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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

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

1. Pre-Lodgement Meeting

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

2. Type of Consent being applied for

(more than one circle can be ticked):

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

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

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

☑ **Yes** ◯ **No**

4. Consultation

Have you consulted with Iwi/Hapū? ◯ **Yes** ☑ **No**

If yes, which groups have you consulted with?	
Who else have you consulted with?	

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

5. Applicant Details

Name/s: Sam Lees

Email: [redacted]

Phone number: [redacted]

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

Postcode 0445

6. Address for Correspondence

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

Name/s: Lynley Newport

Email: [redacted]

Phone number: Home

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

Postcode 0245

**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: Samuel and Fiona Lees

Property Address/ Location: [redacted]

Postcode 0473

[redacted]

8. Application Site Details

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

Name/s: S & L Lees

Site Address/ Location: [redacted] Postcode 0473

Legal Description: [redacted] **umber:**

Certificate of title: [redacted]

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

Site visit requirements:

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

Is there a dog on the property? ✓ Yes ◯ No

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

Dog is contained on property and fenced in

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.

Four lot (3 additional) subdivision of land zoned Coastal Residential; plua breaches of rules in Chapter 15.1.6C.

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

10. Would you like to request Public Notification?

◯ Yes ✓ No

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

(more than one circle can be ticked):

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

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

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

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

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

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

13. Assessment of Environmental Effects:

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

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

13. Draft Conditions:

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

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

14. Billing Details:

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

Name/s: (please write in full) Sam & Fiona Lees

Email: [redacted]

Phone number: [redacted]

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

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

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

Name: (please write in full) Samuel Lees

Signature: [redacted] Date 23/9/2025

(signature of bill payer MANDATORY

15. Important Information:

Note to applicant
You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.
You may apply for 2 or more resource consents that are needed for the same activity on the same form.
You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

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

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

15. *Important information* continued...

Declaration

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

Name: (please write in full) Samuel Lees

Signature: [redacted] Date 23/9/2025

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

Checklist (please tick if information is provided)

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

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

[redacted]

THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 9849.1 (FNDC)

24 September 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed Subdivision of land at Martin Road, Omapere – Sam Lees

I am pleased to submit application on behalf of Sam Lees, for a proposed two stage subdivision / boundary adjustment on land at Martin Road, Omapere, zoned Coastal Residential. The application is a discretionary activity due to breaches of Chapter 15.1 Access rules.

The application fee of $5,143 (Combined Subdivision & Land Use) has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

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

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

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

Sam Lees

PROPOSED SUBDIVISION

Martin Road, Omapere

PLANNER'S REPORT & ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 THE PROPOSAL

The applicant proposes a four lot subdivision of their land at Martin Road, Omapere. The property is zoned Coastal Residential and located not far from the Opononi Area School. It has been subject to a previous subdivision consent, not given effect to. This current proposal reduces the number of lots from the six previously consented, down to the four now being sought, one of which already now supports existing built development (two legally established dwellings).

The proposal includes a second stage to separate a small Lot 5 of 265m^2 off Lot 3 of Stage 1, and transfer that small area into the same ownership as NA82B/436. This is a logical transfer as currently that 265m^2 of land is physically separated from the applicant's land by a formed access with fencing on either side, effectively rendering it unusable by the applicant.

In summary, the application seeks to create 3 additional vacant lots as a first stage subdivision and to then carry out a minor boundary adjustment as a second stage.

Civil and Geotechnical reporting were carried out for the previous more intensive subdivision application. This work was carried out by Fraser Thomas for the previous owner. The reports are dated 2006 and 2007 and have been sourced from the application site's property file. They were prepared in support of a greater density, and different, subdivision layout so neither should be referred to in any consent notice as requiring future design elements to be 'in accordance with'. They are provided to demonstrate that the site has been investigated in the past and deemed suitable for subdivision.

The Geotechnical Investigation Report contains a "Limitation" in that the report was prepared for the client (at the time) and for Council, for their purposes only and should not be relied upon by any other person. Anyone doing so, does so at their own risk. The current applicant is not the original client, however the Council is still a party to the proceedings. The limitation is acknowledged and the report is appended to this application as a reference document only, intended to demonstrate that the site has previously been considered suitable for development. The Engineering Report contains no Limitation as to its use.

Copies of the Reports provided for the previous subdivision (RC 2080002-RMASUB, issued in February 2008 and creating 6 allotments) are attached in Appendices 5 & 6.

The site is unsewered (by definition). The proposed lot sizes are:

Stage 1:

Lot 1	(vacant)	3490m^2
Lot 2	(vacant)	3050m^2
Lot 3	(vacant)	3930m^2
Lot 4	contains two residential units	2.5598ha

Stage 2 (subdivision of Lot 3 of Stage 1):

Lot 5 of 265m^2; vacant land to be transferred to adjacent title NA82B/436.

Amalgamation wording for Stage 2 is shown on the Scheme Plan for Stage 2:

"That Lot 5 hereon and Lot 3 DP 138969 (NA82B/436) are to be held in the same Certificate of Title".

Access to the site is via existing appurtenant Right of Way that comes off the end of Martin Road, which in turn comes off Waihuka Road. Internal to the site proposed Lot 3 will

accommodate the continuation of that existing right of way beyond the site. The balance Lot 4 will provide internal right of way access to Lot 1, 2 and 3 boundaries.

Copies of proposed scheme plans are attached in Appendix 1. A Location Map is attached in Appendix 2.

1.2 Scope of this Report

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

2.0 PROPERTY DETAILS

Location:	Martin Road, Omapere
Legal description:	Taiwhatiwhati 1E BLock
Record of Title:	NA360/127, with an area of 3.6068ha. A copy of the title is attached in Appendix 3, along with relevant interests.

3.0 SITE DESCRIPTION

3.1 Physical & Mapped characteristics

The application site is located at the end of Martin Road. The site can be seen from Newton Road – see below photograph.

View looking north from Newton Road, Omapere. Opononi Area School is at left of picture.

The site is predominantly in grass. Since the original consent was granted, two residential dwellings have been established on the site. The first, consented by EBC-2022-57, is located at the upper end of proposed Lot 4, while the more recently constructed dwelling, consented by EBC-2022-861, is at the north east corner of Lot 4, at the end of the existing driveway.

The centrally located driveway winds upslope with gentle curves, from the site's southern boundary to both existing dwellings. It is metal surface, and well formed. The site is located well inland and above the Opononi/Omapere foreshore. Its low point is at its southern boundary, with the site rising gently from that boundary up to the site's northern boundary.

The site is not serviced by FNDC 3-waters. There is wastewater and stormwater reticulation to the adjacent site downslope to the west, as well as at Waihuka Road, up to and beyond where it intersects Martin Road. However, the applicant prefers on-site servicing.

The site is not mapped as containing any archaeological sites or historic sites or cultural sites. The site is not mapped as containing any significant indigenous vegetation or outstanding landscape, or areas of high or outstanding natural character. The extreme north eastern corner falls just inside the boundary of a kiwi present area, however this is cleared pasture land, with areas of potential kiwi habitat at least one property away. The site is not subject to any hazard.

Looking across Lots 1 & 3, northeast.

Looking across proposed Lot 2, westwards.

The small Stage 2 Lot 5 contains the mown grassed area immediately to the right of the access road. This land is logically better held with the adjacent title, with no fenced boundary in place currently. The land in Lot 5 is subject to right of way easement and will remain so, albeit the physical formation of the right of way access is clear of Lot 5 land.

The site is zoned Coastal Residential in the Operative District Plan (ODP) and General Residential in the Proposed District Plan (PDP), with a coastal environment overlay applying. The land on the site's western and southern boundaries is also zoned Coastal Residential

under the ODP, whereas the land on northern and eastern boundaries is zoned Rural Production. The PDP proposes the same zoning for those adjacent sites.

3.2 Legal Interests on Titles

The title has appurtenant Right of Way, and is subject to right of way, as specified in Easement Certificate C206294.3. It is also subject to right of way as specified in C206294.4. Both easement instruments are attached as part of Appendix 3. The existing easements, as they affect the application site, are shown on the scheme plan(s) in Appendix 1.

The title also has an appurtenant electricity and telecommunications right created by EI 11727575.4.

3.3 Consent History

As stated earlier the property has been subject to a previously issued subdivision consent. RC 2080002-RMASUB was issued in February 2008 and created 6 allotments. It was not given effect to and has since lapsed.

3001819-LGAEWK was issued in 2021 in association with the building of the first dwelling on the site.

Building consent history consists of EBC-2022-57, issued in September 2021 (first dwelling); and EBC-2022-861-0, issued in February 2022 (second dwelling).

4.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

Clauses 2 & 3: Information required in all applications

(1) An application for a resource consent for an activity must include the following:	
(a) a description of the activity: .	Refer Sections 1 and 5 of this Planning Report.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this Planning Report.
(b) a description of the site at which the activity is to occur:	Refer to Section 3 of this Planning Report.
(c) the full name and address of each owner or occupier of the site:	This information is contained in the Form 9 attached to the application.
(d) a description of any other activities that are part of the proposal to which the application relates:	Refer to Sections 3 and 5 of this Planning Report for existing activities within the site. The application is for subdivision.
(e) a description of any other resource	No other consents are required other than that being applied

consents required for the proposal to which the application relates:	for pursuant to the Far North Operative District Plan.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Section 7 of this Planning Report.
(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2): *(a) any relevant objectives, policies, or rules in a document; and* *(b) any relevant requirements, conditions, or permissions in any rules in a document; and* *(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).*	Refer to Sections 5 & 7 of this Planning Report.
(3) An application must also include any of the following that apply:	
(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):	Refer sections 3 and 5. The site supports two residential dwellings, both of which are legally established with both building and earthworks permits issued as required.
(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):	There is no existing resource consent. Not applicable.
(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).	The site is not within an area subject to a customary marine title group. Not applicable.

Clause 4: Additional information required in application for subdivision consent

(4) An application for a subdivision consent must also include information that adequately defines the

following:	
(a) the position of all new boundaries: *(b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:* *(c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips:* *(d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips:* *(e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A:* *(f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A):* *(g) the locations and areas of land to be set aside as new roads.*	Refer to Scheme Plans in Appendix 1.

Clause 5: Additional information required for application for reclamation – not applicable.

Clause 6: Information required in assessment of environmental effects

(1) An assessment of the activity's effects on the environment must include the following information:	
(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:	Refer to Section 6 of this planning report. The activity will not result in any significant adverse effect on the environment.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this planning report.
(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	Not applicable as the application does not involve hazardous installations.
(d) if the activity includes the discharge of any contaminant, a description of— *(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and* *(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:*	The subdivision does not involve any discharge of contaminant.

(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:	Refer to Section 6 of this planning report.
(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:	Refer to Section 8 of this planning report. No affected persons are identified.
g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:	No monitoring is required as the scale and significance of effects does not warrant any.
(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	No protected customary right is affected.

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

(1) An assessment of the activity's effects on the environment must address the following matters:	
(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:	Refer to Sections 6 and 8 of this planning report and also to the assessment of objectives and policies in Section 7.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Section 6. The proposed activity will have no adverse effects on the physical environment and landscape and visual amenity values.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 6. The proposal will not have any adverse effects in regard to habitat and ecosystems.
(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:	Refer to Section 6, and above comments
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.

(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	The subdivision site is not subject to natural hazards and does not involve hazardous installations.

5.0 ACTIVITY STATUS – FAR NORTH DISTRICT PLAN

The site is zoned Coastal Residential, with no resource features.

Table 13.7.2.1: Minimum Lot Sizes

(x) COASTAL RESIDENTIAL ZONE

Controlled Activity Status (Refer also to 13.7.3)	**Restricted Discretionary Activity Status (Refer also to 13.8)**	**Discretionary Activity Status (Refer also to 13.9)**
The minimum lot sizes are 3,000m^2 (unsewered) and 800m^2 (sewered).		The minimum lot sizes are 2,000m^2 (unsewered) and 600m^2 (sewered).

The site is unsewered and all lots are in excess of 3,000m^2 in area. The subdivision is a controlled activity in terms of minimum lot sizes.

