply to be at least 6 metres from a building for firefighter safety, with a maximum distance of 90 metres from any building. This is the same for a single dwelling or a Multi-Lot residential subdivision. Is the proposed water supply within these requirements?

3 (a) Water Supply Location	
Minimum Distance:	*Is your water supply at least 6 metres from the building?* ☒YES ☐ NO
Maximum Distance	*Is your water supply no more than 90 metres from the building?* ☒YES ☐ NO

Internal FENZ Risk Reduction comments only:

Acceptable

3 (b) Visibility
How will the water supply be readily identifiable to responding firefighters? E.g.: tank is visible to arriving firefighters or, there are signs / markers posts visible from the parking place directing them to the tank etc.
Comments: Signs to be installed, tanks adjacent to roads

Internal FENZ Risk Reduction comments only:

Acceptable but also recommend yellow triangles are used on roadway as per standard hydrant marking.

3 (c) Security
How will the FFWS be reasonably protected from tampering? E.g.: light chain and padlock or, cable tie on the valve etc.
Explain how this will be achieved: Cable tie on valve

Internal FENZ Risk Reduction comments only:
Acceptable

4. Adequacy of Supply

The volume of storage that is reserved for firefighting purposes must not be used for normal operational requirements. Additional storage must be provided to balance diurnal peak demand, seasonal peak demand and normal system failures, for instance power outages. The intent is that there should always be sufficient volumes of water available for firefighting, except during Civil Défense emergencies or by prior arrangement with the Fire Region Manager.

4 (a) Adequacy of Water supply
Note: *The owner must maintain the firefighting water supply all year round. How will the usable capacity proposed be reliably maintained? E.g. automatically keep the tank topped up, drip feed, rain water, ballcock system, or manual refilling after use etc.*
Comments: Tanks are separate from the dwelling supply. FFWS tanks to be manually refilled after use.

Internal FENZ Risk Reduction comments only:
Accepted but reminder- Site agreements should have a clause stipulating any usage of FF water, the property user shall ensure the tanks are filled up.

5. Alternative Method using Appendix's H & J

If Table 1 + 2 from the Code of Practice is not being used for the calculation of the Firefighting Water Supply, a competent person using appendix H and J from the Code of Practice can propose an alternative method to determine firefighting water supply adequacy.

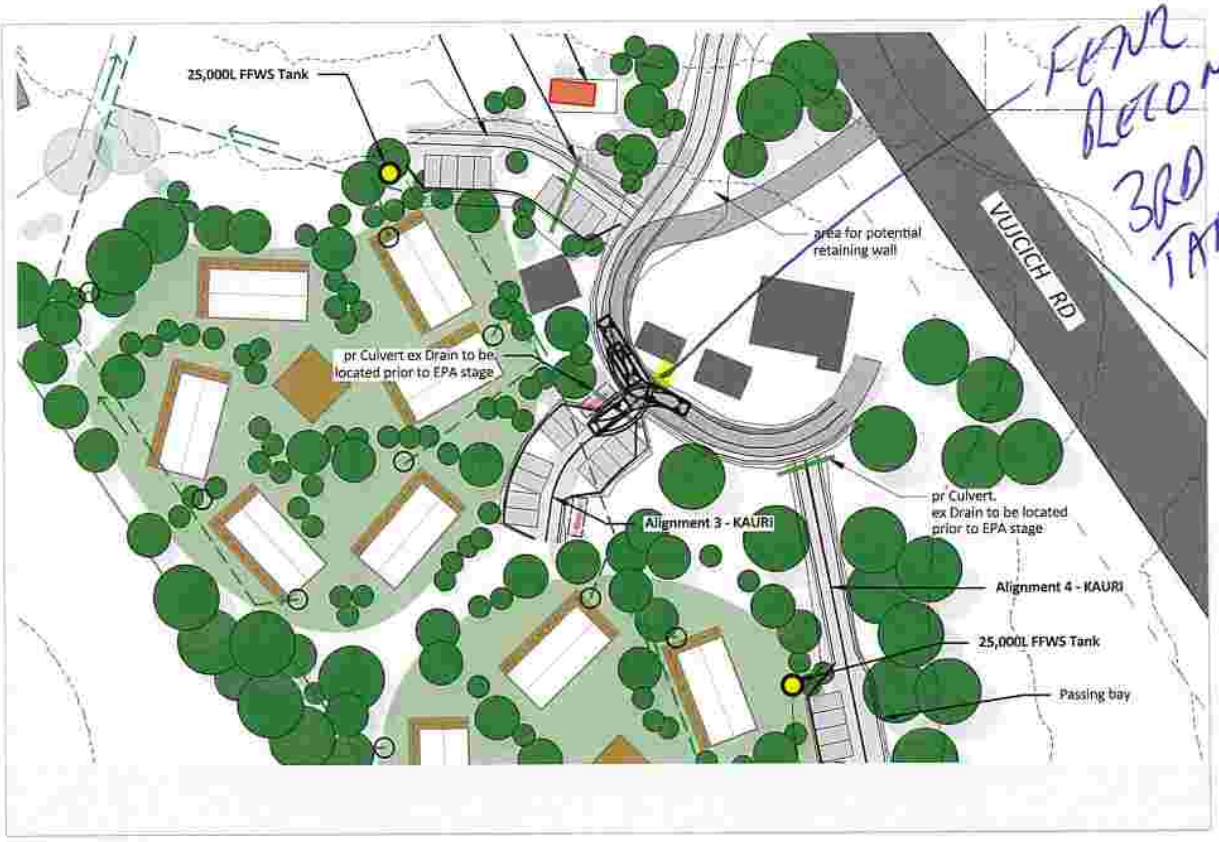
Appendix H describes a method for determining the maximum fire size in a structure. Appendix J describes a method for assessing the adequacy of the firefighting water supply to the premises.

5 (a) Alternative Method Appendix H & J	
If an alternative method of determining the FFWS has been proposed, who proposed it? Name: Click or tap here to enter text.	
Contact Details: Click or tap here to enter text.	
Proposed volume of storage?	Litres: Click or tap here to enter text.
Comments: Click or tap here to enter text. ** Please provide a copy of the calculations for consideration.*	

Internal FENZ Risk Reduction comments only: N/A

6. Diagram

Please provide a diagram identifying the location of the dwelling/s, the proposed firefighting water supply and the attendance point of the fire appliance to support your application.



FENZ RECOMMENDS A 3RD FFWS TANK.

Internal FENZ Risk Reduction comments only:

Acceptable but note comments 2b.

7. Vegetation Risk Reduction - Fire + Fuel = Why Homes Burn

Properties that are residential, industrial or agricultural, are on the urban–rural interface if they are next to vegetation, whether it is forest, scrubland, or in a rural setting. Properties in these areas are at greater risk of wildfire due to the increased presence of nearby vegetation.

In order to mitigate the risk of fire spread from surrounding vegetation to the proposed building and vice-versa, Fire Emergency New Zealand recommends the following;

I. *Fire safe construction*

Spouting and gutters – Clear regularly and consider screening with metal mesh. Embers can easily ignite dry material that collects in gutters.

Roof – Use fire resistant material such as steel or tile. Avoid butanol and rubber compounds.

Cladding – Stucco, metal sidings, brick, concrete, and fibre cement cladding are more fire resistant than wood or vinyl cladding.

II. *Establish Safety Zones around your home.*

Safety Zone 1 is your most import line of defence and requires the most consideration. Safety Zone 1 extends to 10 metres from your home, you should;

a) *Mow lawn and plant low-growing fire-resistant plants; and*
b) *Thin and prune trees and shrubs; and*
c) *Avoid tall trees close to the house; and*
d) *Use gravel or decorative crushed rock instead of bark or wood chip mulch; and*
e) *Remove flammable debris like twigs, pine needles and dead leaves from the roof and around and under the house and decks; and*
f) *Remove dead plant material along the fence lines and keep the grass short; and*
g) *Remove over hanging branches near powerlines in both Zone 1 and 2.*

III. *Safety Zone 2 extends from 10 – 30 metres of your home.*

a) *Remove scrub and dead or dying plants and trees; and*
b) *Thin excess trees; and*
c) *Evenly space remaining trees so the crowns are separated by 3-6 metres; and*
d) *Avoid planting clusters of highly flammable trees and shrubs*
e) *Prune tree branches to a height of 2 metres from the ground.*

IV. *Choose Fire Resistant Plants*

Fire resistant plants aren't fire proof, but they do not readily ignite. Most deciduous trees and shrubs are fire resistant. Some of these include: poplar, maple, ash, birch and willow. Install domestic sprinklers on the exterior of the sides of the building that are less 20 metres from the vegetation. Examples of highly flammable plants are: pine, cypress, cedar, fir, larch, redwood, spruce, kanuka, manuka.

For more information please go to https://www.fireandemergency.nz/at-home/the-threat-of-rural-fire/

If your building or dwelling is next to vegetation, whether it is forest, scrubland, or in a rural setting, please detail below what Risk Reduction measures you will take to mitigate the risk of fire development and spread involving vegetation?

7 (a) Vegetation Risk Reduction Strategy
Click or tap here to enter text.

Internal FENZ Risk Reduction comments only:

Acceptable

8. Applicant

Checklist	
☒	Site plan (scale drawing) – including; where to park a fire appliance, water supply, any other relevant information.
☒	Any other supporting documentation (diagrams, consent).

I submit this proposal for assessment.

Name: Nathan Walker Dated: 20/11/2025

Contact No.: 094383273

Email: nathan@rseng.co.nz

Signature: Nathan E G Walker

9. Approval

In reviewing the information that you have provided in relation to your application being approximately a Multi-site *square metre, Single Level dwelling/sub division, and non-sprinkler protected.*

The Community Risk Manager of Fire and Emergency New Zealand under delegated authority from the Fire Region Manager, Te Hiku, and the District Manager has assessed the proposal in relation to firefighting water supplies and the vegetation risk strategy. The Community Risk Manager does agree with the proposed alternate method of Fire Fighting Water Supplies. Furthermore, the Community Risk Manager agrees with the Vegetation Risk Reduction strategies proposed by the applicant.