In terms of the Stage 2 boundary adjustment, Rule 13.7.1 can be applied:

(a) There is no change to the number and location of any access to the lots involved;
(b) There is no increase in the number of titles;
(c) The area of each adjusted title meets the controlled minimum lot size for the zone – 3,000m^2;
(d) The area affected by the boundary adjustment is contiguous with the area of the original lots;
(e) Both boundary adjusted sites remain capable of complying with all relevant land use rules, e.g. building setbacks; effluent disposal;
(f) Any existing on-site drainage systems remain wholly contained within the boundary adjusted sites.

In summary, the stage 2 boundary adjustment component is also a controlled activity 'subdivision' activity.

Zone Rules:

The site supports two existing dwellings, neither of which required land use consent for any breach of zone rules. There were established on a total site area of 3.6ha and will now be located on a balance Lot 4, with area of 2.56ha. Zone rules with thresholds relating to % coverage of total site area are therefore relevant. Total impermeable surface to be within new Lot 4 is estimated at 1909m^2, or 7.5%, well within the zone's permitted threshold of 50%. Building coverage is estimated at 2% of Lot 4's proposed total site area, again well within the permitted threshold (45%).

The only other relevant zone rule is the Residential Intensity ratio – again based on lot area. The proposal will see 2 residential units on 2.56ha of land, easily complying with the zone's one unit per 3000m^2 ration.

District Wide Rules:

12.3.6.1.2 Excavation and/or Filling – Zone provides for up to 200m^3 in any 12 month period. Given that the access is already formed, this threshold will not be exceeded. There will be no cut/fill face higher than 1.5m.

The site contains nothing to which Chapters 12.1 or 12.5 relate to and does not involve Hazardous Facilities or Storage.

Chapter 12.2 is not applicable as no clearance of indigenous vegetation will be required.

Chapter 12.4: The application site is not mapped in the ODP as being subject to Coastal Hazard and there are no areas of bush or scrubland on the site to which Rule 12.4.6.1.4 Fire Risk to Residential Unit might apply.

Chapter 12.7: the site is some distance from any river, lake, wetland and coastal marine area.

Chapter 14 and need for Esplanade Reserve or Strip: The application site does not have a water boundary.

Traffic, Parking and Access: In terms of two existing house hold units already established on the site, these complied with the traffic intensity rule when established. This does not change because of the proposed subdivision. They will remain within one title, with first residential unit exempt.

Chapter 15.1.6C (specific to access) must be considered because the subdivision's controlled activity category is dependent on meeting rules in 15.1.6C. In this instance the proposal will not meet all the rules in Chapter 15.1.6C and the application therefore defaults to being a discretionary activity overall.

Rule 15.1.6C.1.8(b) requires the subdivider to upgrade any public road providing frontage to the subdivision where that public road is not to the required public road standard. Access to the site is off a right of way which in turn comes off the end of a 100m long stretch of Martin Road (public road maintained by Council). This 100m long section of public road is technically in the 'urban environment', but in reality is more rural than urban. In either case, it is not to public road standard – which for Rural Type A would require 6m wide metal carriageway. If 2023 Engineering Standards are utilised, then Martin Road could be considered as a Band 2 Private Use Access road, where carriageway width may be reduced to a minimum 4m. Either way, it is proposed to not upgrade 100m of Martin Road to public road standard and therefore consent is required under Rule 15.1.6C.1.8(b).

Rule 15.1.6C.1.1(a) requires private access to be the standards required in Appendix 3B-1 of the ODP. This Appendix requires the private access to be 3m with passing bays where serving more than 3 allotments. Internal to the site, where right of way over Lot 4 will provide access to Lots 1-3, that formation / carriageway width can be achieved. The existing appurtenant right of way to the site will serve five or more allotments, and is not a uniform 5m metal carriageway width.

Rule 15.1.6C.1.1(d) requires that where a subdivision serves 9 or more sites, access shall be by public road. The subdivision itself only serves 4 allotments, however the existing appurtenant right of way already serves 6 allotments - The Subdivision Site Suitability Report for the previously granted consent stated that the "*right of way is formed and metalled to 3.5m width (steepest grade 1 in 6) and currently serves 6 allotments including the application site, and Lot 3 DP 138969 over which it lies. Two of those allotments (lots 5 & 6 DP 138969) also have road frontage to the south on Waihuka Road.*"

The subdivision would therefore take the total number of allotments served by the existing appurtenant right of way to over 8. It is not proposed to vest it as public road. Consent is therefore sought for a breach of 15.1.6C.1.1(d).
Rule 15.1.6C.1.2(c) requires private accessways in all urban zones, serving more than two activities to be sealed or concreted. The proposal is to leave internal access as metal surface noting that all public and private access roads in the vicinity are metal surface. These other accessways includes the existing appurtenant right of way off the end of Martin Road to the application site boundary and beyond. This is not to urban standard (not sealed/concreted) and there if no intention to seal or concrete it. Consent is sought for a breaches of Rules 15.1.6C.1.1(a) and 15.1.6C.1.2(c).

In summary, consent is sought for breaches of Rules **15.1.6C.1.1(a) and (d); 15.1.6C.1.2(a); and 15.1.6C.1.8(b)**. The application is overall a **discretionary** activity.

5.2 Proposed District Plan

The Proposed District Plan (PDP) was publicly notified on 27th July 2022. Regard must therefore be had to Objectives and Policies within the PDP relevant to the site. Legal effect must also be given to any rules that the Council has identified in the PDP as having immediate legal effect. Such rules may affect activity status of an application.

In this instance I have examined the PDP, where the application site is zoned General Residential with a Coastal Environment overlay. There are no zone or overlay rules that have immediate legal effect.

In regard to other district wide considerations in the PDP, the only rules in the Subdivision chapter that are marked as having immediate legal effect are those pertaining to Environmental Benefit Subdivisions (not applicable in this instance); Subdivision of a site within a heritage area overlay (again not applicable); Subdivision of a site that contains a scheduled heritage resource (again not applicable); Subdivision of a site containing a

scheduled site and area of significance to Maori (not applicable); and Subdivision of a site containing a scheduled SNA (not applicable).

There are two earthworks rules and associated standards in the PDP that have legal effect. The requirements of those rules – related to observance of the ADP, and G05 Erosion and Sediment Control standards, can be achieved via conditions of consent.

The PDP's rules in regard to indigenous vegetation clearance are not applicable as no clearance of indigenous vegetation is required.

In summary, I have not identified any rules in the PDP that have immediate legal effect and must therefore be considered in determining activity status for this proposal.

6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

6.1 Allotment Sizes and Dimensions

Proposed Lot 4 contains existing built environment. Proposed Lots 1-3 are all vacant and can all accommodate a 14m x 14m building envelope complying with the zone's boundary setback requirement. The lots are considered of a size and dimension suitable for residential use with access and on site services.

6.2 Natural and Other Hazards

The site is not subject to any flooding or erosion hazard. Nor is it subject to any fire hazard, or sea level rise risk. With no rivers on site, there is no risk of avulsion or accretion. Overland flowpaths can be avoided. In summary, there is no reason pursuant to s106 of the RMA for the consent authority to decline consent.

The original subdivision, creating 6 allotments, was supported by a Geotechnical Investigation Report by Fraser Thomas Ltd. Since then two dwellings have been established on land to be in Lot 4.

The report is attached in Appendix 5 as a reference document only and should not be referred to in any consent notice conditions as requiring anything to be 'in accordance with' due to its limitation clause 19.0. It is appended to this application, and duly referenced, in order to demonstrate that the site has been investigated from a geotechnical perspective and deemed suitable for development. A future lot owner may wish to refer to the report when considering design options. The report found that "*the site is, in general, considered suitable for its intended use for residential purposes with satisfactory conditions for buildings, subject to the recommendations and qualifications reported here, provided the design and inspection of foundations are carried out as would be done under normal circumstances in accordance with the requirements of NZS 3604:1999, NZS, Timber Framed Buildings and, in particular, the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604.*" (quoting from the Summary of the Geotechnical Report).

Whilst the stated NZS has since been replaced with a more recent standard, I believe the findings of the report can still be considered relevant by Council when it is assessing this application. The report did identify an area where a specific building foundation design would need to be submitted for any proposed residential building at time of building consent, and outside of the zone, the report considered foundations of any proposed residential building would not require specific design. In the event, when granting consent, the Council went one step further and required the building line restriction area to be shown as a covenant area whereby no buildings could be constructed. As the consent was not given effect to, this covenant area has never been defined or confirmed.

I would consider it a reasonable alternative with this current application for fewer lots, for the Council to apply a consent notice to Lots 1-3 along the lines that, in conjunction with any building consent, any residential buildings will require foundations to be specifically designed by a Chartered Professional Engineer. Lot 4 requires no such consent notice given that it is already developed with two consented dwellings – refer to Consent History.

6.3 Water Supply

The site is not serviced by any FNDC reticulated water supply. Each lot will need to be self sufficient in terms of both potable and fire fighting water supply. Existing development utilises tank supply. The Council can impose its standard consent notice in regard to sufficient and accessible potable and fire fighting water supply.

6.4 Energy Supply & Telecommunications

Consultation has been carried out with Top Energy and Chorus, the results of which are contained in Appendix 4.

6.5 Stormwater Disposal

The previous subdivision application was supported by a (civil) Engineering Report by Fraser Thomas Ltd. This is attached in Appendix 6 and addressed stormwater in its Section 2.2. It summarised proposed stormwater provisions to include:

- Open water table drains on accessways with culverts and discharge outlets where required.
- Disposal of roof water to water tanks with extended storage capacity for the 10 year storm as specified in ARC TP10 as a mitigation measure.
- Tank overflows and stormwater from drives and paved areas to be piped into drains instead of overland flows.
- Detention pond designed to reduce stormwater flows off-site to pre-development levels.

With a permitted impermeable coverage of 50% per lot, it is highly unlikely that future development on vacant lots will exceed that permitted threshold. When constructing the second dwelling on the application site, a comprehensive Stormwater Management Report prepared by LDE was submitted to the Council as part of the building consent process. This report is available on Council records.

6.6 Sanitary Sewage Disposal

The Engineering Report referred to above also addressed sewerage, in its section 2.3. With vacant lots all in excess of 3,000m^2 in area, the report considered these to be of ample size to accommodate either a conventional septic tank and effluent soakage disposal system, or if deemed necessary, a proprietary secondary treatment system.

I believe it is clear the vacant sites are capable of supporting a dwelling with onsite wastewater treatment and disposal and that it is sufficient to leave the final design to building consent stage. The two dwellings already constructed, each have their own systems, with disposal fields, which will remain within the boundaries of Lot 4. Should the Council consider it necessary, it could include a s223 condition requiring confirmation that this is the case.

I believe that for Lots 1-3, the Council could impose its generic standard consent notice clause in regard to an onsite wastewater treatment and disposal system design, prepared by a chartered professional engineer or suitably qualified drainlayer/TP58 writer, to be provided at building consent stage, once the size and occupancy of any building requiring onsite wastewater is known.

6.7 Easements for any purpose

Refer to description of proposal in section 1 of this report, and to the Scheme Plans attached in Appendix 1. The Stage 2 Lot 5 is land within an existing easement boundary. In transferring to be held with the adjacent title it will remain subject to easement, i.e. there is no request to cancel the easement forming part of this application.

6.8 Property Access

Access to the site is via appurtenant right of way off the end of Martin Road, as described earlier in this report. The Subdivision Site Suitability Report for the previously granted consent stated that the "*right of way is formed and metalled to 3.5m width (steepest grade 1 in 6) and currently serves 6 allotments including the application site, and Lot 3 DP 138969 over which it lies. Two of those allotments (lots 5 & 6 DP 138969) also have road frontage to the south on Waihuka Road.*" I note in addition, that the servient property, Lot 3 DP 138969 also has road frontage to Waihuka Road, something not mentioned in the original report.

Consent is being sought to not vest private right of way serving more than 8 titles as public road. Firstly it is highly unlikely that the Council would want the road as public road in the first instance, and secondly to require one property owner to upgrade the existing private accessway to public road standard is not a reasonable expectation in the circumstances.