Name: Greg Hartwell

Signature: Dated: 11/12/2025

P.P on behalf of the Community Risk Manager Northland Mitchell Brown

WORK IN PROGRESS

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

PROPOSED PAPAKAINGA DEVELOPMENT
CIVIL DRAWINGS - KAURI KAINGA
KAURI - STORMWATER MANAGEMENT PLAN

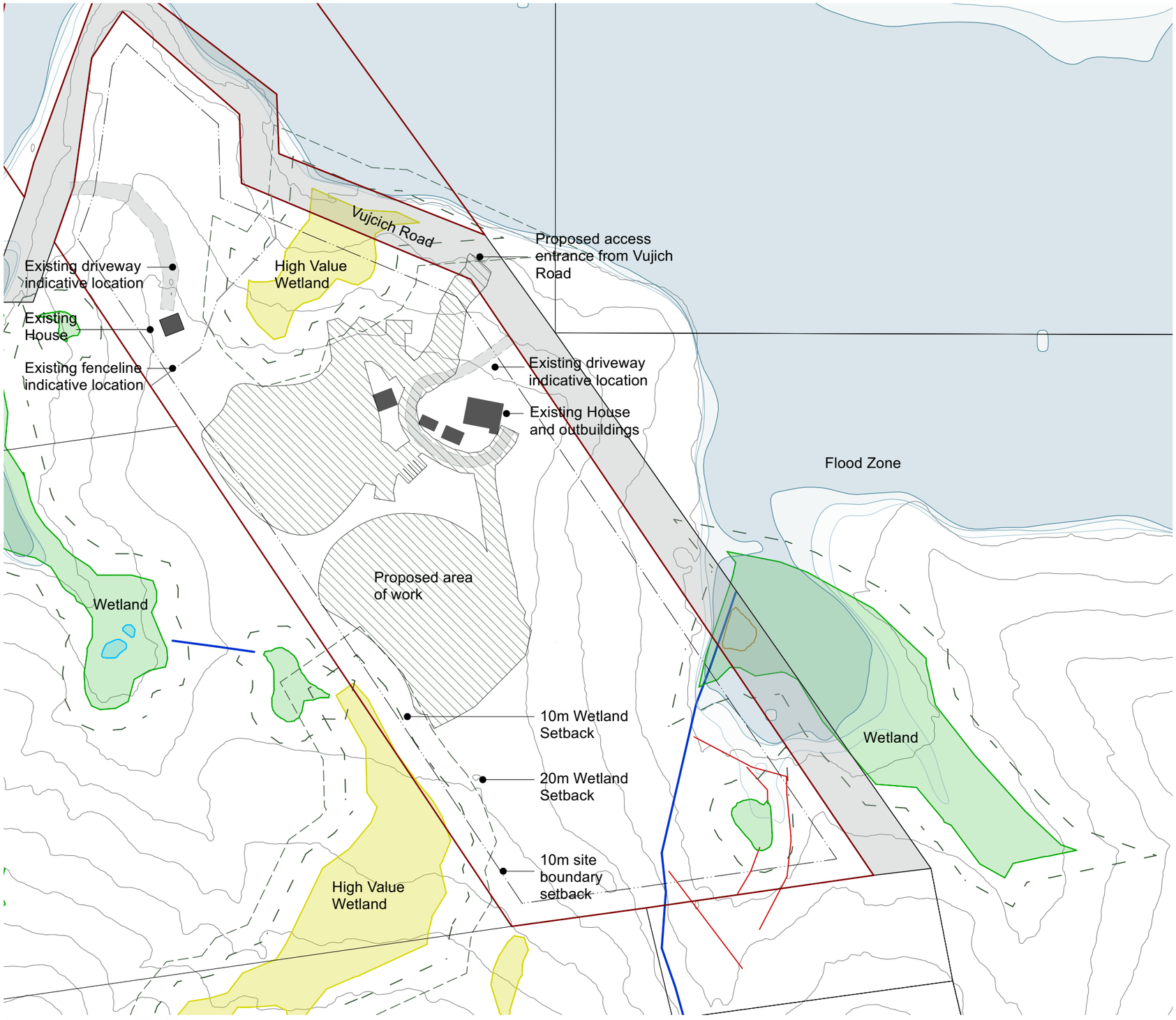
Client: NORTHLAND REGIONAL COUNCIL
Location: WHIRINAKI HOKIANGA

Date	Rev	Notes
22/09/2025	A	First issue

Drawn by: VDT | Reviewed by: NW | Approved by: MJ

Scale: AS SHOWN | Rev No: A
Original: A3 | Sheet No: C2-06
Job No: 19730

N:\02 Projects\Jobs 19000\19730 Whirinaki Papakainga Managed Retreat\CAD\DWG\19730 Civil Drawings Kauri Kainga\Sheet No. C2-06



Key

- Site boundary
- 10m Boundary Setback
- Existing Building
- Contours 5m
- 1 in 10 year flood
- 1 in 50 year flood
- 1 in 100 year flood
- Existing Road
- Wetland
- High Value Wetland
- Pond
- Stream
- Drain
- 10m Setback
- 20m Setback
- Proposed area of work approx 14300m²

Total Site Area:	95,228m²	
Existing Building Coverage	450m²	**0.5%**
Existing Impermeable Area	1200m²	**1.3%**
Total Existing Permeable Area	93,978m².	**97.2%**

Identifer: NA878/274
Legal Des: Whirinaki 4A Block
Area: 95,228m²

REVISION	DATE	NOTE
v1	06/11/2025	For Resource Consent

PROJECT: Whirinaki Managed Retreat
PROJECT #: TU_082
CLIENT: Northland Regional Council
DATE #: 31/10/2025
SCALE @ A3: 1:2000
DWG #: Kau 010
DWG: **Kauri Proposed Area of Work**
DRAWN: KC
CHKD: ZA
REVISION: v1

0 50 75 100 125 150 m

The Urbanist.
Urban Design + Planning + Landscape

18 000

8 000

DINING
3 590 X 3 005

KITCHEN
2 720 X 3 005

P

F

BATH
2 480 x 2 960

WC
980 x
1 890

LAUNDRY
1 651 x 2 960

BEDROOM 4
3 250 x 2 960

ENSUITE
2 080 x 2 180

ROBE
2 080 X 1 860

BEDROOM 3
3 080 x 3 580

BEDROOM 2
3 080 x 3 580

BEDROOM 1
3 680 x 3 580

LIVING
7 020 x 4 795

ENTRY
1 190 X 1 190

DECK
18 000 X 2 080

Ecological Impact Assessment for a Proposed Managed Retreat and Papakāinga Development (Kauri Block) in Whirinaki, Far North District

Contract Report No. 7651a

Providing outstanding ecological services to sustain and improve our environments

Wildlands

Ecological Impact Assessment for a Proposed Managed Retreat and Papakāinga Development (Kauri Block) in Whirinaki, Far North District

Contract Report No. 7651a

October 2025

Project Team:

Brent Henry – Field survey, report author and technical adviser
Hayley Roos – Field survey, report review author
Sarah Budd– Report review

Prepared for:

Northland Regional Council
36 Water Street,
Whangārei 0110

Reviewed and approved for release by:

Sarah Budd
Principal Ecologist, Auckland Ecology Team Leader and Coordinator
Wildland Consultants Ltd
31/10/2025

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Auckland Office
12 Nixon Street, Grey Lynn, P.O. Box 46299, Herne Bay, Ph 09-360-6083

Head Office
99 Sala Street, PO Box 7137, Te Ngae, Rotorua Ph 07-343-9017 Email: rotorua@wildlands.co.nz

www.wildlands.co.nz

Contents

1.0 Introduction

The Whirinaki valley, located in Te Tai Tokerau, represents a culturally significant rohe that is home to three marae, two churches, a community centre, and approximately 80 homes on 100% Māori-owned land. The community faces significant flooding challenges, with the most severe event recorded in January 1999, causing widespread damage to homes and cultural sites.

Current flood modelling indicates that even a 10-year flood event can inundate parts of the valley, with 50- and 100-year floods potentially causing water depths up to 2.2 metres. In response to these risks, Northland Regional Council, in partnership with Te Hikutū hapū, is undertaking an assessment of managed retreat options for the Whirinaki community. This initiative represents an innovative managed retreat for Te Tai Tokerau.

High-level assessments of options for the project have resulted in the development of a master plan that includes 12 new homes within the papakāinga block referred to as the "Kauri Block", with associated community facilities and business operations. An Ecological Impact Assessment (EcIA) is now required to identify potential adverse ecological effects that may result from the proposed Kauri Block development, and management measures require to avoid, minimise, remedy, offset, or compensate for those effects.

The Urbanist Ltd, on behalf of Northland Regional Council, has therefore engaged Wildland Consultants Ltd (Wildlands) to prepare an EcIA for the Kauri Block, which will be included as part of a resource consent application.

2.0 Project Scope

The scope of this project is to provide an EcIA for the part of the papakāinga development referred to as the Kauri Block. This report includes:

- Maps and descriptions of the vegetation and habitats present (including streams and wetlands).
- An assessment of the ecological values of the vegetation and habitats identified.
- An assessment of the potential effects of the proposed Kauri Block development on key ecological features in the context of the current statutory environment (including the relevant sections of the NES-F).
- Recommendations to avoid, minimise, remedy, offset, or compensate for the potential ecological effects of the proposed development.

3.0 Ecological Context

3.1 Hokianga ecological district

3.1.1 Overview

The Hokianga Ecological District covers approximately 86,000 hectares, encompassing the Hokianga Harbour, Whangape and Herekino Harbours and surrounding lands. North of the Hokianga Harbour, the boundary of the ecological district follows the inland edge of the Warawara Range, taking in the coastal dune system of Hokianga North Head to Pawarenga, then the inland edge of the Warawara Range, and then a path east of the coastal hills between the Whangape and Herekino Harbours. To the northeast, the boundary of the ecological district borders the southern boundary of Herekino Forest to just south of Diggers Valley before skirting southwest of the Maungataniwha Range through Broadwood, Mangamuka and Umawera to the hill country of Rangiahua in the east. South of the Hokianga Harbour, the eastern boundary follows the Punakitere-Waima River system as far south as Three Bridges then turns west to follow the northern edge of the Waima/Mataraua Range to rejoin the harbour at Pakanae.

3.1.2 Vegetation

Historic

Prior to human settlement, most of Hokianga Ecological District was forested, apart from the huge dunes on the northern side of the harbour entrance and extensive wetlands on the harbour margins.

Some of the earliest European visitors noted that kauri abounded “as far as my eye could reach” (Ensign McCrea from the *Dromedary* in 1820 (Sale 1978)). A later party recorded “the lofty and luxuriant cowry grows in great profusion close to the water’s edge” (Sale 1978).

In 1851, Jolliffe, surgeon on the ship *Pandora*, wrote:

> “the greater part of the low ground and the hills invariably are all most thickly covered with almost impenetrable forests of fine timber trees particularly the “kauri” and other Pines [rimu and kahikatea]; here and there are cleared patches of land well planted by the natives with corn, potatoes, taro, onions and many other useful vegetables (Lee 1987)”

Heavy growth of kauri grew close to the Mangamuka, Orira and Waima Rivers (Lee 1987).

Harakeke (*Phormium tenax*) was common in the wetlands.

Present day

Today few large tracts of forest remain, representing fragmented remnants of the former extensive woodlands. However, the remaining forest remnants fulfil a collectively significant role by providing ‘stepping stones’ or partial linkages between the large forest tracts, e.g., between Herekino Forest in Ahipara Ecological District and Raetea Forest in the Maungataniwha Ecological District. In the Broadwood area, there are numerous sites in close proximity creating linkages from Raetea Forest to Warawara Forest in the Ahipara Ecological District; other linkages occur from Tapuwae through Mangamuka to Puketi, and from Mataraua, east into Tangihua and Kaikohe Ecological Districts.

A feature of the ecological district is the persistence of the emergent structure in many of the forests remaining, in comparison with that remaining in other ecological districts in the Far North. Research efforts over the last decade (O'Donnell and Dilks 1987; Spurr *et al*. 1992; Warburton *et al*. 1992) have clearly indicated the importance of large, old, emergent trees, especially rimu, to a variety of bird species. Bat species show a preference for old podocarps, kauri, and beech for roosts (O'Donnell 2001). As most of the forests in Northland have been heavily logged, especially for emergent podocarp and kauri, any remaining large trees assume an even greater ecological importance. Several of the sites identified by Conning *et al.* (2003) are characterised by emergent trees, which contributes considerably to their ecological significance.

Kahikatea is more conspicuous in Hokianga Ecological District than in adjacent ecological districts, especially those in Eastern Northland, and kauri is less common.

Freshwater wetlands are rare. Significant areas of mangrove forest, tidal flats and coastline have also been lost or modified through stop-banking, clearance and grazing. For example, approximately 27 percent of the Hokianga Harbour's intertidal zone has been lost to reclamation, while the vegetated intertidal zone has been reduced by 45 percent (Chapman 1978). A noticeable feature of the ecological district is the small number of wetlands outside of the margins of the harbours.

Much of the remaining habitat in the Hokianga Ecological District comprises secondary shrubland and forests on steep, dissected hillsides, uneconomical for production, but which was extensively cleared in the heyday of agricultural subsidies.

However, the dominating feature of the ecological district is the Hokianga Harbour itself, New Zealand's fourth largest harbour, and the associated wetlands, riparian forests and shrublands adjacent to it, which reflect a coastal influence, and are of great ecological importance.

There are also very few records of plant species that are threatened or regionally significant compared to adjacent ecological districts.

3.2 Significant Natural Areas

Wildland Consultants was engaged by the three District Councils in 2019 to identify, map, and describe significant natural areas (SNAs) in Northland as a desktop exercise using existing information, aerial photographs, and a brief reconnaissance from some of the main roads in the Region (Wildland Consultants 2019). The SNAs identified to date remain indicative (or proposed) as they have not yet been included in any of the district plans. Two proposed SNAs (FNL032-Vujcich Road Swamp and FNK001 Northern Mataraua Forest) occur within or immediately adjacent to the Kauri Block.

4.0 Methods

4.1 Desktop assessment

A desktop assessment of the proposed master plan was completed prior to undertaking the site assessment to identify key areas requiring on-site surveys, including streams, wetlands, ponds, and Significant Natural Areas (SNAs). Available GIS information and fauna records were also reviewed.

4.2 Field survey

The site was surveyed between 7 to 10 July 2025, 21 to 23 July 2025, and on 16 October 2025, during which time all key vegetation and habitat types were assessed and mapped.

4.2.1 Streams

All watercourses throughout the area (including farm drains) were assessed according to the definitions outlined in the Proposed Northland Regional Plan (P-NRP), including:

***Ephemeral river or stream*:** Reaches with a natural bed level above the water table at all times, with water only flowing during and shortly after rain events, and which do not meet the definition of an intermittently flowing river.

Intermittently flowing river or stream: A river that is naturally dry at certain times of the year and has two or more of the following characteristics:

i. It has natural pools.

ii. It has a well-defined channel, such that the bed and banks can be distinguished.

iii. It contains surface water more than 48 hours after a rain event which results in stream flow.

iv. Rooted terrestrial vegetation is not established across the entire cross-sectional width of the channel.

v. It appears as a blue line on topographical maps at 1:50,000 scale.

Permanent river or stream: *The continually flowing reaches of any river or stream (*definition from Auckland Unitary Plan as not provided in the P-NRP*).*

Artificial watercourse: *A man-made channel constructed in or over land for carrying water and includes an irrigation canal, roadside drains and water tables, water supply race, canal for the supply of water for electricity power generation and farm drainage canals. It does not include a channel constructed in or along the path of any historical or existing river, stream or natural wetland.*

4.2.2 Wetlands

All potential freshwater wetland habitats were assessed against the wetland definitions (see below). Potential wetland areas were mapped and described, and freshwater habitat types were digitised onto aerial imagery using ArcGIS.

The Resource Management Act (1995) defines a **wetland** as "*permanently or intermittently wet areas, shallow water, and land/water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions, including within the coastal marine area*".

The NPS-FM defines a 'natural inland wetland' as:

Natural inland wetland - a wetland (as defined in the Act) that is not:

a. in the coastal marine area; or

b. a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or

c. a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or

d. a geothermal wetland; or

e. a wetland that:

i. is within an area of pasture for grazing; and

ii. has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology); unless

iii. the wetland is a location of a habitat of a threatened species identified under clause 3.8 of the NPS-FM, in which case the exclusion in (e.) does not apply.

According to this definition, the prerequisite for an area to be classed as a 'natural inland wetland' is for the area to meet the wetland definition under the RMA and not meet any of the five exclusions of the NPS-FM. This definition requires both suitable hydrological conditions and that plants that are adapted to wet conditions are dominant in the area relative to exotic pasture species.

Guidance provided by the Ministry for the Environment (2022) has clarified that "*The purpose of the NPS-FM pasture exclusion clause (exclusion (e) in the definition above) is to support the continued use of pasture for grazing purposes. The exclusion is not targeted at pasture being converted for urban development or for other land uses*". As such, the pasture exclusion clause in the definition of natural inland wetland does not apply in this case, and effects on 'pasture wetlands' (if present) would also need to be assessed and managed.

The New Zealand vegetation tool for wetland delineation (Clarkson, 2013) has become the standard methodology to assess the presence of plants adapted to wet conditions. This methodology classifies all plant species that have been recorded in wetlands into five categories:

- OBL: Obligate. Almost always is a hydrophyte, rarely in uplands (estimated probability >99% occurrence in wetlands).
- FACW: Facultative Wetland. Usually is a hydrophyte but occasionally found in uplands (estimated probability 67–99% occurrence in wetlands).
- FAC: Facultative. Commonly occurs as either a hydrophyte or non-hydrophyte (estimated probability 34–66% occurrence in wetlands).
- FACU: Facultative Upland. Occasionally is a hydrophyte but usually occurs in uplands (estimated probability 1–33% occurrence in wetlands).
- UPL: Obligate Upland. Rarely is a hydrophyte, almost always in uplands (estimated probability <1% occurrence in wetlands).

Species that are classed as OBL, FACW, or FAC are considered hydrophytic and generally indicative of wetland habitat. The relative dominance of each species, and corresponding classification, can therefore determine whether an area should be defined as wetland. The hydric soils tool provides the methodology for assessing wetland soils in the field (Fraser *et al.*, 2018), and the criteria for identifying suitable wetland hydrology are outlined in the wetland hydrology tool (Ministry for the Environment, 2021). Areas with a dominance of hydrophytic vegetation, hydric soil characteristics, and the appropriate hydrological conditions can therefore, be defined as wetlands.

Assessments of vegetation, hydrology, and soils were undertaken for all potential wetland areas as per the guidance provided by the Ministry for the Environment (2020).

4.2.3 Terrestrial vegetation and fauna habitat surveys

During the July 2025 survey, all indigenous terrestrial vegetation or vegetation that could support indigenous fauna on the site was described, assessed for ecological values, and mapped in the field at a 1:4,100 scale. All described habitat types were then digitised onto aerial imagery (dated 2023-2025) using ArcGIS.

Targeted fauna surveys were beyond the scope of this report; however, the suitability of all vegetation across the site to provide habitat for key indigenous fauna species was assessed and all fauna species observed at the site were recorded. In addition, several online databases were assessed to determine likely presence of indigenous fauna across the area, including the Department of Conservation Bat and Lizard databases, eBird, and iNaturalist.

4.3 Evaluation of ecological effects

The Environment Institute of Australia and New Zealand (EIANZ) guidelines for undertaking assessments of ecological effects in New Zealand (Roper-Lindsay *et al.* 2018) have been referred to when preparing this report. Ecological values of affected vegetation and habitats and the magnitude and extent of the potential adverse ecological effects associated with the proposed Kauri Block development have been evaluated using the methods described in the EIANZ guidelines. Professional opinion and expertise have been applied throughout the assessment to ensure that the results are ecologically robust.

5.0 Vegetation and Habitat Types

5.1 Overview

Six vegetation types were identified within the Kauri Block. This includes three wetland vegetation types (Figure 1). A further wetland vegetation type occurs immediately west of the Kauri Block and has also been described below (Vegetation Type 6, Figure 1).

Soil and hydrology indicators for each vegetation type are also provided below. Most wetlands were dominated by obligate (OBL) and/or facultative wetland (FACW) species and satisfied the rapid test for hydrophytic vegetation and have been assessed as wetlands as per the guidance provided by the Ministry for the Environment (2020). Wetland Delineation Data Sheets are provided for wetlands that did not satisfy the rapid test. Wetland Data Sheets can be provided for all wetlands described below, if requested.

5.2 Terrestrial habitats

5.2.1 Vegetation Type 1: exotic forest *c.5.11 hectares*

Vegetation Type 1 comprises exotic forest dominated by eucalyptus (*Eucalyptus* sp.), which is emergent over a canopy of macadamia (*Macadamia* sp.), sheoak (*Casuarina* sp.), and Tasmanian blackwood (*Acacia melanoxylon*) (Plates 1 and 2). Radiata pine (*Pinus radiata*) is scattered throughout, but is locally common along the southern boundary, where it forms a shelterbelt. Understorey species predominantly include mānuka (*Leptospermum scoparium*), tī kōuka (*Cordyline australis*), karamū (*Coprosma robusta*), hangehange (*Geniostoma ligustrifolium*), harakeke (*Phormium tenax*), ponga (*Alsophila dealbata*), nīkau (*Rhopalostylis sapida),* hangehange (*Geniostoma ligustrifolium* var. *ligustrifolium*), Chinese privet (*Ligustrum sinense*), and woolly nightshade (*Solanum mauritianum*) (Plate 2).

Plate 1 – Vegetation Type 1. Eucalyptus is emergent over a canopy of macadamia, sheoak, and Tasmanian blackwood. Kauri Block. 8 July 2025.

Plate 2 – Vegetation Type 1. Eucalyptus is emergent over a canopy of macadamia and Tasmanian blackwood, with understorey vegetation in the foreground comprising nīkau, tī kōuka, ponga and hangehange. Kauri Block. 8 July 2025.

5.2.2 Vegetation Type 2: exotic grassland *c.*7,500*m*^{2}

Exotic grassland is located in two small areas at the northern and southern boundaries of the Kauri Block). Kikuyu (*Cenchrus clandestinus*) dominates (Plate 3), with cocksfoot (*Dactylis glomerata*), creeping buttercup , and soft rush (*J. effusus*) also common. Blackberry (*Rubus fruticosus*), and pampas (*Cortaderia selloana*) occur frequently.

Plate 3 – Vegetation Type 2. Kikuyu dominated grassland with blackberry.. Kauri Block. 8 July 2025.

5.3 Wetland habitats

5.3.1 Vegetation Type 3: reed sweetgrass grassland *c.*400*m*^{2}

Vegetation Type 3 is dominated by reed sweetgrass (*Glyceria maxima*; OBL) (Plate 4). Surface water and saturated soils were present. Mercer grass (*Paspalum distichum* - FACW), creeping buttercup (FAC) and creeping bent (*Agrostis stolonifera* - FACW) are common, with frequent blackberry (FAC), and water pepper (*Persicaria hydropiper*; FACW) (Plate 5).

Plate 4 – Vegetation Type 3. Wetland dominated by reed sweet grass and mercer grass. Kauri Block. 9 July 2025.

5.3.2 Vegetation Type 4: spike sedge-soft rush sedgeland *c.*2,200m^2

Vegetation Type 4 is a small wetland along a shallow drain dominated by spike sedge (*Eleocharis acuta*; OBL), wī (*Juncus sarophorus*-FACW), soft rush (FACW), and creeping buttercup (FAC). Blackberry (FAC), and swamp millet (*Isachne globosa*; OBL) are frequent (Plate 5). Surface water was present in some areas and soils were saturated throughout.