Neither is the existing appurtenant right of way to the required private accessway standard for an 'urban' zoned site. Put simply, it is not sealed. Neither is it proposed to be sealed given that all other roading in the area (excluding state highway) is metal surface. This is a low volume, low usage, low speed section of access roading and metal surface is sufficient.

Neither is the existing appurtenant right of way a uniform 5m metal carriageway width. I do not believe it needs to be given the low volume, low usage, low speed environment. The area immediately outside the property entrance is 5m width – see below picture. This could be used as a passing bay / pull off area. There is another 'passing bay/pull off' area utilised by the current road users, at the base of the slope leading up and around to the application site. This is on the east side of the road, where is a metalled area. There is also passing room back at the intersection with Waihuka Road.

In summary it is proposed to carry out minor upgrades to the existing appurtenant easement to ensure at least two passing bay areas between its commencement and the application property entrance, with the remainder at 3.5-4m metal carriageway width.

Existing entrance into site, off existing appurtenant ROW

The existing crossing into the site, serving two dwellings, is well formed with culvert already in place. This 'crossing' is off an existing appurtenant right of way, not public road. If not already to standard, it can be upgraded.

Looking north up the current driveway to existing development within the site.

Internal to the site the existing driveway winds up slope to the two existing dwellings. This is well formed metal carriageway, with water tabling drains. See photo on following page. Consent is sought to leave it as metal carriageway given all other access in the immediate area are metal. This is a perfectly adequate surfacing in the circumstances, and also lends itself to low impact design for stormwater drainage / water tabling. It can be formed / upgraded to the appropriate carriageway width.

As stated earlier, Martin Road (100m public road section) does not comply with public road standards on two fronts – firstly it is not sealed and it is doubtful that the Council ever intends to seal it. Waihuka Road, with which it intersects, is not sealed. The second matter is its carriageway width – between 3.5m and 4m, with shoulders and drains on either side. To widen the formation would mean substantial works, including drainage. To widen the carriageway a little might be possible without disrupting existing drainage. It is doubtful, however, that more than 4m metal carriageway width could be achieved without substantial expense. It is proposed to provide for passing bay / pull off area at the base of the slope within the appurtenant right of way – where there is excellent visibility to ascertain if there are any vehicles coming along Martin Road, as well as utilising the intersection with Waihuka Road as another passing bay / pull off area – again with excellent visibility to see any vehicle leaving via Martin Road.

The road is low volume, and will remain so post subdivision, and low speed. At time of my site visit, on a week day, only one other vehicle used either Martin Road, and appurtenant right of way. Signage could be erected on Martin Road to indicate narrowed road, just as is often seen on other Council roads.

It is hoped that the Council will look at this reasonably, and work with the applicant to arrive at an affordable and justifiable level of works. It could be argued that a part of the amenity and character of the area is, in fact, its low impact access network, with few vehicles and low speed environment.

6.9 Effects of Earthworks

Very little earthworks will be required to give effect to the subdivision.

6.10 Building Locations

Dwellings can be established on the vacant lots without any specific location restrictions other than to stay clear of overland flowpaths that will be required to remain clear in order to manage stormwater runoff. In addition, final dwelling location will depend on a future lot owners' building and foundation design details.

6.11 Preservation and enhancement of heritage resources (including cultural), vegetation, fauna and landscape, and land set aside for conservation purposes

The site is zoned Coastal Residential with no resource feature overlays. It contains no features mapped in the Regional Policy Statement as having any high or outstanding landscape or natural values and no mapped biodiversity wetlands. There is no land set aside for conservation purposes within the application site.

Vegetation/habitat

The application site is zoned for urban use and is adjacent to a low density built up area. It has minimal indigenous vegetation cover. No vegetation clearance will be required to develop the vacant lots.

Fauna

The site is not identified as a high density area on Far North maps. The edge of a kiwi present area touches on the site's north eastern corner. Given that this is an urban zoned site, and is in grass cover, I do not consider it necessary to place any restriction on the lots in regard to the keeping of dogs and cats. If the Council considers it necessary, a consent notice could be imposed advising of the proximity of a kiwi present area and the need keep any dogs or cats on a lot inside or securely tethered at night in order to reduce the risk of predation to kiwi.

Heritage/Cultural

There are no listed or mapped Sites of Significance to Maori on the application site, nor any historic buildings, sites, notable trees or archaeological sites as mapped and/or listed in the District Plan or Far North Maps or NZAA database. There are no natural waterbodies within the proposed additional lot.

I do not believe the proposed subdivision, well within the permitted/allowable density provided for in the ODP, will have any adverse effects on heritage/cultural values.

6.12 Soil

The site is not suitable for any type of productive use reliant on soils. The area is now in residential and lifestyle use and the proposed subdivision does little to adversely impact on the life supporting capacity of soils.

6.13 Access to, and protection of, waterbodies

There is no qualifying waterbody with which any lot has a boundary. There is no requirement for the provision of access to the coastal marine area.

6.14 Land use compatibility (reverse sensitivity)

The area is zoned for low density residential use, transitioned into larger rural holdings. The site is at a zone interface on two of its boundaries, however, the subdivision is low density, within the zone's permitted density levels, and unlikely to create any adverse reverse sensitivity effects.

6.15 Natural Character of the Coastal Environment

The site is within the coastal environment, however, is zoned urban. The subdivision consolidates development within a built up area, located near existing residential uses and in proximity to a school. The proposal creates three additional lots that will support built development. The vacant lots are not easily seen from the state highway or harbour, being screened by intervening vegetation and topography. The proposal does little to adversely impact on natural character values.

6.16 Energy Efficiency and renewable Energy Development/Use

A future lot owner may take the opportunity to install energy efficiency devices when they build. This is not something considered in this proposal.

6.17 National Grid Corridor

The National Grid does not run through the application site.

6.18 Other Matters

Cumulative Effect:

I believe the site can absorb the effects of additional built development without adverse cumulative effects. The level of density being proposed meets permitted activity thresholds.

Precedent Effect:

Precedent effects are not amongst those effects to be considered when determining the level of effects on the wider environment for the purposes of assessing whether notification is required. They are instead a matter for consideration when a consent authority is considering whether or not to grant a consent. Consideration of precedent setting is most often reserved for non complying activities, rather than discretionary activities. The Council, in granting this consent, will not be creating any negative precedent that would threaten the integrity of the ODP.

7.0 STATUTORY ASSESSMENT

7.1 Operative District Plan Objectives and Policies

Objectives and policies relevant to this proposal are considered to be primarily those listed in Chapters 10.8 (Coastal Residential Zone); and 13 (Subdivision), of the District Plan. Chapter 15.1 (as it relates to access) is also relevant.

Subdivision Objectives & Policies

Objectives

13.3.1 To provide for the subdivision of land in such a way as will be consistent with the purpose of the various zones in the Plan, and will promote the sustainable management of the natural and physical resources of the District, including airports and roads and the social, economic and cultural well being of people and communities

This is an enabling objective. The Coastal Residential Zone applies to both unsewered and sewered urban areas, located on or adjacent to the coast. The proposed subdivision creates lots conforming with the controlled activity minimum lot sizes applying to the zone, and is consistent with purpose of the zone.

13.3.2 To ensure that subdivision of land is appropriate and is carried out in a manner that does not compromise the life-supporting capacity of air, water, soil or ecosystems, and that any actual or potential adverse effects on the environment which result directly from subdivision, including reverse sensitivity effects and the creation or acceleration of natural hazards, are avoided, remedied or mitigated.

Refer to the Assessment of Environmental Effects, and supporting reports. The proposed subdivision is considered appropriate for the site and actual or potential adverse effects can be avoided, remedied or mitigated.

Objectives 13.3.3 and 13.3.4 refer to outstanding landscapes or natural features; and scheduled heritage resources; and to land in the coastal environment. Only the latter is relevant. Whilst in the coastal environment, the land is zoned urban and on the periphery of low density urban development. As such there is an expectation of built development as opposed to open space.

13.3.5 To ensure that all new subdivisions provide a reticulated water supply and/or on-site water storage and include storm water management sufficient to meet the needs of the activities that will establish all year round.

The proposal includes provision for on site water storage and stormwater management.

13.3.6 To encourage innovative development and integrated management of effects between subdivision and land use which results in superior outcomes to more traditional forms of subdivision, use and development, for example the protection, enhancement and restoration of areas and features which have particular value or may have been compromised by past land management practices.

This objective is likely intended to encourage Management Plan applications, and does not have a lot of relevance to this proposal.

13.3.7 To ensure the relationship between Maori and their ancestral lands, water, sites, wahi tapu and other taonga is recognised and provided for.

And related Policy

13.4.11 That subdivision recognises and provides for the relationship of Maori and their culture and traditions, with their ancestral lands, water, sites, waahi tapu and other taonga and shall take into account the principles of the Treaty of Waitangi.

The site is not known to contain any sites of cultural significance to Maori, or wahi tapu. The site does not include or adjoin any waterbody. Additional lots can accommodate onsite wastewater treatment and disposal system in compliance with Regional Plan requirements and with no off site adverse effects. Stormwater management can also be provided for. I do not believe that the proposal adversely impacts on the ability of Maori to maintain their relationship with ancestral lands, water, sites, wahi tapu and other taonga.

13.3.8 To ensure that all new subdivision provides an electricity supply sufficient to meet the needs of the activities that will establish on the new lots created.

Top Energy has confirmed that electricity can be provided.

13.3.9 To ensure, to the greatest extent possible, that all new subdivision supports energy efficient design through appropriate site layout and orientation in order to maximise the ability to provide light, heating, ventilation and cooling through passive design strategies for any buildings developed on the site(s).

13.3.10 To ensure that the design of all new subdivision promotes efficient provision of infrastructure, including access to alternative transport options, communications and local services.

A future lot owner will have sufficient scope within the site to include energy efficiencies within their individual home designs, via active means such as solar panels, or passive design strategies such as sky lights and orientation.

The subdivision utilises existing access off legal road via existing appurtenant right of way. The site is not far from State Highway 12.

Objective 13.3.11 is not discussed further as there is no National Grid on or near the subject site.

Policies

13.4.1 That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on:
(a) natural character, particularly of the coastal environment;
(b) ecological values;
(c) landscape values;
(d) amenity values;
(e) cultural values;
(f) heritage values; and
(g) existing land uses.

The values outlined above, along with existing uses, have been discussed earlier in this report. I believe regard has been had to items (a) through (g) in the design of the subdivision.

13.4.2 That standards be imposed upon the subdivision of land to require safe and effective vehicular and pedestrian access to new properties. And

13.4.5 That access to, and servicing of, the new allotments be provided for in such a way as will avoid, remedy or mitigate any adverse effects on neighbouring property, public roads (including State Highways), and the natural and physical resources of the site caused by silt runoff, traffic, excavation and filling and removal of vegetation.

Access to the site is existing, off legal road. The site is reasonably close to State Highway network via an established council maintained intersection.

13.4.3 That natural and other hazards be taken into account in the design and location of any subdivision.

The property is not subject to any hazard.

13.4.4 That in any subdivision where provision is made for connection to utility services, the potential adverse visual impacts of these services are avoided.

I believe there are no above ground utility services.

13.4.6 That any subdivision proposal provides for the protection, restoration and enhancement of heritage resources, areas of significant indigenous vegetation and significant habitats of indigenous fauna, threatened species, the natural character of the coastal environment and riparian margins, and outstanding landscapes and natural features where appropriate.

The site is not known to contain any of the natural and physical resources listed in 13.4.6. The site is zoned Coastal Residential, and natural character values associated with the coast line are already compromised by the presence of built development.

Policy 13.4.7 is not discussed as this relates to carparking associated with non residential activities (not relevant) or esplanade areas, none of which are required or considered necessary.

13.4.8 That the provision of water storage be taken into account in the design of any subdivision.

This is discussed earlier. The vacant lot can provide for on-site water storage.