Plate 5 – Vegetation Type 4. A small wetland located near the southern boundary of the site, along a shallow drain, and is dominated by Spike sedge, wī, Mercer grass, and swamp millet. Kauri Block. 9 July 2025.

5.3.3 Vegetation Type 5: Machaerina rubiginosa-Swamp millet sedgeland

The wetland habitat of Vegetation Type 5 is dominated by *Machaerina rubiginosa* (OBL) and swamp millet (OBL). Swamp kiokio (*Blechnum minus*; FACW), toetoe-rautahi (*Carex lessoniana*; FACW) and raupō (*Typha orientalis*; OBL) are also locally abundant. Rārahu (*Pteridium esculentum*; FACU) is occasional. Mānuka (FAC), harakeke (*Phormium tenax, FACW*), kahikatea (FAC) tī kōuka (FAC) and pampas are frequent around the wetland margins (Plates 7 and 8). Soils were saturated with an area of inundation.

Plate 7 – Vegetation Type 5 is dominated by swamp millet and *Machaerina rubiginosa*. Swamp kiokio is locally abundant, and pampas is frequent. Kauri Block. 9 July 2025.

Plate 8 – Vegetation Type 5 is dominated by *Machaerina rubiginosa*, and swamp millet. Raupō is locally abundant and pampas is frequent. Kauri Block. 9 July 2025.

5.3.1 Vegetation Type 6: kahikatea-mānuka scrub

Kahikatea-mānuka-scrub occurs adjacent to, but outside the boundary of the Kauri Block (Figure 2). This area features a canopy dominated by kahikatea (FAC) and mānuka (FAC). Trees, shrubs, and saplings are common, including and tī kōuka (FAC). The ground tier vegetation is diverse, comprising a mix of soft rush (FACW), wī (FACW), creeping buttercup (FAC), *Oplismenus hirtellus* (FACU), *Deparia petersenii* (FAC), *Machaerina rubiginosa* (OBL), swamp millet (OBL), lotus (FAC), and Yorkshire fog (*Holcus lanatus*; FAC) (Plate 9). Surface water and saturated soils were present.

Plate 9 – Vegetation Type 6 on the adjacent site. Mānuka, tī kōuka, and kahikatea present within the canopy. Pampas is common in the understorey. 9 July 2025.

5.3.2 Vegetation Type 7: raupō reedland *c.15,300m²*

At the northern end of the Kauri Block (north of Vujcich Road) there is a large wetland system that is dominated by Raupō reedland swamp. This wetland, known as FNL032-Vujcich Road Swamp, has been identified as a potential SNA (Wildland Consultants 2019).

Vegetation Type 7, which is well outside the proposed footprint, will not be affected by the construction activities of the Papakāinga (Figure 2).

5.4 Aquatic habitats

5.4.1 Permanent stream

A permanent stream flows northeast across the southwestern corner of the site (Figure 2). The stream bed is well-defined, with a width ranging from *c.* 0.5 to 1 metres. Water flow was moderate throughout the stream, with small pools in the Kauri Block. Given the volume of water present in the stream, the well-defined bed and bank of the stream, it is likely that the stream flows continuously all year round.

Plate 11 – Permanent stream flowing into a small pool. Kauri Block. 9 July 2025.

5.4.2 Drains

There are several old drains located throughout the site (Figure 2). None of the drains within the Kauri Block had flowing or pooling water. Most of the drains were covered with organic debris, with some rooted terrestrial vegetation. There is no evidence of substrate sorting or flowing water within any of the drains (plate 12).

Plate 12 – Old drain covered with organic debris and containing some rooted terrestrial vegetation. No sign of substrate sorting or flowing water. Kauri Block. 16 October 2025.

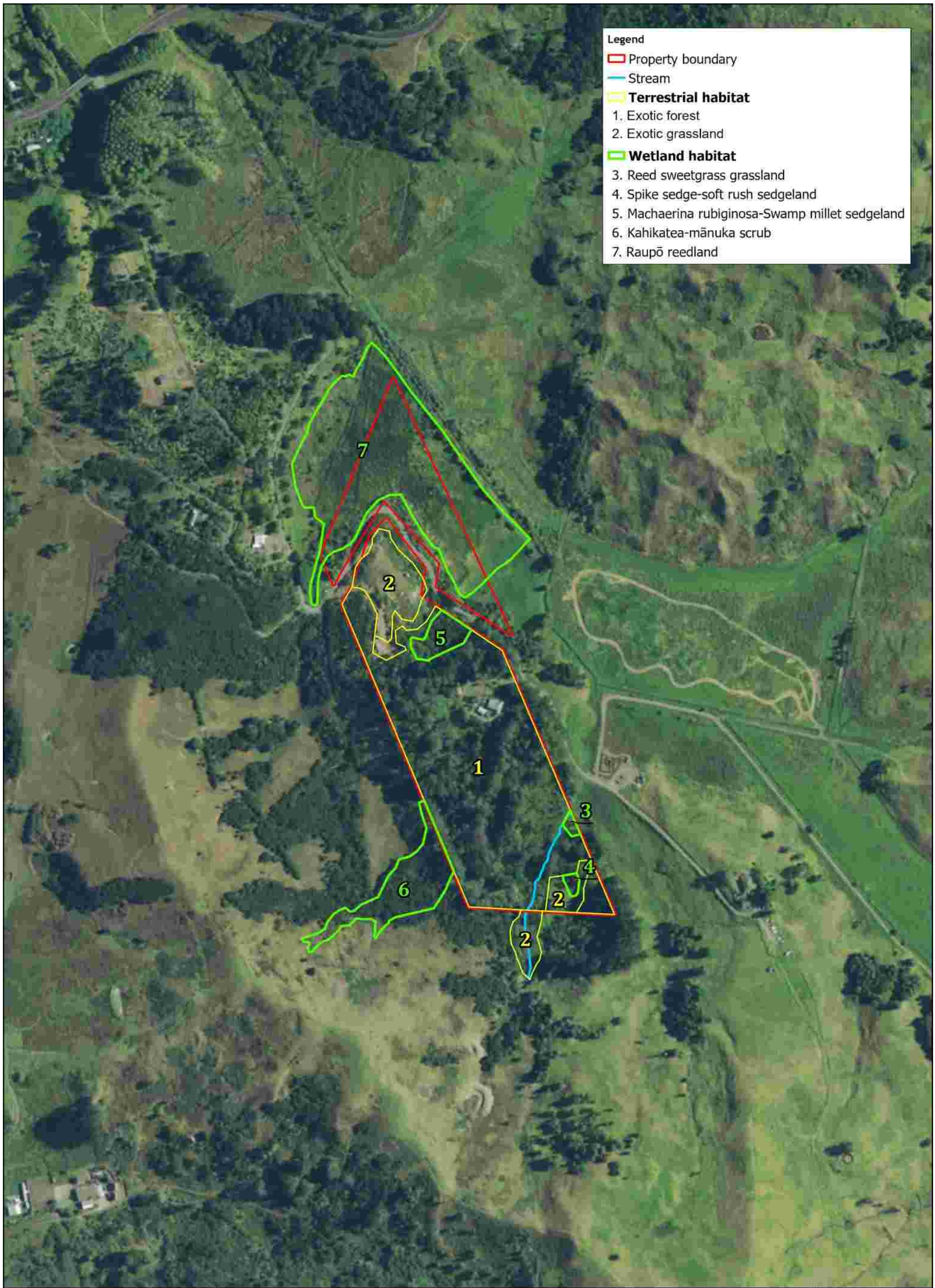

Figure 1. Vegetation and habitat types at Kauri Block

6.0 Indigenous Fauna

6.1 Avifauna

While avifauna were not specifically surveyed as part of this assessment, incidental observations were recorded during the site survey. Seven indigenous and six exotic bird species were observed (Table 1). All indigenous species recorded are classified as Not Threatened by Robertson *et al.* (2021). The site may also provide habitat for wetland bird species such as the 'Threatened – Nationally Critical' matuku-hūrepo/bittern (*Botaurus poiciloptilus*) and the 'Declining' pūweto/spotless crake and kotoreke/marsh crake. All indigenous species recorded are classified as Not Threatened by Robertson *et al.* (2021). There is one iNaturalist record of a Mātātā/Fernbird (*Bowdleria punctata vealeae*; 'At Risk/ Declining') within five kilometres of the Kauri Block.

Table 1 – Avifauna species confirmed present within Kauri Block.

Species Name	Common Name	Threat Classification	Presence
Todiramphus sanctus	Kōtare/sacred kingfisher	Not Threatened	Recorded during survey
Porphyrio melanotus	Pūkeko	Not Threatened	Recorded during survey
Rhipidura fuliginosa	Fantail/Pīwakawaka	Not Threatened	Recorded during survey
Tadorna variegata	Pūtangitangi/Paradise shelduck	Not Threatened	Recorded during survey
Gerygone igata	Riroriro/grey warbler	Not Threatened	Recorded during survey
Zosterops lateralis	Tauhou/silvereye	Not Threatened	Recorded during survey
Vanellus miles	Spur-wing plover	Not Threatened	Recorded during survey
Turdus merula	Blackbird	Introduced	Recorded during survey
Fringilla coelebs	Chaffinch	Introduced	Recorded during survey
Carduelis carduelis	Goldfinch	Introduced	Recorded during survey
Gymnorhina tibicen	Magpie	Introduced	Recorded during survey
Acridotheres tristis	Myna	Introduced	Recorded during survey
Turdus philomelos	Song thrush	Introduced	Recorded during survey
Botaurus poiciloptilus	Matuku-hūrepo/bittern	Nationally Critical	Not recorded, but suitable habitat present
Porzana tabuensis	Pūweto/Spotless crake	Declining	Not recorded, but suitable habitat present
Porzana pusilla	Kotoreke/Marsh crake	Declining	Not recorded, but suitable habitat present
Bowdleria punctata vealeae	Mātātā/Fernbird	Declining	iNaturalist record within five kilometres

6.2 Aquatic fauna

Aquatic fauna were not specifically surveyed as part of this assessment, and none were recorded during the site surveys. A search of the New Zealand Freshwater Fish Database (NIWA 2025) produced records of eight indigenous fish species and two freshwater invertebrate species within the nearby Omanaia River catchment (Table 2). Longfin eel (*Anguilla dieffenbachii*), and īnanga (*Galaxias maculatus*) are classified as 'At Risk – Declining', and Shotjaw kokopu (*Galaxias postvectis*) is classified as Threatened-Nationally Vulnerable by (Dunn *et al.*, 2018).

No aquatic fauna habitats occur within the building footprint of the Kauri block.

Table 2 – Aquatic fauna species recorded within the Omanaia Stream catchment (NIWA 2025).

Species Name	Common Name	Threat Classification
Anguilla australis	Shortfin eel	Not Threatened
Anguilla dieffenbachii	Longfin eel	At Risk – Declining
Galaxias fasciatus	Banded kōkopu	Not Threatened
Galaxias maculatus	Inanga	At Risk – Declining
Galaxias postvectis	Shortjaw kokopu	Threatened – Nationally Vulnerable
Gobiomorphus basalis	Cran's bully	Not Threatened
Gobiomorphus cotidianus	Common bully	Not Threatened
Gobiomorphus huttoni	Redfin bully	Not Threatened
Paranephrops planifrons	Koura (freshwater crayfish)	Not Threatened
Paratya curvirostris	Freshwater Shrimp	Not Threatened

6.3 Long-tailed bats

The landscape surrounding the proposed papakāinga is relatively under-surveyed for bats. Long-tailed bats are classified as 'Threatened – Nationally Critical' by O'Donnell *et al*. (2023) and are present throughout the wider landscape. They are known to use forest edge and riparian areas in both indigenous and exotic forest types, and they are also adapted to roosting in exotic tree species such as pine and *Eucalyptus* species.

The nearest long-tailed bat record in the Department of Conservation database is approximately nine kilometres southeast of the Kauri Block.

It is likely that long-tailed bats are present in the Kauri Block (at least occasionally) and may be using the potential bat roost trees features observed on site (including the large eucalyptus within the exotic forest vegetation).

6.4 Herpetofauna

Lizards were not specifically surveyed as part of this assessment, and none were recorded during the site surveys. However, a search of the Department of Conservation herpetofauna database found six species: three gecko and three skink species, within 12 kilometres of the site (Table 3). The Kauri Block is noted to be within the home range of four other gecko species, which have the potential to be present.

Ground-dwelling skink species such as copper skink (*Oligosoma aeneum*) and ornate skink (*O. ornatum*) are likely to be present, given the abundance of dense ground cover, leaf litter and woody debris at the site. Arboreal gecko species are often found in indigenous scrub vegetation, similar to the understorey vegetation found at the Kauri block. All indigenous lizards are protected by the Wildlife Act (1953).

Table 3 – Lizard species recorded in the Department of Conservation Herpetofauna database (October 2025) within a 12-kilometre radius of the Kauri Block. Threat classifications taken from Hitchmough *et al.* (2021).

Species Name	Common Name	Threat Classification, and Determining Factors	Likely Presence
Oligosoma aeneum	Copper skink	At Risk – Declining	Very Likely
Oligosoma ornatum	Ornate skink	At Risk – Declining	Likely
Oligosoma smithi	Shore skink	At Risk – Declining	Unlikely
Mokopirirakau granulatus	Forest gecko	At Risk – Declining	Likely
Nautinus sp.		At Risk – Declining	Likely
Dactylocnemis pacificus	Pacific gecko	Not Threatened, however rare and cryptic species	Likely
Dactylocnemis Matapia Island	Matapia gecko	At Risk – Declining	Unknown
Dactylocnemis North Cape	Te Paki gecko	At Risk – Declining	Unknown
Naultinus grayii	*Northland green gecko*	At Risk – Declining	Unknown
Naultinus elegans	Elegant gecko	At Risk – Declining	Unknown

7.0 Assessment of Ecological Values

The ecological values of the vegetation types and streams mapped within the Kauri Block are described in more detail below.(Tables 4 and 5) These assessments are based on the key ecological attributes identified in the EIANZ guidelines (Roper-Lindsay *et al*. 2018) and are further informed by professional opinion and expertise.

Table 4 – Ecological value of vegetation and habitat types.

Vegetation/Habitat Type	Attribute to be Considered	Assigned Value
Vegetation Type 1 (Exotic Forest).	**Representativeness** – Not representative of an indigenous ecosystem type, although understorey species are predominantly indigenous.	Low
	Rarity/distinctiveness – Long-tailed bats (Threatened – Nationally Critical), indigenous birds, and indigenous lizards (At Risk – Declining) may be present.	High
	Diversity and pattern – Low level of indigenous plant diversity and habitat complexity.	Low
	Ecological context – Highly modified habitat subject to edge effects. Provides good habitat complexity and forms part of a network of habitats for indigenous fauna. However, areas of exotic trees are relatively common in agricultural landscapes.	Low
	Overall Ecological Value	**Low**
Vegetation Type 2: Exotic grassland.	**Representativeness** – Not representative of an indigenous ecosystem type.	Negligible
	Rarity/distinctiveness – Not an indigenous ecosystem and minimal indigenous vegetation. Rank grass areas may provide habitat and/or refuge for 'At Risk' indigenous lizards.	Low
	Diversity and pattern – Dominated by exotic plants.	Negligible
	Ecological context – Dominated by exotic plants. Grassland habitats are abundant in agricultural landscapes.	Negligible
	Overall Ecological Value	**Negligible**
Vegetation Types 3: Reed sweetgrass grassland (Natural inland wetlands dominated by indigenous and exotic species).	**Representativeness** – Not representative of an indigenous ecosystem type.	Negligible
	Rarity/distinctiveness – While wetlands are a threatened habitat type, highly degraded and grazed wetlands are relatively common in agricultural landscapes. Such wetlands are very common in the local area.	Low
	Diversity and pattern – Low level of indigenous plant diversity and habitat complexity.	Low
	Ecological context – Ecological Context – Contribute to a network of available wetland habitats in the wider landscape. Wetland habitats also provide important services for local aquatic habitats, including: • flood flow attenuation • water filtration • groundwater replenishment • sediment and nutrient retention	Moderate
	Overall Ecological Value	**Low**

Vegetation/Habitat Type	Attribute to be Considered	Assigned Value
Vegetation Type 4 Spike sedge, soft rush rushland (Natural inland wetlands dominated by indigenous and exotic species).	**Representativeness** – Dominated by indigenous and exotic species. Exotic species are more abundant than indigenous species.	Low
	Rarity/distinctiveness – While wetlands are a threatened habitat type, highly degraded and grazed wetlands are relatively common in agricultural landscapes. Such wetlands are very common in the local area.	Low
	Diversity and pattern – Low level of indigenous plant diversity and habitat complexity.	Low
	Ecological context – Located in a paddock of exotic grasses in a depression adjacent to old drains, and is hydrologically connected to Vegetation Type 3 via old drains. Contribute to a network of available wetland habitats in the wider landscape. Wetland habitats also provide important services for local aquatic habitats, including: • flood flow attenuation • water filtration • groundwater replenishment • sediment and nutrient retention However, the ability of these wetlands to provide these services is reduced as a result of degradation from grazing and pugging	Moderate
	Overall Ecological Value	**Low**
Vegetation Type 5 Machaerina Rubiginosa, Swamp millet sedgeland (Natural inland wetlands dominated by indigenous species).	**Representativeness** – Dominated by indigenous species. Exotic species, including pest plants, are still present.	Moderate
	Rarity/distinctiveness – Wetlands are a threatened habitat type and indigenous dominant wetlands are rare and ecologically distinctive.	High
	Diversity and pattern – High level of indigenous plant diversity and habitat complexity.	High
	Ecological context – Contiguous with surrounding indigenous forest and scrub. Contributes to a network of indigenous wetland habitats in the wider landscape.	High
	Overall Ecological Value	**High**
Vegetation Type 6 (Kahikatea-mānuka-soft rush scrub). (Natural inland wetlands dominated by indigenous species).	**Representativeness** – Primarily dominated by indigenous species in the canopy and understorey. The groundcover tier comprises predominantly exotic species, although indigenous species are present.	Moderate
	Rarity/distinctiveness – Wetlands are a threatened habitat type and indigenous dominant wetlands are rare and ecologically distinctive	High
	Diversity and pattern – Moderate level of indigenous plant diversity and habitat complexity.	Moderate
	Ecological context – Contiguous with indigenous forest and scrub. Contributes to a network of wetland habitats in the wider landscape.	High
	Overall Ecological Value	**High**

Vegetation/Habitat Type	Attribute to be Considered	Assigned Value
Vegetation Type 7 Raupō reedland (Natural inland wetland).	**Representativeness** – Dominated by indigenous species. Exotic species, including pest plants, are still present. A portion of the larger area that represents an indigenous ecosystem type (Raupō reedland; WL19).	High
	Rarity/distinctiveness – Wetlands are a threatened habitat type and indigenous dominant wetlands are rare and ecologically distinctive. Raupō reedland ecosystems are classified as Endangered by IUCN (Singers et al. 2017).	High
	Diversity and pattern – Expected level of indigenous plant diversity and habitat complexity for the ecosystem type.	High
	Ecological context – Contiguous with surrounding indigenous forest and scrub. Contributes to a network of indigenous wetland habitats in the wider landscape.	High
	Overall Ecological Value	**High**

Table 5 – Ecological value assessment of freshwater habitats.

Vegetation/Habitat Type	Attribute to be Considered	Assigned Value
Permanent streams.	**Representativeness** – Catchment is highly modified due to agricultural land use.	Low
	Rarity/distinctiveness – May provide habitat for indigenous fish species classified as At Risk-Declining (e.g., longfin eel).	Moderate
	Diversity and pattern – Habitat heterogeneity, complexity, and patterns disrupted by pugging and road side drainage along of Vujcich Road.	Low
	Ecological context – Instream habitats disrupted by pugging. Some reaches shaded by indigenous canopy.	Moderate
	Overall Ecological Value	**Moderate**

8.0 Statutory Context

8.1 Wildlife Act 1953

Irrespective of the level of effects on indigenous fauna described above, all indigenous birds, lizards and bats are protected under the Wildlife Act (1953). A permit under the Wildlife Act must be obtained from the Department of Conservation before any indigenous birds, lizards or bats and/or their habitats can be disturbed, handled, translocated or killed.

The Wildlife Act Authority (WAA) must be applied for and approved by the Department of Conservation before activities affecting fauna may commence. This will require the submission of a species-specific management plan along with the appropriate application form.

8.2 Far North District Plan (FNDP) chapter 12: natural and physical resources

An objective of the FNDP is to protect the natural, cultural, heritage and landscape values and to promote the protection of the amenity and spiritual values associated with the margins of lakes, rivers and indigenous wetlands and the coastal environment, from the adverse effects of land use activities, through proactive restoration/rehabilitation/revegetation. The following sections are applicable to the development of the Kauri Block.

12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS

Any building and any impermeable surface must be set back from the boundary of lakes (where the lake bed has an area of less than 8ha), smaller continually flowing rivers (where the average width of the river bed is less than 3m) and wetlands, except that this rule does not apply to man-made private water bodies.

The setback shall be: (c) 30m for any wetland of 1ha or more in area.

12.7.6.1.4 LAND USE ACTIVITIES INVOLVING DISCHARGES OF HUMAN SEWAGE EFFLUENT

Land use activities which produce human sewage effluent (including grey water) are permitted provided that:

(b) the effluent is treated and disposed of on-site such that each site has its own treatment and disposal system no part of which shall be located closer than 30m from the boundary of any river, lake, wetland or the boundary of the coastal marine area.

The discharge may also require consent under the Regional Water and Soil Plan

The proposed papakāinga development does not comply with these standards and as such will require consent under the FNDP.

8.3 National Environmental Standards for Freshwater (NES-F) and National Policy Statement for Freshwater Management (NPS-FM)

The NPS-FM is a national policy statement that sits above the regional plan and is required to be addressed in resource consent applications. One of the overall objectives of the NPS-FM is to ensure that natural and physical resources are managed in a way that prioritises the health and well-being of water bodies and freshwater ecosystems (Objective 2.1(1)(a)).

The proposal will need to align with this objective and policy directives of the NPS-FM, including that there will be no loss in extent of natural inland wetlands resulting from the proposal, and the wetlands present will be protected and enhanced (Policy 2.2.6).

The following regulations provided in the NES-F apply to the development of this proposed papakāinga (Kauri Block). Potential effects of the development associated with these regulations are discussed in further detail below, along with recommendations to manage these effects.