Policies 13.4.9 and 13.4.10 are not discussed further. The former relates to bonus development donor and recipient areas, which are not contemplated in this proposal; whilst the latter only applies to subdivision in the Conservation Zone.

13.4.12 That more intensive, innovative development and subdivision which recognises specific site characteristics is provided for through the management plan rule where this will result in superior environmental outcomes.

The application is not lodged as a Management Plan application.

13.4.13 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regards to ***s6 matters****. In addition subdivision, use and development shall avoid adverse effects as far as practicable by using techniques including:*
(a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns;
(b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area;
(c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas;
(d) through siting of buildings and development, design of subdivisions, and provision of access that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District (refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and Perspectives" (2004);
(e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests;
(f) protecting historic heritage through the siting of buildings and development and design of subdivisions.
(g) achieving hydraulic neutrality and ensuring that natural hazards will not be exacerbated or induced through the siting and design of buildings and development.

S6 matters (National Importance) are addressed later in this report.

In addition:

(a) The proposal will provide for three additional dwellings within an area with an existing low density residential character, in a manner that has little or no impact on natural character, indigenous vegetation, landforms, rivers, streams or wetlands.
(b) The site is in the coastal environment, but zoned for urban development;
(c) The site does not adjoin any qualifying water body and therefore public access is not required;
(d) The proposal is not believed to negatively impact on the relationship of Maori with their culture;
(e) There are no mapped or identified existing significant habitat or areas of significant indigenous vegetation;
(f) There are no identified heritage values;
(g) An acceptable stormwater management system can be designed such that there will be no adverse off site effects;
(h) The site is not subject to hazard.

I consider the proposal to be consistent with Policy 13.4.13.

13.4.14 That the objectives and policies of the applicable environment and zone and relevant parts of Part 3 of the Plan will be taken into account when considering the intensity, design and layout of any subdivision.

The subdivision has had regard to the underlying zone's objectives and policies.

13.4.15 That conditions be imposed upon the design of subdivision of land to require that the layout and orientation of all new lots and building platforms created include, as appropriate, provisions for achieving the following: (a) development of energy efficient buildings and structures; (b) reduced travel distances and private car usage; (c) encouragement of pedestrian and cycle use; (d) access to alternative transport facilities; (e) domestic or community renewable electricity generation and renewable energy use

The additional lot can readily provide for house sites with good access to sunlight and the ability to utilise energy efficiency measures. The site is close to transport networks.

Policy 13.4.16 is not considered relevant as it only relates to the National Grid.

In summary, I believe the proposal to be consistent with the above Objectives and Policies.

Coastal Residential Zone Objectives and Policies

Objectives:

10.8.3.1 To enable the development of residential activity in and around existing coastal settlements.

10.8.3.2 To protect the coastline from inappropriate subdivision, use and development.

10.8.3.3 To enable the development of coastal settlements where urban amenity and coastal environmental values are compatible.

I believe the proposed subdivision will create lots that will be able to accommodate the type of development envisaged by the above objectives, and is appropriate for the site.

And policies

10.8.4.1 That standards in the zone enable a range of housing types and forms of accommodation to be provided, recognising the diverse needs of the community and the coastal location of the zone.

10.8.4.2 Non-residential activities within the Coastal Residential Zone shall be designed, built, and located so that any effects that are more than minor on the existing character of the residential environment or the scale and intensity of residential activities, are avoided, remedied or mitigated.

10.8.4.3 That residential activities have sufficient land associated with each household unit to provide for outdoor space and sewage disposal.

10.8.4.4 That the portion of a site covered in buildings and other impermeable surfaces be limited to enable open space and landscaping around buildings and avoid or mitigate the effects of stormwater runoff on receiving environments

10.8.4.5 That provision be made for ensuring sites have adequate access to sunlight and daylight.

10.8.4.6 That activities with net effects greater than a single residential unit could be expected to have, be required to minimise adverse effects on the amenity values and general peaceful enjoyment of any adjacent residential activities.

10.8.4.7 That provision be made to ensure a reasonable level of privacy and amenity for inhabitants of buildings.

Policies 10.8.4.1 and 10.8.4.2 relate specifically to housing types and non-residential activities and are not relevant. The sites are large enough to enable residential activities to establish with sufficient outdoor space and onsite sewage disposal (10.8.4.3). The lots can easily accommodate development complying with the zone's permitted impermeable coverage rules, and building coverage rules (10.8.4.4). Sites enable good access to sunlight and daylight (10.8.4.5). The lots are large enough to enable a reasonable level of privacy and amenity for future inhabitants (10.8.4.7).

In summary, I believe the proposal to be consistent with the Coastal Residential Zone objectives and policies.

Relevant traffic (access) objectives include:

15.1.3.1 which seeks to minimise the adverse effects of traffic on the natural and physical environment; and 15.1.3.5 which seeks to promote safe and efficient movement and circulation of vehicular, cycle and pedestrian traffic, including those with disabilities.

Although the public road providing access to the site is not to standard, it is adequate and where it does not meet minimum width, visibility is good in both directions. Passing bay/ pull off areas can be established and maintained. Internal to the site access can be constructed to the appropriate standard and provide for safe and efficient movement of vehicles to and from the lots.

Relevant policies include:

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

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.

Vehicle access points into new lots can be constructed to the appropriate standard.

7.2 Proposed District Plan Objectives and Policies

The following is an assessment of the proposal against relevant objectives and policies in the PDP.

Subdivision Objectives:

SUB-O1 *Subdivision results in the efficient use of land, which:*
a. achieves the objectives of each relevant zone, overlays and district wide provisions;
b. contributes to the local character and sense of place;
c. avoids reverse sensitivity issues that would prevent or adversely affect activities already

established on land from continuing to operate;
d. avoids land use patterns which would prevent land from achieving the objectives and policies of the zone in which it is located;
e. does not increase risk from natural hazards or risks are mitigates and existing risks reduced; and
f. manages adverse effects on the environment.

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

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

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

The subdivision results in the efficient use of land. It contributes to the local character and sense of place and reverse sensitivity issues are not unduly increased. It also avoids land use patterns which would prevent land from achieving the objectives and policies of the zone. The subdivision does not increase the risk form natural hazards, and manages adverse effects (SUB-O1). The site is not utilised for productive purposes and is not zoned for productive use, so the subdivision has no need to protect such land. The site contains none of the items listed in SUB-O2(b) other than being within the Coastal Environment. However, as stated earlier, the site is in an existing urban area so natural character values are already compromised.

The site is not connected to Council services, but has power (SUB-O3). Supporting technical reports conclude the site can support on-site wastewater and stormwater, and can also provide for water supply. The site is located close to public open spaces and to Council roading network. State Highway 12 is not that far away. The site does not adjoin the coastal marine are or any other 'qualifying' water bodies (SUB-O4).

SUB-P1 *Enable boundary adjustments that:*
a. do not alter:
  i. the degree of non compliance with District Plan rules and standards;
  ii. the number and location of any access; and
  iii. the number of certificates of title; and
b. are in accordance with the minimum lot sizes of the zone and comply with access, infrastructure and esplanade provisions.

The Stage 2 component meets the requirements listed in parts a and b above.

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

Not relevant – application does not involve public works, infrastructure, reserves or access lots.

SUB-P3 *Provide for subdivision where it results in allotments that:*
a. are consistent with the purpose, characteristics and qualities of the zone;
b. comply with the minimum allotment sizes for each zone;
c. have an adequate size and appropriate shape to contain a building platform; and
d. have legal and physical access.

I believe the proposed allotments will be consistent with the purpose, characteristics and qualities of the zone (General Residential). The PDP, yet to have legal effect, proposes 600m^2 sites as a controlled activity minimum lot size to apply. This infers an intention to service the site with 3 waters at some point in the future, otherwise the site would have been zoned Settlement. The vacant lots being proposed are in excess of 3000m^2 and will readily accommodate buildings with legal and physical access.

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

The site has existing access, contains no waterbodies, areas of biodiversity, historical or cultural values or hazards.

SUB-P5
Manage subdivision design and layout in the General Residential, Mixed Use and Settlement zoneto provide for safe, connected and accessible environments by:
a. minimising vehicle crossings that could affect the safety and efficiency of the current and future transport network;
b. avoid cul-de-sac development unless the site or the topography prevents future public access and connections;
c. providing for development that encourages social interaction, neighbourhood cohesion, a sense of place and is well connected to public spaces;
d.contributing to a well connected transport network that safeguards future roading connections; and
e. maximising accessibility, connectivity by creating walkways, cycleways and an interconnected transport network.

The site is to be zoned General Residential. The existing one vehicle crossing into the site is to be retained. The proposed internal access is private access and there is no opportunity for any future public access connectivity. I believe the development can occur, subject to conditions, without adversely affecting the safety and efficiency of the transport network.

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

The vacant lot will be self sufficient in terms of 3 waters, although it is noted that the PDP zones the site General Residential, indicating future intent to extend 3 water services to the site.

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

The site does not adjoin any qualifying waterbody.

SUB-P8 *Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision: ....*

Site is not zoned Rural Production.

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

The site is not zoned either Rural Production or Rural Lifestyle and the subdivision is not a Management Plan.

SUB-P10
To protect amenity and character by avoiding the subdivision of minor residential units from principalresidential units where resultant allotments do not comply with minimum allotment size and resi dential density.

Not applicable. There are no minor residential units.

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

The proposal does not require resource consent under the PDP. I believe the proposal has adequately taken into account all of the matters listed above.

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

The site is zoned General Residential in the PDP. The overview describes the zone as one that represents those areas where *"there is an expectation of higher density residential development, compared to the rural environments, and that generally provides adequacy and capacity of available or programmed development infrastructure."*

This indicates Council's intent to service the site with 3 waters at some point in the future.

General Residential Zone Objectives:

GRZ-O1
The General Residential zone provides a variety of densities, housing types and lot sizes that respond to:
a. housing needs and demand;
b. the adequacy and capacity of available or programmed development infrastructure;
c. the amenity and character of the receiving residential environment; and
d. historic heritage.

GRZ-O2
The General Residential zone consolidates urban residential development around available or programmed development infrastructure to improve the function and resilience of the receiving residential environment while reducing urban sprawl.

GRZ-O3
Non-residential activities contribute to the wellbeing of the community while complementing the scale, character and amenity of the General Residential zone.

GRZ-O4
Land use and subdivision in the General Residential zone is supported where there is adequacy and capacity of available or programmed development infrastructure.

GRZ-O5
Land use and subdivision in the General Residential zone provides communities with functional and high amenity living environments.

GRZ-O6
Residential communities are resilient to changes in climate and are responsive to changes in sustainable development techniques.

The proposal will create lots that can accommodate activity consistent with all of the above objectives.

General Residential Policies:

GRZ-P1
Enable land use and subdivision in the General Residential zone where:
a. there is adequacy and capacity of available or programmed development infrastructure to support it; and
b. it is consistent with the scale, character and amenity anticipated in the residential environment.

Whilst the site is not currently serviced by 3 waters, there is a clear indication that it will be, given its zoning. The proposal is consistent with the scale, character and amenity anticipated in the residential environment.

GRZ-P2
Require all subdivision in the General Residential zone to provide the following reticulated services to the boundary of each lot:
a. telecommunications:
i. fibre where it is available; or
ii. copper where fibre is not available;
b. local electricity distribution network; and
c. wastewater, potable water and stormwater where they are available.

Consultation has been carried out with service providers.

GRZ-P3
Enable multi-unit developments within the General Residential zone, including terraced housing and apartments, where there is adequacy and capacity of available or programmed development infrastructure.

N/A

GRZ-P4
Enable non-residential activities that:….

N/A

GRZ-P5
Provide for retirement villages where they:

N/A

GRZ-P6
Encourage and support the use of on-site water storage to enable sustainable and efficient use of water resources.

The new lots will be reliant on their own onsite water storage.

GRZ-P7
Encourage energy efficient design and the use of small-scale renewable electricity generation in the construction of residential development.

Not a consideration under this subdivision.

GRZ-P8
Manage land use and subdivision to address the effects of the activity requiring resource consent,

N/A – no consent required under the PDP.