Section 45C(1 and 2) (restricted discretionary activities) requires consent for any vegetation clearance and/or earthworks or land disturbance within, or within a 10 m setback from, a natural inland wetland if it is for the purpose of constructing an urban development.

Section 45C(3) (restricted discretionary activities) requires consent for any earthworks or land disturbance outside a 10 m, but within a 100 m setback from, a natural inland wetland if it (a) is for the purpose of constructing an urban development and (b) results in, or is likely to result in, the complete or partial drainage of all or part of the wetland.

Section 45C(4) (restricted discretionary activities) requires consent for the taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland if it (a) is for the purpose of constructing an urban development; (b) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and (c) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland.

Section 45C(5) (restricted discretionary activities) requires consent for the discharge of water into water within, or within a 100 m setback from, a natural inland wetland if (a) the discharge is for the purpose of constructing urban development; and (b) there is a hydrological connection between the discharge and the wetland; and (c) the discharge will enter the wetland; and (d) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.

8.4 National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB)

The NPS-IB is a national policy statement that sits above the regional plan and is required to be addressed in resource consent applications. The overall objective of the NPS-IB is to maintain and prevent further losses of indigenous biodiversity.

Fundamental concepts identified within the NPS-IB include protection of connectivity within and between habitats and ecosystems, and the prevention of fragmentation as a key adverse effect on indigenous biodiversity. Managing SNAs and other provisions in the NPS-IB include ensuring no reductions in connectivity between and buffering around ecosystems.

The activities proposed as part of the Kauri Block subdivision must be managed under Clause 3.18 as described below:

1. If a new subdivision, use, or development is outside an SNA and not on specified Māori land, any significant adverse effects of the new subdivision, use, or development on indigenous biodiversity outside the SNA must be managed by applying the effects management hierarchy.
2. All other adverse effects of any activities that may adversely affect indigenous biodiversity that is outside an SNA (other than indigenous biodiversity on specified Māori land (see clause 3.18)), must be managed to give effect to the objective and policies of this National Policy Statement.

Further, the NPS-IB identifies long-tailed bats as specified highly mobile fauna. Policy 15 of the NPS-IB requires that areas outside SNAs that support specified highly mobile fauna are identified and managed to maintain their populations across their natural range, and information and awareness of highly mobile fauna is improved. It is acknowledged that long-tailed bats are likely to use the SNA vegetation and may fly over the area of exotic grassland at the centre of the site where the development is proposed to be located. As such the proposal has been assessed against the provision for the protection of highly mobile fauna (Clause 3.20). This clause requires the identification of "highly mobile fauna areas" that fall outside SNAs. The definition of "highly mobile fauna area" provided in the NPS-IB is very broad and includes "*an area outside an SNA that is identified under clause 3.20 as an area used intermittently by specified highly mobile fauna*". Under this definition the current site, could be classified as a highly mobile fauna area for long-tailed bats.

However, it is clear that complete avoidance of all development within "highly mobile fauna areas" is not intended under the NPS-IB, as Clause 3.20 requires "*Local authorities must include objectives, policies, or methods in their policy statements and plans for managing the adverse effects of new subdivision, use, and development on highly mobile fauna areas, in order to maintain viable populations of specified highly mobile fauna across their natural range*". In this case the potential adverse effects of the development on long-tailed bats will be appropriately managed (as discussed below) and the development will not adversely affect the viability of the long-tailed bat population across their natural range.

9.0 Potential Ecological Effects and Recommended Actions to Avoid, Remedy, or Mitigate These Effects

The proposal includes developing a 12-dwelling papakāinga within the Kauri Block (Figure 2). While the proposed works avoid all freshwater and wetland habitats within the Kauri Block, the associated wastewater dispersal field is located within 10 metres of a natural inland wetland (Vegetation Type 6). The removal of all exotic forest (Vegetation Type 1) at the site is proposed, which will be remediated through indigenous revegetation planting.

Potential adverse ecological effects that are regulated under the NES-F, NPS-IB and Wildlife act include:

- Loss of habitat for indigenous fauna.
- Disturbance or harm to indigenous bats, birds, and lizards during construction.
- Wastewater discharge within 10 metres of a natural inland wetland.
- Increased impervious surfaces and associated stormwater discharges.
- Sediment discharge from earthworks during construction.

Each of these effects are described in detail below along with the proposed mitigation and compensation actions. A summary table (Table 6) is provided at the end of this section to illustrate the time frame, magnitude, value of the affected ecological feature, mitigation action proposed, and overall level of each of these effects.

9.1 Loss of habitat for indigenous fauna, including large exotic trees

Approximately 5.1 hectares of exotic forest is proposed to be removed to facilitate the development. This will include several large exotic eucalyptus sp., macadamia, she oak and radiata pine along with the mixed exotic and indigenous understorey.

There will be other forest habitat within the local area following this vegetation removal. As such, the magnitude of this effect is considered 'moderate'.

Remediation planting to address the loss of large exotic trees and provide ecological enhancement to the entire site will be guided by an Ecological Management Plan (EMP). To compensate for the lag time associated with the plantings' establishment, bat boxes can be installed and standing spars can be left where appropriate to provide additional habitat in the shorter term. Some woody debris and logs can be retained on site for lizard refuges while revegetation planting is established. All plants to be planted must be locally sourced. Once the plants are established, the overall ecological value of terrestrial vegetation will be improved from its current state. If these recommendations are implemented, the final level of effect will be 'low'.

9.2 Harm to indigenous fauna

9.2.1 Long-tailed bats

Large trees proposed for clearance across the site likely contain potential bat roost features, and it is likely bats use the site. Bats can be injured or killed if a tree is felled while they are roosting in it. As many bats can be found in one roost, felling even one tree with bats present could harm and/or kill enough bats to adversely affect the local population. This risk is even higher during the pupping season (Late November to early January, inclusive), as females and their pups aggregate in large colonies, and pups are unable to fly so cannot evacuate the roost if the tree is felled.

A bat survey is considered unnecessary for the site given it is highly likely bats are present. Instead, a Bat Management Plan (BMP) should be prepared and implemented prior to any tree felling. The objective of the bat management plan is to outline the proposed measures and protocols to manage potential adverse effects on bats associated with the development.

The methods used to prepare the BMP will include:

- Undertake a site visit to thoroughly inspect all trees over 15 centimetres in diameter within the clearance area and assess their potential as bat roosting habitat.
- Potential roosting habitat that will be assessed includes the following features:
  - Cracks, crevices, and/or fractured limbs large enough to support roosting bats.
  - Sections of loose flaking bark large enough to support roosting bats.
  - Hollow and knots in trunks, stems, or branches.
  - Dead wood in the canopy or stems of sufficient size to support roost cavities or hollows.
  - Bat droppings, grease marks and/or urine staining around cavities.
  - Flaking, peeling, and decorticating bark.
  - Broken or dead branches or trunk.
- The locations of all potential roost trees (or groups of roost trees) will be recorded using a hand-held GPS unit, and the trees will be photographed and described.

The resulting BMP will include:

- A map of all potential roost trees (or groups of roost trees) within the clearance areas.
- photographs and descriptions of all potential roost trees (or groups of roost trees). All potential roost trees will be assigned a value of low, moderate, or high potential for bat roosts.
- Details of how potential roost trees will be managed to avoid adverse effects on bats. This may include avoiding the removal of some trees or the implementation of the latest Department of Conservation Bat Roost Protocols.
- Revegetation requirements to compensate for the loss of roost tree habitat.

If the above management actions are carried out, the magnitude of this effect is expected to be low.

9.2.2 Birds

The bird species that occur in the affected vegetation are highly mobile and the noise and movement associated with the vegetation removal is likely to scare most of them away from the site before they are harmed. However, if active indigenous bird nests are present in the affected vegetation at the time of removal the adult birds, chicks, and/or eggs may be harmed or destroyed. Any such harm to individual birds is likely to have a low impact on the overall population of these common species. The affected vegetation does not provide suitable nesting habitat for cryptic wetland birds.

Indigenous birds are, however, protected under the Wildlife Act. If possible, the vegetation clearance work should be undertaken outside of the main bird breeding season (September – February). If vegetation clearance work must occur during the main bird breeding season all affected trees and shrubs should be assessed by a suitably qualified ecologist to determine if active nests (including cavity nests) of indigenous birds are present.

Overall, proposed avifauna management actions include:

- All affected trees and shrubs should be assessed by a suitably qualified ecologist to determine if active nests of indigenous birds are present within three working days prior to clearance.
- Where nests or cavities are too high to determine if eggs or chicks are present, they can be watched for a minimum of 15 minutes to see if a mother bird is coming and going, and they should be checked by a climbing arborist.
- If active nests are identified, the vegetation clearance must not take place within 20 metres of that tree until the chicks have fledged.

9.2.3 Lizards

There is a risk that lizards may be injured or killed during the vegetation removal works. As such, a survey for indigenous skinks should be undertaken before vegetation clearance commences, and can take up to two months (depending on the methods). Should indigenous skinks be detected, a Lizard Management Plan (LMP) should be prepared and submitted to the Northland Regional Council for approval. The plan must then be implemented in full before any vegetation clearance takes place. The LMP will guide works to capture indigenous lizards and relocate them to another suitable habitat at the site. Such works may involve a range of techniques for locating lizards, including the deployment of Artificial Cover Objects (ACOs) and closed cell foam covers (CCFCs), and destructive searching of vegetation and logs. If lizards are found, the LMP will need to be submitted to the Department of Conservation along with a Wildlife Act Authority application for any lizard salvage operations required for the development.

It is also advisable to retain some felled vegetation at the site to provide lizard refuges while remediation plantings establish. A LMP can also provide guidance for the ongoing management of lizard habitats on site following completion of the Kauri Block papakāinga.

The objectives of the lizard survey are to determine if indigenous lizards are present, and if so, provide an indication of the diversity and abundance of indigenous lizards at the site. The Lizard Management Plan (LMP) will aim to minimise potential adverse effects on indigenous lizards resulting from the proposed development.

9.3 Wastewater discharges within 10 metres of a natural inland wetland

The wastewater system is designed to ensure that the highest possible level of treatment is achieved and that the rate of discharge is sufficiently low that water is able to soak into the ground at the discharge site, rather than flowing overland and discharging to the nearby wetland (Vegetation Type 6). It is therefore unlikely that the wastewater system will have an adverse effect on the hydrology of the wetland.

Planting of indigenous species within the proposed dispersal area, and ongoing maintenance of these plantings, would provide further uptake of any nutrients present in the discharge before it reaches the adjacent wetland. These measures will minimise the potential for contaminants to access or impact the water quality and ecology of the wetland. The magnitude of the effect on the natural inland wetland is expected to be low.

9.4 Increased impervious surfaces

Wetland habitat on the property and adjacent to the property drains into the wider catchment, which feeds into Hokianga Harbour. The proposed development will increase the area of impermeable surfaces. Surface run-off from impermeable ground can greatly increase the amount and rate of stormwater flow. After heavy rainfall events, large amounts of fast-moving water can flow into gullies and streams, creating a scouring effect that is harmful to aquatic fauna and can result in streambank erosion and sedimentation. Roofs, roads, and driveways are the main contributors to surface run-off.

Stormwater from impervious surfaces can also transport a range of contaminants such as heavy metals, which accumulate in estuarine receiving environments. Heavy metals such as zinc can persist in the aquatic environment for considerable periods of time, particularly in sediment. As a consequence, metals can accumulate in the tissues of benthic organisms and their predators at higher trophic levels. Zinc is toxic to aquatic plants and animals (Widianarko *et al.* 2001). In residential areas, contamination can also occur through activities such as washing cars on impermeable surfaces, where by cleaning chemicals and detergents are readily transported into drains and into freshwater and estuarine receiving environments.

In the context of the wider catchment, the effect of increased stormwater run-off will result in a minor shift away from existing baseline conditions. While the change arising may be discernible, the underlying character, composition and attributes of the receiving environments will remain similar. As such, the magnitude of this effect is ‘low’.

Captured run-off at the site will be managed to control dissipation and flow into downstream environments. Other actions that could be included to reduce the effects of high flows and contaminated run off from impervious surfaces include:

- Retention tanks to capture roof water for domestic use and to provide for the temporary storage and controlled release of roof runoff.
- Swales and filter strips to provide treatment of stormwater runoff from impervious surfaces such as driveways.

Overall, the level of the effect of increasing impervious surfaces on freshwater habitats is likely to be ‘very low’.

9.5 Sediment discharge from earthworks

Earthworks to construct dwellings and infrastructure associated with the papakāinga also has the potential to result in sediment discharge into the downstream environment. The soil at the site is predominantly clay, and clay particles are easily mobilised during rain events. The small size of clay particles also means that they tend to remain suspended in the stream environment and are often deposited in estuarine receiving environments.

If unmanaged, the discharge of sediment from earthworks has the potential to result in a 'high' magnitude of effect. The potential impacts of sediment discharges from earthworks will be minimised by ensuring that the design and implementation of the works complies with industry best practice. An Erosion and Sediment Control Plan (ESCP) should be prepared by an erosion and sediment control specialist and submitted for approval by Northland Regional Council before earthworks take place. All erosion control structures will be checked and maintained regularly (particularly before heavy rain is forecast) to ensure that they are always in working order.

By ensuring that best practice sediment and erosion control is implemented the final level of this effect will be 'low'.

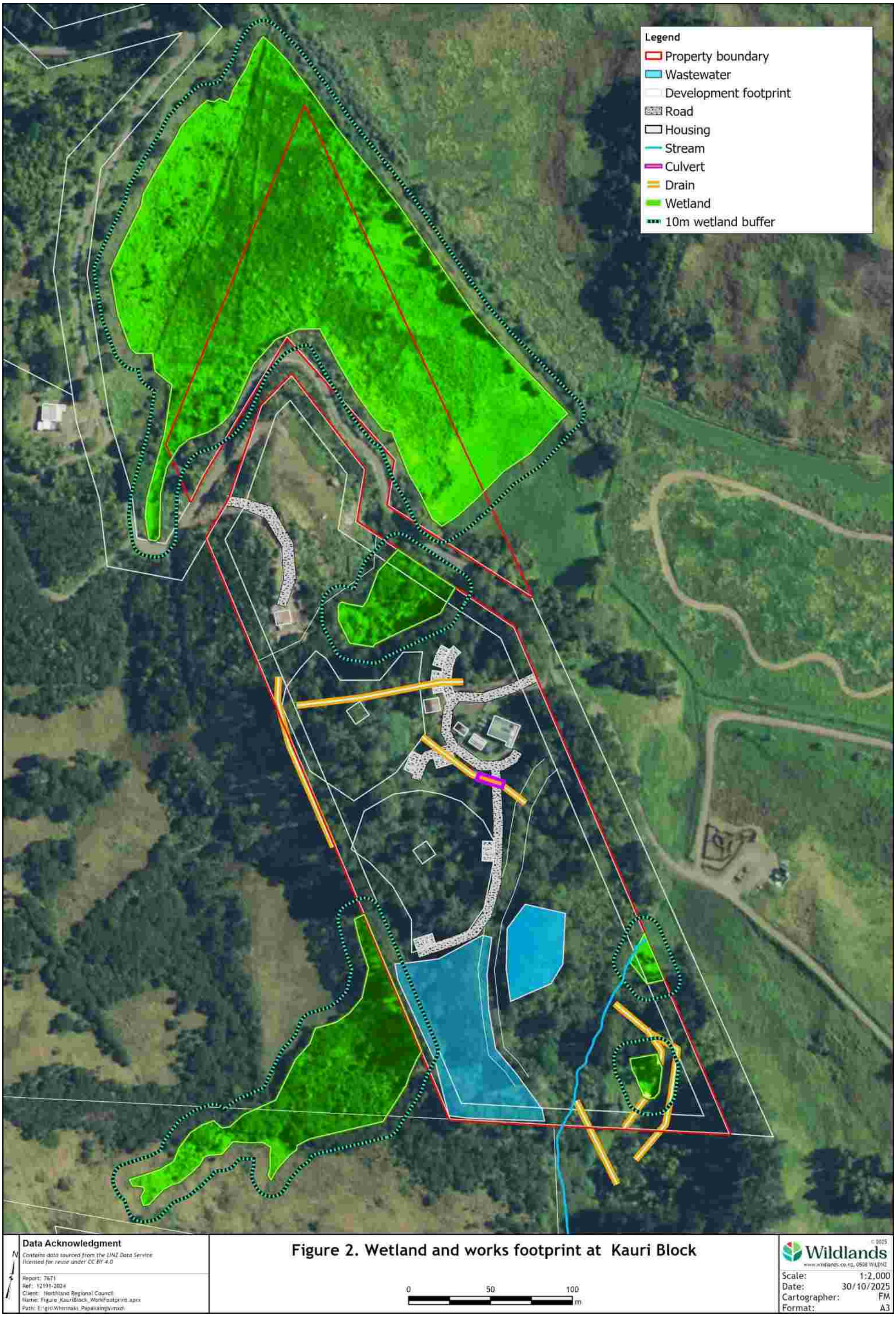

Figure 2. Wetland and works footprint at Kauri Block

9.6 Summary

Table 7 provides a summary of the level of potential effects that will remain if all the above mitigation actions are carried out in full.

Table 6 – Summary of adverse effects following mitigation/compensation actions.

Potential Effect	Ecological Feature Affected	Ecological Value	Timescale of Effect	Magnitude of Effect	Initial Level of Effect	Measure to Address Effect	Final Level of Effect
Loss of habitat for indigenous fauna and vegetation, including large exotic trees	Exotic forest	Low	Permanent	Moderate	Low	EMP to guide pest control, restoration and enhancement planting across the site.	Very Low
Disturbance to and/or mortality of indigenous bats	Threatened bats	Very high	Permanent	High	Very high	Bat Management during tree felling	Low
Disturbance to and/or mortality of indigenous birds	Indigenous birds	Moderate	Permanent	Low	Low	Avoidance of breeding season (September-February) or preclearance nest checks	Very low
Disturbance to and/or mortality of indigenous lizards	At Risk lizards	High	Permanent	High	Very high	Lizard Management	Low
Wastewater discharges within proximity of a natural inland wetland	Kahikatea-mānuka-soft rush scrub	High	Permanent	Low	Low	Design of appropriate wastewater system in line with industry best practice. Planting dispersal field	Very low
Increased impervious surfaces	Downstream environments (Hokianga Harbour)	High	Permanent	Low	Low	Appropriate stormwater management	Very Low
Sediment discharge from earthworks	Downstream environments	High	Temporary	High	Moderate	Implement erosion and sediment controls	Low

10.0 Conclusion

Northland Regional Council, in partnership with Te Hikutū hapū are applying for resource consent for the development of a 12 dwelling urban papakāinga (the Kauri Block) in the Whirinaki valley. The proposed Kauri Block papakāinga is located within an area of exotic forest vegetation. Wetland habitats are located around the boundaries of the Kauri Block, and are well outside of the proposed works area. The proposed development will result in the loss of all exotic forest on the property, the installation of a wastewater dispersal field within 10 metres of a natural inland wetland, and increased impervious surfaces at the site.

An Ecological Management Plan (EMP) should be provided as a condition of consent to support remediation planting and effective ecological restoration of the entire site. All restoration works should be guided by professional ecological restoration contractors. Fauna management plans will also need to be prepared.

Potential adverse effects can be summarised as:

- Loss of habitat for indigenous fauna, including large exotic trees.
- Disturbance or harm to indigenous fauna.
- Wastewater discharges within 10 metres of a natural inland wetland.
- Increased impervious surfaces.
- Sediment discharge from earthworks.

In summary, the measures by which to mitigate the adverse effects of the proposed development include:

- Preparation and implementation of an Ecological Management Plan (EMP) to guide planting and pest control across the entire site.
- Preparation and implementation of a Bat Management Plan (BMP), including implementation of the Department of Conservation Bat Roost Protocols.
- If possible, undertake vegetation clearance works outside of the bird breeding season. Otherwise, undertake preliminary surveys for active nests during breeding season.
- Implementation of a lizard survey. If indigenous lizards are confirmed present, preparation and implementation of a lizard management plan for the site.
- Implementation of low-impact design stormwater controls to reduce the effects of high flows and contaminated runoff from impervious surfaces.
- Implementation of erosion and sediment controls during earthworks in and surrounding freshwater habitats.

If all of the above actions are implemented, the ecological effect of the proposed development on the ecological values at the site will be appropriately addressed.

Acknowledgments

Thank you to Storm Tautari and Ruth Tautari with the Whirinaki Trust for providing site access, liaison with land owners, and Zoe Avery with The Urbanist and Chantez Connor-Kingi with Northland Regional Council for providing project coordination, background information and technical advice.

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Appendix 1

Species list for Whirinaki Papakāinga (Kauri Block)

INDIGENOUS SPECIES

Gymnosperms

Dacrycarpus dacrydioides	kahikatea
Dacrydium cupressinum	rimu
Podocarpus totara var. *totara*	tōtara

Monocot. trees and shrubs

Cordyline australis	tī kōuka, cabbage tree
Rhopalostylis sapida	nīkau

Dicot. trees and shrubs

Coprosma areolata	
Coprosma propinqua var. *propinqua*	mingimingi
Coprosma rhamnoides	
Coprosma robusta	karamū, kāramuramu
Coprosma spathulata subsp. *spathulata*	
Corynocarpus laevigatus	karaka
Geniostoma ligustrifolium var. *ligustrifolium*	hangehange
Kunzea robusta	kānuka
Laurelia novae-zelandiae	pukatea
Leptospermum scoparium	mānuka
Melicytus ramiflorus subsp. *ramiflorus*	māhoe
Myrsine australis	māpou, matipou, māpau

Dicot. lianes

Muehlenbeckia complexa	pōhuehue
Rubus australis	tātarāmoa

Ferns (excludes psilopsids)

Adiantum hispidulum	huruhuru tapairu, maidenhair fern
Alsophila dealbata	ponga, silver fern
Azolla rubra	kārearea, rotoreto, returetu
Deparia petersenii subsp. *congrua*	
Doodia australis	pukupuku
Icarus filiforme	pānako, thread fern
Paesia scaberula	mātātā, hard fern
Parablechnum minus	swamp kiokio
Parablechnum novae-zelandiae	kiokio, horokio
Pteridium esculentum subsp. *esculentum*	rārahu, bracken