Coastal Environment objectives and policies are also relevant.

CE-O1 *The natural character of the coastal environment is identified and managed to ensure its long-term preservation and protection for current and future generations.*

CE-O2 *Land use and subdivision in the coastal environment:*

a. *preserves the characteristics and qualities of the natural character of the coastal environment;*
b. *is consistent with the surrounding land use;*
c. *does not result in urban sprawl occurring outside of urban zones;*
d. *promotes restoration and enhancement of the natural character of the coastal environment; and*
e. *recognises tangata whenua needs for ancestral use of whenua Māori.*

CE-P2 *Avoid adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment identified as:*
a. *outstanding natural character;*
b. *ONL;*
c. *ONF.*

CE-P3 *Avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment not identified as:*

a. *outstanding natural character;*
b. *ONL;*
c. *ONF.*

CE-P4 *Preserve the visual qualities, character and integrity of the coastal environment by:*

a. *consolidating land use and subdivision around existing urban centres and rural settlements; and*
b. *avoiding sprawl or sporadic patterns of development.*

CE-P8 *Encourage the restoration and enhancement of the natural character of the coastal environment.*

CE-P10 *Manage land use and subdivision to preserve and protect the natural character of the coastal environment, and to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:*

a. *the presence or absence of buildings, structures or infrastructure;*
b. *the temporary or permanent nature of any adverse effects;*
c. *the location, scale and design of any proposed development;*
d. *any means of integrating the building, structure or activity;*
e. *the ability of the environment to absorb change;*
f. *the need for and location of earthworks or vegetation clearance;*
g. *the operational or functional need of any regionally significant infrastructure to be sited in the particular location;*
h. *any viable alternative locations for the activity or development;*
i. *any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6;*
j. *the likelihood of the activity exacerbating natural hazards;*
k. *the opportunity to enhance public access and recreation;*
l. *the ability to improve the overall quality of coastal waters; and*
m. *any positive contribution the development has on the characteristics and qualities.*

The site is within the coastal environment but is zoned General Residential, intended for urban settlement and serviced sites. The site and its environs have a character of built environment at the edge of more open rural farmland. Natural character has been, and will continue to be, somewhat compromised in terms of the amount of built development. The proposal does not create urban sprawl, noting the site's zoning, and is consistent with the area's character. The site is not known to contain any sites of significance to Maori and has no areas of outstanding natural character, outstanding natural landscape or natural feature.

I believe the proposal is consistent with the objectives and policies of the coastal environment.

7.3 Part 2 Matters

5 Purpose

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

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

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

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

6 Matters of national importance

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

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
(f) the protection of historic heritage from inappropriate subdivision, use, and development:
(g) the protection of protected customary rights:
(h) the management of significant risks from natural hazards.

The application site does not contain or display any of the features, resources or values outlined in Section 6. There is no significant risk from natural hazard.

7 Other matters

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

(a) kaitiakitanga:
(aa) the ethic of stewardship:
(b) the efficient use and development of natural and physical resources:
(ba) the efficiency of the end use of energy:
(c) the maintenance and enhancement of amenity values:
(d) intrinsic values of ecosystems:
(e) [Repealed]
(f) maintenance and enhancement of the quality of the environment:
(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:
(i) the effects of climate change:
(j) the benefits to be derived from the use and development of renewable energy.

Regard has been had to any relevant parts of Section 7 of the RMA, "Other Matters". These include 7(b), (c), (d) and (f). It is considered that the proposal represents efficient use and development of a site. Proposed layout, along with waste water and stormwater management proposals, will ensure the maintenance of amenity values and the quality of the environment. The proposal has had regard to the values of ecosystems.

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

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

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

7.4 NZ Coastal Policy Statement

The NZ Coastal Policy Statement (NZCPS) has relevance to this proposal due to the property being within the coastal environment. The following objectives and policies are considered relevant to the proposal.

Objective 2: *To preserve the natural character of the coastal environment and protect natural features*

Objective 6: *To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:*

- *the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;*

Policy 6: *Activities in the coastal environment*
(1) In relation to the coastal environment:
……(h) consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, such as headlands and prominent ridgelines, and as far as practicable and reasonable apply controls or conditions to avoid those effects; …..
(i) set back development from the coastal marine area and other water bodies, where practicable and reasonable, to protect the natural character, open space, public access and amenity values of the coastal environment; and……

Policy 13*: Preservation of natural character*
(1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development:
(a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and
(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment;

Policy 14 *Restoration of natural character*
Promote restoration or rehabilitation of the natural character of the coastal environment, including by :
….
And

Policy 15 *Natural features and natural landscapes*
To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development:
(a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and
(b) avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment;

The site does not display any outstanding or high natural character values, nor any high or outstanding landscape values. The site has limited visibility to and from the coastal marine area. The site already supports two dwellings and adjacent sites between it and the coast, are already developed. Natural character aspects are already somewhat compromised. The proposed new lots are set well back from the shore line, and are not subject to any coastal hazard. The proposal does not adversely affect indigenous biodiversity or natural character values.

I believe the proposal gives effect to the relevant objectives and policies in the NZ Coastal Policy Statement.

7.5 National and Regional Policy Statements

I have not identified any other national policy statements relevant to this proposal.

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

The RPS also has policies relating to subdivision, use and development of land in the coastal environment, with emphasis on avoiding adverse effects where land in that environment is also outstanding landscape and/or natural character – which the application site is not. In the absence of those values, the RPS instead emphasises the need to avoid, remedy or mitigate significant adverse effects of development in the coastal environment, which I believe this proposal does.

The RPS also has policies ensuring that productive land is not subject to fragmentation and/or sterilisation to the point where productive capacity is materially reduced, and that reverse sensitivity effects be avoided, remedied or mitigated. The application site is not productive land and is not used as such. The proposal does not generate any additional reverse sensitivity effects.

8.0 s95A-E ASSESSMENT & CONSULTATION

8.1 S95A Public Notification Assessment

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. None of these circumstances exist and public notification is not mandatory. Step 2 of s95A specifies the circumstances that preclude public notification. None of these exist, and public notification is therefore not precluded. Step 3 of s95A must then be considered. This specifies that public notification is required in certain circumstances neither of which exists. The application is not subject to a rule or national environmental standard that requires public notification. This report and AEE concludes that the activity will not have, nor is it likely to have, adverse effects on the environment that are more than minor. In summary public notification is not required pursuant to Step 3 of s95A.

8.2 S95B Limited Notification Assessment

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

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

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

The application is not for a boundary activity. The s95E assessment below concludes that there are no affected persons to be notified.

8.3 S95D Level of Adverse Effects

The AEE in this report assesses effects on the environment and concludes that these will be no more than minor on the wider environment. As such public notification is not required.

8.4 S95E Affected Persons & Consultation

A person is an 'affected person' if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). A person is not an affected person if they have provided written approval for the proposed activity. No Written Approvals have been obtained.

The activity is a discretionary activity because of shortfalls in the standard of the existing access standard, specifically carriageway width. The subdivision, once given effect to, will result in a minor increase in traffic movements. The proposal includes suggested targeted widening for passing bay and pull off areas, on the existing appurtenant right of way. This will improve the existing situation for other users – a positive effect.

In terms of density level, the proposal is well within the permitted and controlled residential intensity and subdivision thresholds in the ODP. No affected persons have been identified.

The site does not contain any heritage or cultural sites or values. The proposed additional lot is not adjacent to any water body, and minimal, if any, earthworks are being proposed. The vacant sites do not contain any areas of indigenous vegetation or habitat. The site is not accessed off state highway. No pre lodgement consultation has been considered necessary with tangata whenua, Heritage NZ, Department of Conservation or Waka Kotahi.

9.0 CONCLUSION

The site is considered suitable for the proposal. Effects on the wider environment are, I believe, no more than minor. The proposal is considered consistent with the relevant objectives and policies of the Operative and Proposed District Plans, and relevant objectives and policies of National and Regional Policy Statements, and consistent with Part 2 of the Resource Management.

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

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

Signed Dated 25th September 2025

Lynley Newport,
Senior Planner
Thomson Survey Ltd

10.0 LIST OF APPENDICES

Appendix 1 Scheme Plan(s)

Appendix 2 Location Plan

Appendix 3 Record of Title & Relevant Interests

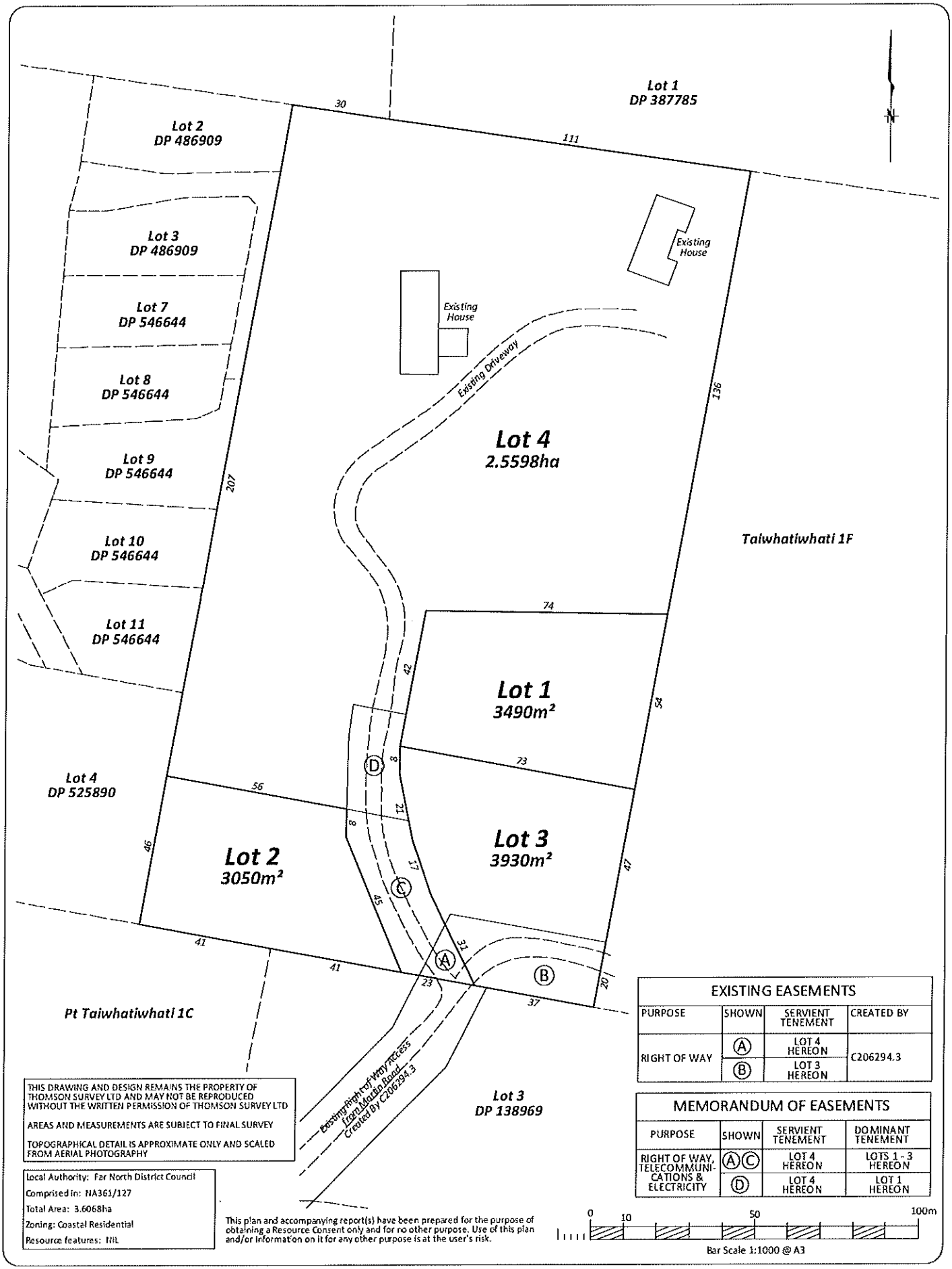
Appendix 4 Consultation with Top Energy & Chorus

Appendix 5 Geotechnical Investigation Report
(Reference document only. Sourced from property file – originally provided in support of previous subdivision)

Appendix 6 Engineering Report (Civil)
(Originally provided in support of previous subdivision)

Appendix 1

Scheme Plan(s)



EXISTING EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	(A)	LOT 4 HEREON	C206294.3
	(B)	LOT 3 HEREON	

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS & ELECTRICITY	(A)(C)	LOT 4 HEREON	LOTS 1 - 3 HEREON
	(D)	LOT 4 HEREON	LOT 1 HEREON

Local Authority: Far North District Council
Comprised in: NA361/127
Total Area: 3.6068ha
Zoning: Coastal Residential
Resource features: NIL

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

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Bar Scale 1:1000 @ A3

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PROPOSED SUBDIVISION OF TAIWHATIWHATI 1E BLOCK

MARTIN ROAD, OMAPERE

PREPARED FOR: S LEES

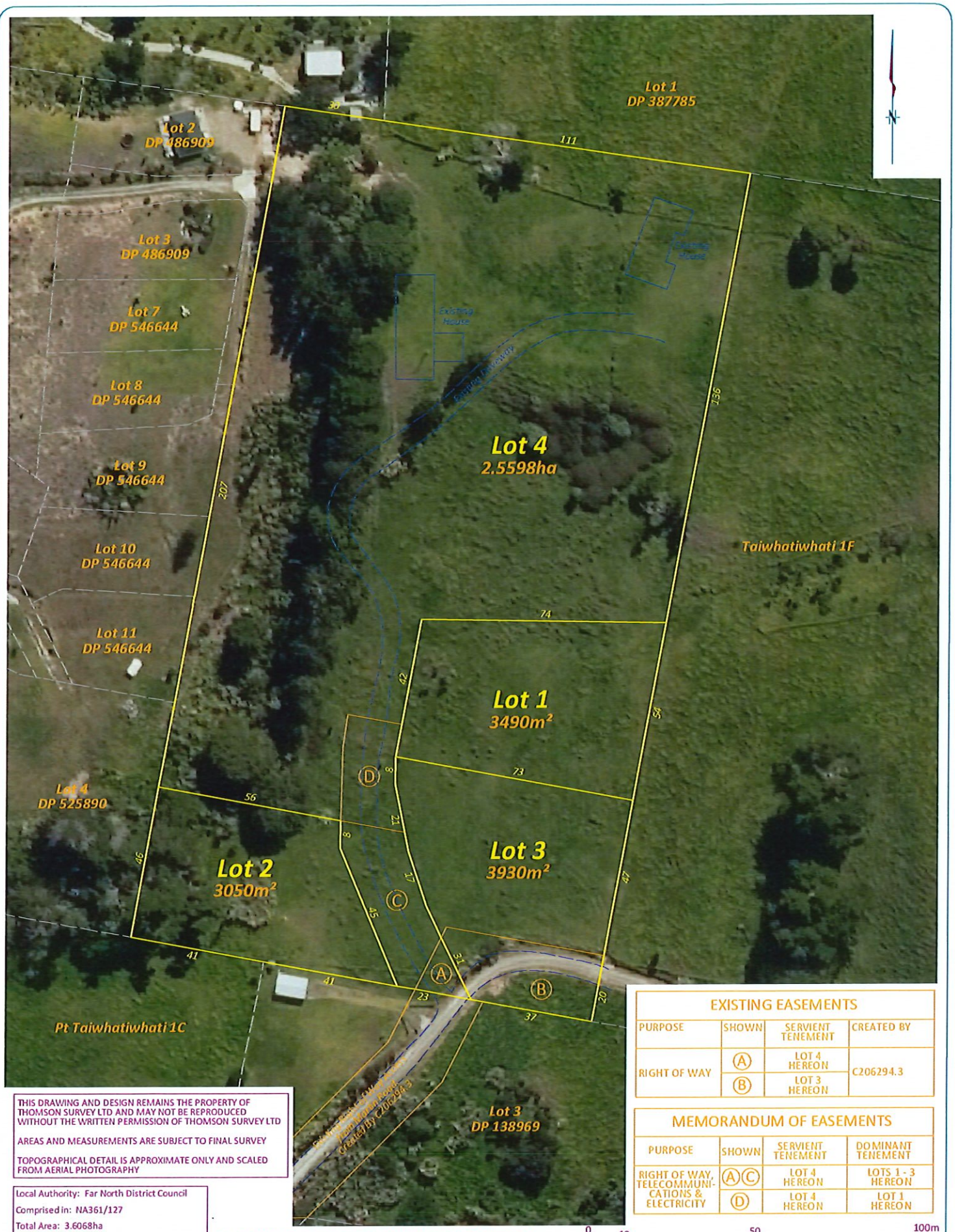
	Name	Date
Survey		
Design		
Drawn	KY	07.05.25
Approved		
Rev	KY	27.06.25

ORIGINAL
SCALE 1:1000
SHEET SIZE A3

9849 Scheme 20250627

Surveyors Ref. No: 9849

Sheet 1 of 1



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RIGHT OF WAY, TELECOMMUNICATIONS & ELECTRICITY	(A)(C)	LOT 4 HEREON	LOTS 1 - 3 HEREON
	(D)	LOT 4 HEREON	LOT 1 HEREON

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

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Approved		
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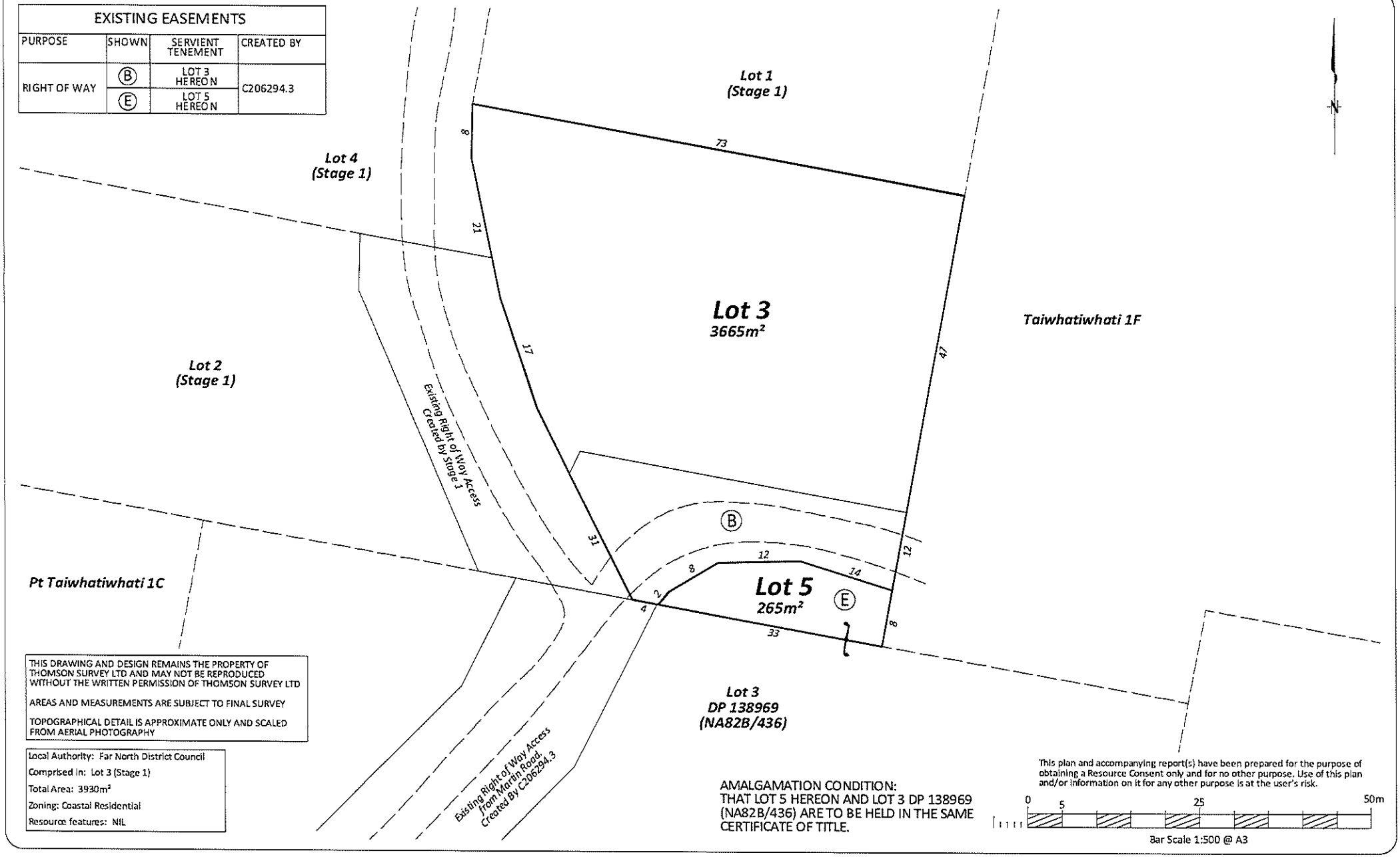
9849 Scheme 20250627

ORIGINAL
SCALE 1:1000
SHEET SIZE A3

Surveyors Ref. No: 9849

Sheet 1 of 1

EXISTING EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	Ⓑ	LOT 3 HEREON	C206294.3
	Ⓔ	LOT 5 HEREON	



AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
Comprised In: Lot 3 (Stage 1)
Total Area: 3930m²
Zoning: Coastal Residential
Resource features: NIL

AMALGAMATION CONDITION:
THAT LOT 5 HEREON AND LOT 3 DP 138969 (NA82B/436) ARE TO BE HELD IN THE SAME CERTIFICATE OF TITLE.

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PROPOSED SUBDIVISION OF LOT 3 (STAGE 1)

MARTIN ROAD, OMAPERE

PREPARED FOR: S LEES

	Name	Date
Survey		
Design		
Drawn	KY	23.09.25
Approved		
Rev		

ORIGINAL
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SHEET SIZE A3

9849 Scheme 20250923 Stage 2

Surveyors Ref. No: 9849

Sheet 1 of 1

EXISTING EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	(B)	LOT 3 HEREON	C206294.3
	(E)	LOT 5 HEREON	

Local Authority: Far North District Council
Comprised in: Lot 3 (Stage 1)
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Zoning: Coastal Residential
Resource features: NIL

AMALGAMATION CONDITION:
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Bar Scale 1:500 @ A3

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PROPOSED SUBDIVISION OF LOT 3 (STAGE 1)