Grasses

Isachne globosa	swamp millet
Oplismenus hirtellus subsp. *imbecillis*	

Sedges

Carex lambertiana	
Carex lessoniana	toetoe-rautahi
Carex secta	pūrei, makura, pūreirei, pūrekireki, pūkio
Carex virgata	pūrei
Cyperus ustulatus	toetoe upoko-tangata
Eleocharis acuta	spike sedge
Eleocharis gracilis	
Eleocharis sphacelata	giant spike sedge, ngāwhā, kuta.kutakuta, paopao
Gahnia setifolia	māpere
Isolepis reticularis	
Machaerina rubiginosa	

Rushes

Juncus sarophorus	wi, wīwī

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

Astelia hastata	kahakaha
Typha orientalis	raupō

Dicot. herbs (other than composites)

Apium prostratum subsp. *prostratum* var. *filiforme*	tūtae-kōau, New Zealand celery wharanui
Persicaria decipiens	tutunawai

NATURALISED AND EXOTIC SPECIES

Gymnosperms

Hesperocyparis macrocarpa	macrocarpa
Pinus radiata	radiata pine

Dicot. trees and shrubs

Acacia melanoxylon	Tasmanian blackwood
Alnus glutinosa	common alder
Casuarina sp.	sheoak
Cotoneaster glaucophyllus var. *serotinus*	large-leaved cotoneaster
Elaeagnus ×reflexa	elaeagnus
Erythrina ×sykesii	coral tree
Eucalyptus sp.	eucalyptus
Hypericum androsaemum	tutsan
Ligustrum lucidum	tree privet
Ligustrum sinense	Chinese privet

Macadamia sp.	macadamia
Rubus sp. (*R. fruticosus* agg.)	blackberry
Salix ×fragilis f. *fragilis*	crack willow
Salix matsudana 'Tortuosa'	tortured willow
Solanum mauritianum	woolly nightshade
Ulex europaeus	gorse

Dicot. lianes

Lonicera japonica	Japanese honeysuckle

Lycopods and psilopsids

Selaginella kraussiana	creeping clubmoss, selaginella

Ferns (excluding psilopsids)

Azolla pinnata	ferny azolla

Grasses

Agrostis stolonifera	creeping bent
Axonopus fissifolius	narrow-leaved carpet grass
Axonopus compressus	
Cenchrus clandestinus	kikuyu grass
Cortaderia selloana	pampas
Dactylis glomerata	cocksfoot
Glyceria maxima	reed sweetgrass
Holcus lanatus	Yorkshire fog
Paspalum dilatatum	paspalum
Paspalum distichum	Mercer grass

Sedges

Carex longebrachiata	Australian sedge
Cyperus brevifolius	globe sedge
Cyperus congestus	purple umbrella sedge

Rushes

Juncus acuminatus	sharp-fruited rush
Juncus articulatus	jointed rush
Juncus effusus var. *effusus*	soft rush, leafless rush

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

Hedychium gardnerianum	kahili ginger, wild ginger
Zantedeschia aethiopica	arum lily

Composite herbs

Ageratina adenophora	Mexican devil
Hypochaeris radicata	catsear

Dicot. herbs (other than composites)

Callitriche stagnalis	starwort
Lotus pedunculatus	lotus
Persicaria hydropiper	water pepper
Plantago lanceolata	narrow-leaved plantain
Ranunculus repens	creeping buttercup
Trifolium repens	white clover

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Tui Rima

5

2.5

148.5


Artists Impression Only

Tui Whā

4

2

135

Roof Pitch 15 deg
Stud height - 2.4m Flat Throughout

1
4 2
3

Elevations

LIVING AREA
144.0 SQ M

1000mm 0 1m 2m

REVISION: BY DATE:
Drawn KAT Nov 25 2025

Advance build
A smarter move

Proposed New Home for:
Weekender 5

SHEET TITLE:
Floor Plan

SCALE: 1 : 75 (A3 Original)

PROJECT #: PAGE: REVISION:
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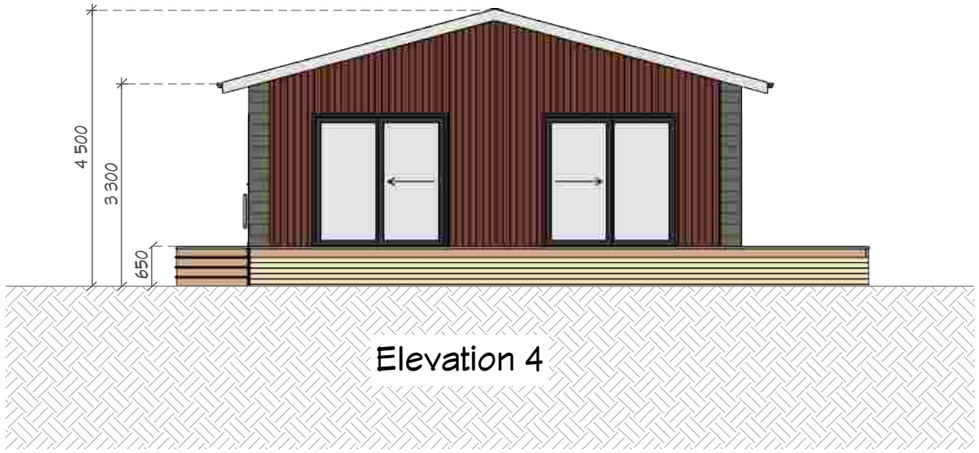
Roof Pitch 15 deg
Stud height - 2.4m Flat Throughout

Armorsteel Corrugate,
Standard 0.40mm

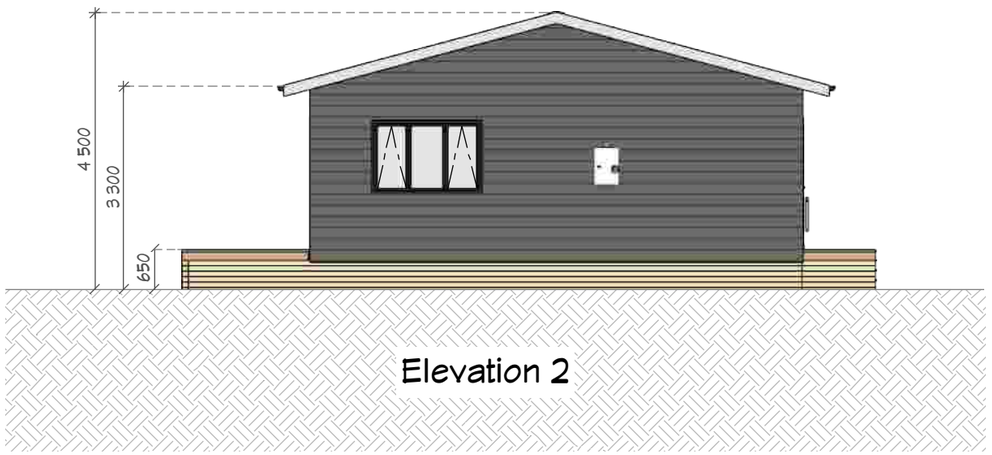
Weathertex Primelok
Smooth 200mm

Weathergroove Natural 150mm
Vertical Groove - Stained

Elevation 1



Elevation 4



Elevation 2

140x35 Premium Smooth H3
Pine Decking - Uncoated, Nail
Fixed

Double Glazed, Low-E
Light Bridge

140x20 PG H3 Pine
baseboards Unpainted

Elevation 3

REVISION:	BY	DATE:
Drawn	KAT	Nov 25 2025

Advance build
A smarter move

Proposed New Home for:
Weekender 5

SHEET TITLE:
Elevation

SCALE: 1:100 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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Far North
District Council

NOTICE OF WRITTEN APPROVAL

Written Approval of Affected Parties in accordance with Section 95E of the Resource Management Act

PART A – To be completed by Applicant

Applicant/s Name:	Te Hikuto Hapo Trust
Address of proposed activity:	Vujcich Road, Whirinaki
Legal description:	Part Whirinaki 4A Block (NA878/274)
Description of the proposal (including why you need resource consent):	The proposal seeks to establish a papakainga development on Maori freehold land to address significant flood risks affecting the Whirinaki valley community and provide for their social, cultural and economic wellbeing. Resource consent is required as a discretionary activity for: exceeding the papakainga housing density threshold (Rule 8.6.5.2.2), qualifying as an Integrated Development (Rule 8.6.5.4.2), wastewater infrastructure within 30m of wetlands (Rule 12.7.6.3.1), indigenous vegetation clearance (Rule 12.2.6.3.1), earthworks exceeding fill height limits (Rule 12.3.6.2), and private accessway not meeting standards (Rules 15.1.6C.4.1)
Details of the application are given in the attached documents & plans (list what documents & plans have been provided to the party being asked to provide written approval):	1. Overall Proposed Masterplan Phase 1 - Drawing OA 030, v1, dated 06/11/2025, prepared by The Urbanist 2. Kauri Existing Constraints - Drawing Kau 009, v1, dated 06/11/2025, prepared by The Urbanist 3. Kauri Proposed Masterplan - Drawing Kau 011, v1, dated 06/11/2025, prepared by The Urbanist 4. Kauri Proposed Area of Work - Drawing Kau 010, v1, dated 06/11/2025, prepared by The Urbanist

Notes to Applicant:

1. Written approval must be obtained from all registered owners and occupiers.
2. The **original copy** of this signed form and **signed plans and accompanying documents** must be supplied to the Far North District Council.
3. The amount an type of information provided to the party from whom YOU seek written approval should be sufficient to give them a full understanding of your proposal, its effects and why resource consent is needed.

PART B – To be completed by Parties giving approval

Notes to the party giving written approval:

1. If the owner and the occupier of your property are different people then separate written approvals are required from each.
2. You should only sign in the place provided on this form and accompanying plans and documents if you **fully understand** the proposal and if you **support** or have **no opposition** to the proposal. Council will not accept conditional approvals. If you have conditions on your approval, these should be discussed and resolved with the applicant directly.
3. Please note that when you give your written approval to an application, council cannot take into consideration any actual or potential effects of the proposed activity on you unless you formally withdraw your written approval **before** a decision has been made as to whether the application is to be notified or not. After that time you can no longer withdraw your written approval.
4. Please sign and date all associated plans and documentation as referenced overleaf and return with this form.
5. If you have any concerns about giving your written approval or need help understanding this process, please feel free to contact the duty planner on 0800 920 029 or (09) 401 5200.

Full name/s of party giving approval:	FLEUR JOSEPHINE KAIO RERekura. Shaun Arthur James McKay - Kaio
Address of affected property including legal description	128 VUJCICH ROAD RD 3 KAIKOHE WHIRINAKI.
Contact Phone Number/s and email address	Daytime: 021 738110 email: fleur.kaio@gmail.com.

I am/we are the OWNER(S) / OCCUPIER(S) of the property (circle which is applicable)

*Please note: in most instances the approval of **all** the legal owners and the occupiers of the affected property will be necessary.*

1. I/We have been provided with the details concerning the application submitted to Council and understand the proposal and aspects of non-compliance with the Operative District Plan.
2. I/We have signed each page of the plans and documentation in respect of this proposal (these need to accompany this form).
3. I/We understand and accept that once I/we give my/our approval the Consent Authority (Council) cannot take account of any actual or potential effect of the activity and/or proposal upon me/us when considering the application and the fact that any such effect may occur shall not be relevant grounds upon which the Consent Authority may refuse to grant the application.
4. I/We understand that at any time before the notification decision is made on the application, I/we may give notice in writing to Council that this approval is withdrawn.

Signature	[signature]	Date	18/11/25.
Signature	[signature]	Date	18/11/25
Signature		Date	
Signature		Date