MARTIN ROAD, OMAPERE

PREPARED FOR: S LEES

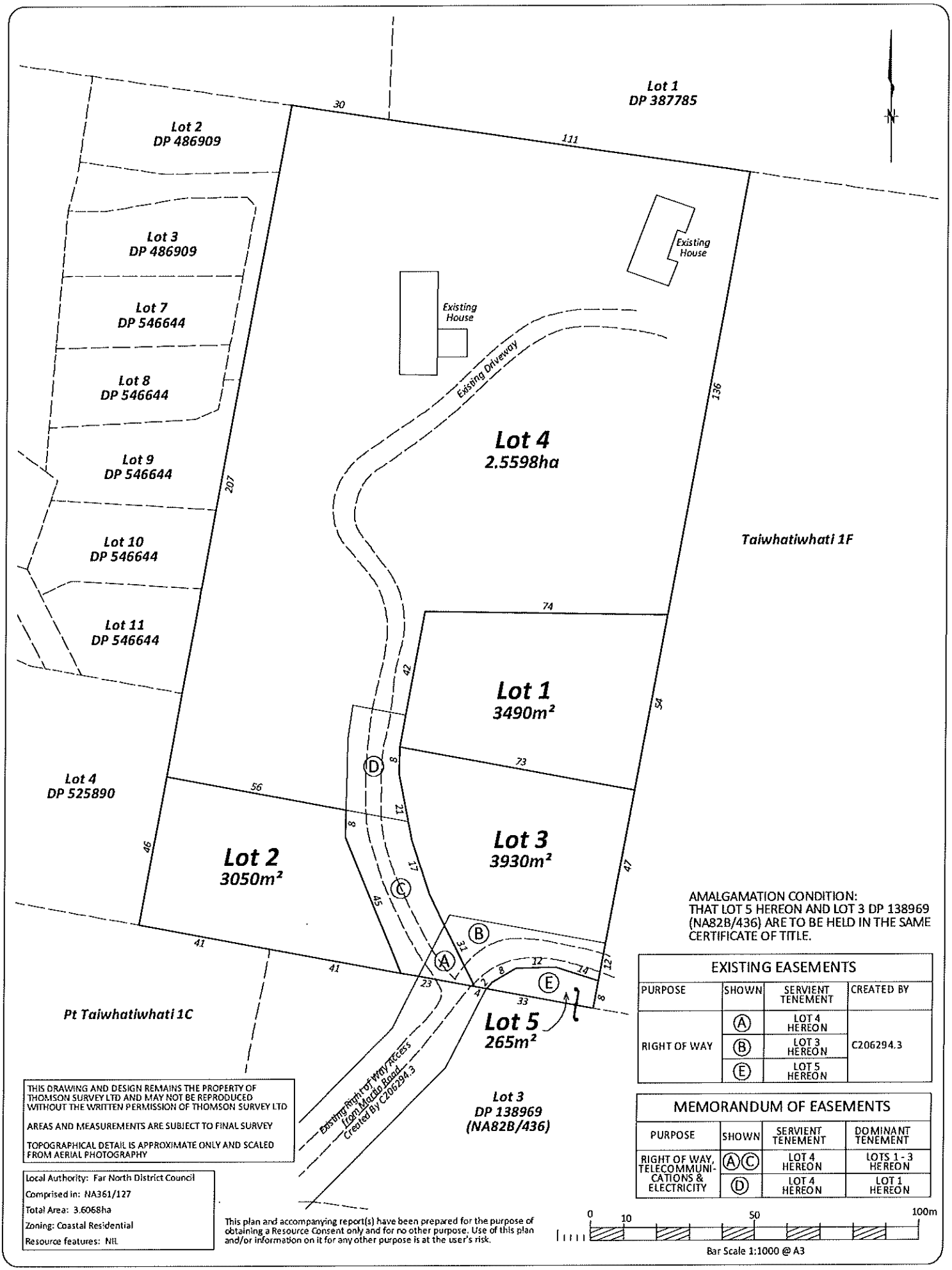
	Name	Date
Survey		
Design		
Drawn	KY	23.09.25
Approved		
Rev		

ORIGINAL
SCALE 1:500
SHEET SIZE A3

9849 Scheme 20250923 Stage 2

Surveyors Ref. No: 9849

Sheet 1 of 1



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	(B)	LOT 3 HEREON	
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	(D)	LOT 4 HEREON	LOT 1 HEREON

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
Comprised in: NA361/127
Total Area: 3.6068ha
Zoning: Coastal Residential
Resource features: NIL

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

0 10 50 100m

Bar Scale 1:1000 @ A3

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

PROPOSED SUBDIVISION OF TAIWHATIWHATI 1E BLOCK

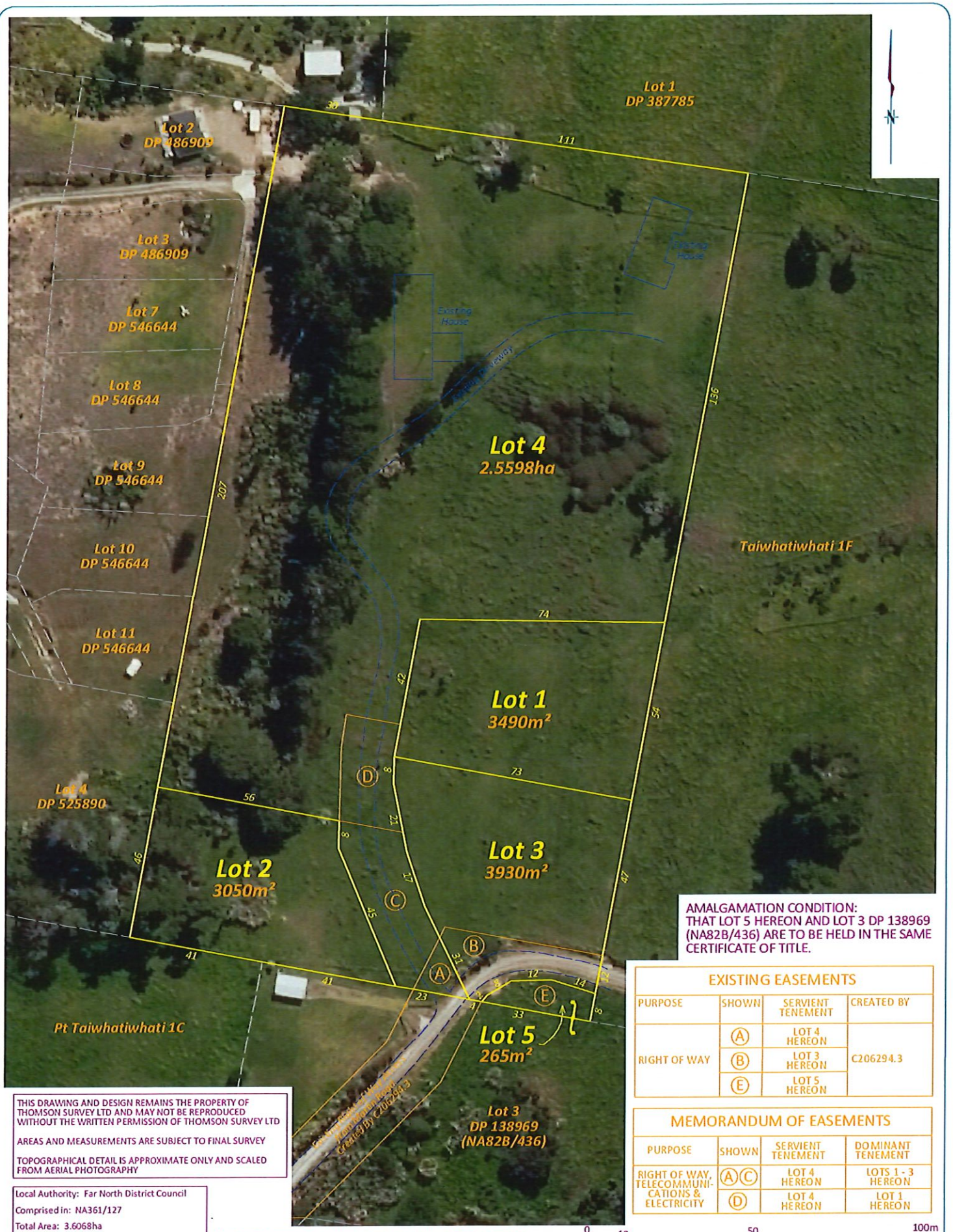
MARTIN ROAD, OMAPERE

PREPARED FOR: S LEES

	Name	Date
Survey		
Design		
Drawn	KY	07.05.25
Approved		
Rev	KY	27.06.25

ORIGINAL
SCALE 1:1000
SHEET SIZE A3
9849 Scheme 20250923 Overall

Surveyors Ref. No: 9849
Sheet 1 of 1



AMALGAMATION CONDITION:
THAT LOT 5 HEREON AND LOT 3 DP 138969 (NA82B/436) ARE TO BE HELD IN THE SAME CERTIFICATE OF TITLE.

EXISTING EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY	(A)	LOT 4 HEREON	C206294.3
	(B)	LOT 3 HEREON	
	(E)	LOT 5 HEREON	

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS & ELECTRICITY	(A)(C)	LOT 4 HEREON	LOTS 1 - 3 HEREON
	(D)	LOT 4 HEREON	LOT 1 HEREON

Local Authority: Far North District Council
Comprised in: NA361/127
Total Area: 3.6068ha
Zoning: Coastal Residential
Resource features: NIL

0 10 50 100m

Bar Scale 1:1000 @ A3

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PROPOSED SUBDIVISION OF TAIWHATIWHATI 1E BLOCK

MARTIN ROAD, OMAPERE

PREPARED FOR: S LEES

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Design		
Drawn	KY	07.05.25
Approved		
Rev	KY	27.06.25

ORIGINAL
SCALE 1:1000
SHEET SIZE A3

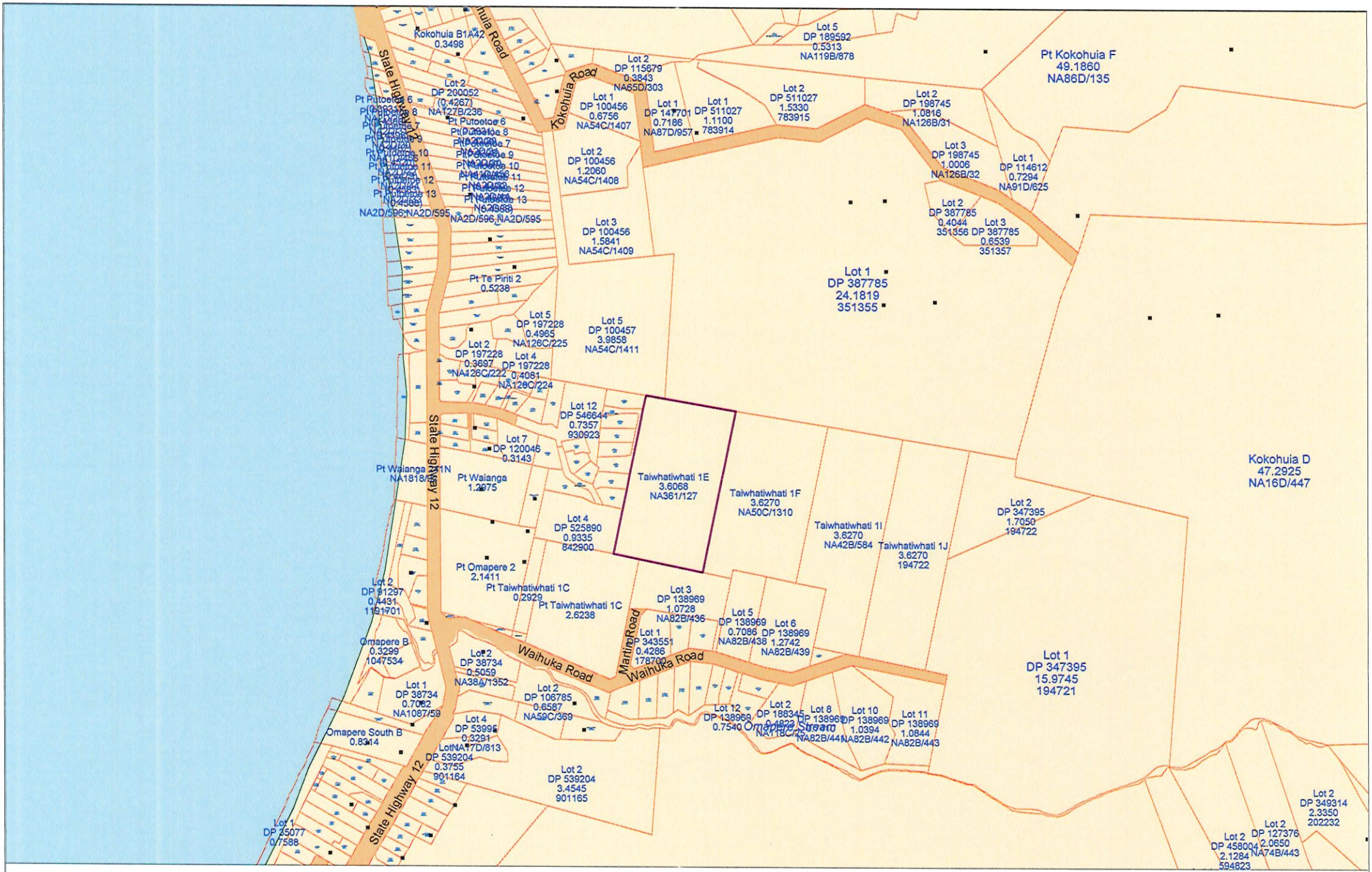
9849 Scheme 20250923 Overall

Surveyors Ref. No: 9849

Sheet 1 of 1

Appendix 2

Location Plan



QuickMap
Custom Software Ltd

0 100 200 300 400 500 600 700 800 900m

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

Scale 1:7500 Topographical and Cadastral map derived from LINZ data. Printed: 14-May-2025 01:34.

Appendix 3

Record of Title & Relevant Interests

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA361/127**
Land Registration District	**North Auckland**
Date Issued	16 August 1922

Prior References
NAPR165/81

Estate	Fee Simple
Area	3.6068 hectares more or less
Legal Description	Taiwhatiwhati No 1E Block

Registered Owners
Samuel Lees and Fiona Leigh Lees

Interests

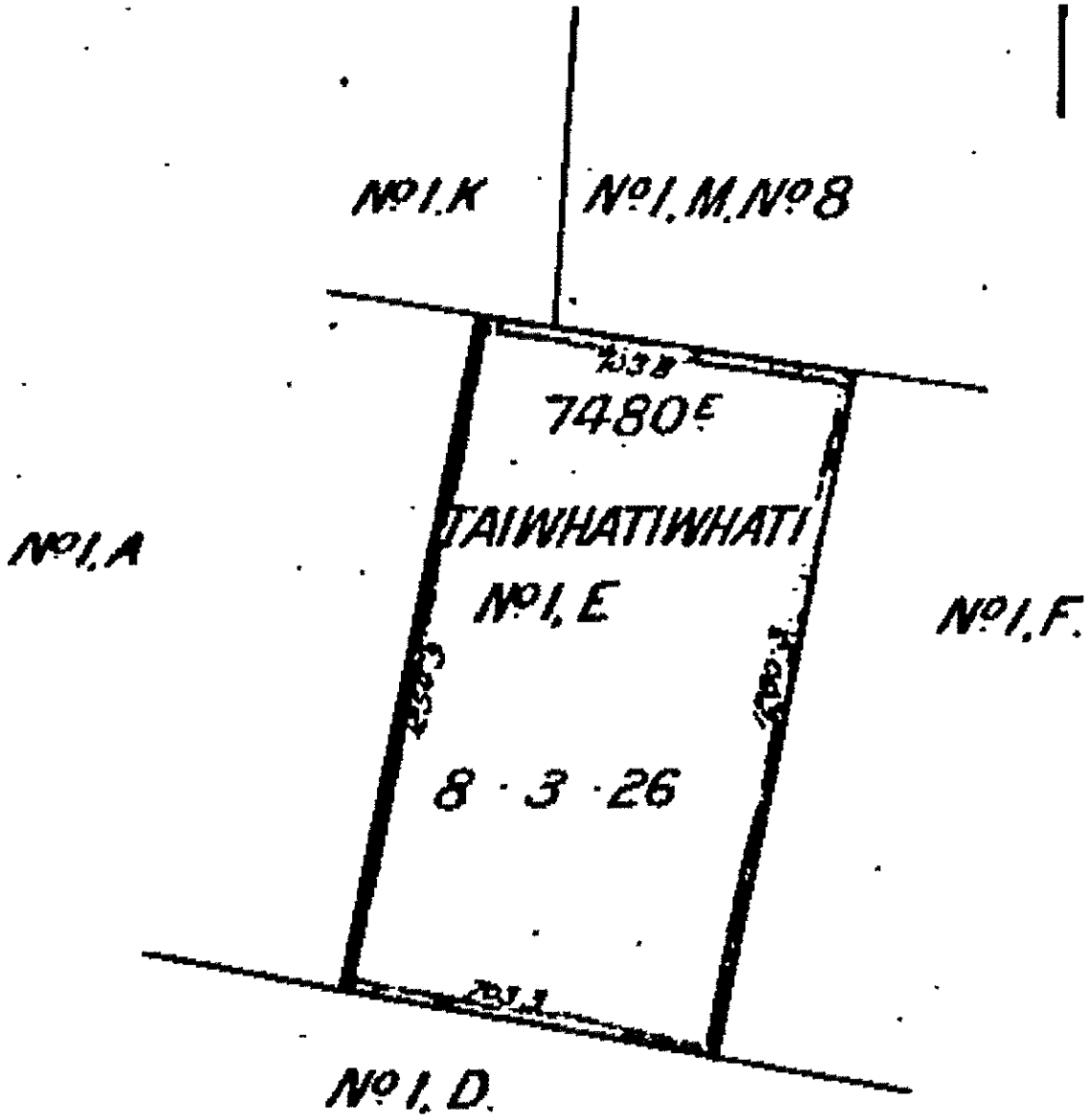
Appurtenant hereto is a right of way specified in Easement Certificate C206294.3 - 29.10.1990 at 2.13 pm

The easements specified in Easement Certificate C206294.3 are subject to Section 309 (1) (a) Local Government Act 1974

Subject to a right of way over part marked D on DP 138969 created by Transfer C206294.4 - 29.10.1990 at 2.13 pm

Appurtenant hereto is a right to convey electricity and telecommunications created by Easement Instrument 11727575.4 - 9.3.2021 at 4:00 pm

12259114.1 Mortgage to (now) ASB Bank Limited - 5.10.2021 at 3:15 pm


No 1 K
No 1 M No 8
233
7480 E
TAIWHATIWHATI
No 1 A
No 1 E
No 1 F
8 · 3 · 26
No 1 D

Approved by the Registrar-General of Land, Wellington, No. 367635.80
Approved by the District Land Registrar, North Auckland, No. 4363/80

C 206294.4
TE

Under the Land Transfer Act 1952

Memorandum of Transfer

~~being registered as proprietor~~

~~ubject however to such encumbrances, liens and interests as are notified by memoranda underwritten~~
~~r endorsed hereon in piece of land situated in the Land District of~~
~~ontaining~~

~~more or less being~~

WHEREAS

(a) BRENDA RUTH BABBAGE of Auckland, Businesswoman (hereinafter called "the first transferor") as registered as proprietor of the land firstly, secondly and thirdly described in the schedule hereto.

428/584, 828/439, 828/438

(b) ALAN GORDON NUNNS of Auckland, Geophysicist and ALICE MARY ROGAN of Auckland, Married Woman (hereinafter together called "the second transferor") are registered proprietors of the land fourthly described in the schedule hereto.

SOC/1310

(c) GEORGE PAPACONSTANTINOU of Auckland, Company Director and JOCELYN ANN PAPACONSTANTINOU his wife (hereinafter called "the third transferor") are registered proprietors of the land fifthly described in the schedule hereto.

301/127.

(d) The parties hereto have agreed to execute these presence in order to provide the rights-of-way shown on Deposited Plan 138969 as set out herein.

NOW THEREFORE IN CONSIDERATION of the sum of ONE DOLLAR ($1.00) (receipt of which is hereby acknowledged) paid by the first transferor to the second transferor the said second transferor does hereby TRANSFER AND GRANT to the first transferor an easement of vehicular right-of-way in accordance with the rights implied by the ninth schedule to the Property Law Act 1952 for all purposes whatsoever connected with the use and enjoyment of the land described firstly, secondly and thirdly in the schedule hereto over and along that portion of the land fourthly described in the schedule hereto and marked with the letter "E" on Deposited Plan 138969 provided however that the costs of upkeep and maintenance of part of the said right-of-way marked "E" shall be shared equally by the registered proprietors for the time being of the land described firstly, secondly and thirdly and fourthly in the schedule hereto TO THE INTENT that such easements hereby created shall be forever appurtenant to the land firstly, secondly and thirdly described in the schedule hereto.

AND FURTHER IN CONSIDERATION the sum of ONE DOLLAR ($1.00) (receipt of which is hereby acknowledged) paid by the first transferor and the second transferor to the third transferor the said third transferor does hereby TRANSFER AND GRANT to the first transferor and the second transferor an easement of vehicular right-of-way in accordance with rights implied by the ninth schedule to the Property Law Act 1952 for all purposes whatsoever connected with the use and enjoyment of the land firstly, secondly, thirdly and fourthly described in the schedule hereto and marked with the letter "D" on Deposited Plan 138969 provided however the costs of upkeep and maintenance of part of the said right-of-way marked "D" shall be shared equally by the registered proprietors for the time being of the land firstly, secondly, thirdly, fourthly and fifthly described in the schedule hereto TO THE INTENT that such easements hereby

created shall be forever appurtenant to the land firstly, secondly thirdly and fourthly described in the schedule hereto.

SCHEDULE

FIRSTLY An estate in fee simple in all that parcel of land containing 3.6270 hectares more or less being situated in Block VII Hokianga Survey District being on Block called Taiwhatiwhati 1I described in Certificate of Title Volume 42B Folio 584 (North Auckland Registry)

SUBJECT TO: Fencing Covenant in Transfer B.174144.2.

SECONDLY: An estate in fee simple in all that parcel of land containing 1.2742 hectares more or less being Lot 6 Deposited Plan 138969 and being all the land comprised and described in Certificate of Title Volume 82BFolio 439 (North Auckland Registry).

SUBJECT TO: Fencing Covenant in Transfer B.174144.2.
Mortgage to Duthie Whyte Nominees Limited

THIRDLY: An estate in fee simple in all that parcel of land containing 7086 square metres more or less being Lot 5 Deposited Plan 138969 and being all the land comprised and described in Certificate of Title Volume 82B Folio 438 (North Auckland Registry)

SUBJECT TO: Fencing Covenant in Transfer B.174144.2.
Mortgage to Duthie Whyte Nominees Limited

FOURTHLY: An estate in fee simple in all that parcel of land containing 3.6270 hectares more or less being situated in Block VII Hokianga Survey District being a Block called Taiwhatiwhati 1F and being all the land comprised and described in Certificate of Title Volume 50C Folio 1310 (North Auckland Registry).

FIFTHLY: An estate in fee simple in all that parcel of land containing 3.6270 hectares more or less being the Block situated in the Hokianga Survey District called Taiwhatiwhati 1E and being all the land comprised and described in Certificate of Title Volume 361 Folio 127 (North Auckland Registry).

SUBJECT TO: Fencing Covenants in Transfer B.174144.2.

In witness whereof these presents have been executed this 6th day
of July 1990

Signed by the above named
BRENDA RUTH BABBAGE
in the presence of:-

B.R. Babbage

Signed by the above named
ALAN GORDON NUNNS
in the presence of:-

Alan Gordon Nunns
by his Attorney
Herb. Rogan

C006756.1
21.6.1989.

Signed by the above named
ALICE MARY ROGAN
in the presence of:-

Alice Mary Rogan
by her Attorney
Herb Rogan

C006756.2.

Signed by the above named
GEORGE PAPACONSTANTINO &
JOCELYN ANN PAPACONSTANTINO
in the presence of:-

Solicitor
Auckland

P0051

n.s

DECLARATION OF NON REVOCATION OF POWER OF ATTORNEY

I, HELEN MARY ROGAN do solemnly and sincerely declare as follows:

1. That by deed dated the 29th day of March 1989 ALAN GEORGE NUNNS appointed me his attorney on the terms and subject to the conditions set out in the said deed, a copy of which deed is deposited in the Land Transfer Office at Auckland under no. C 006756/1

2. That at the date hereof I have not received any notice or information of the revocation of that appointed by the death of the said ALAN GEORGE NUNNS or other wise.

AND I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths and Declarations Act 1952.

DECLARED at Auckland by the abovenamed
~~March~~ July this 3rd day H.M. Rogan
of ~~March~~ 1990 before me:

A Solicitor of the High Court of New Zealand

I, HELEN MARY ROGAN of Auckland, Married Woman, do solemnly and sincerely declare as follows:

1. THAT by enduring Power of Attorney dated the 16th day of August, 1988, ALICE MARY ROGAN of California, USA, Married Woman, appointed me this declarant Attorney on the terms and subject to the conditions set out in the said Power of Attorney.

C006756.2

2. THAT at the date hereof I this declarant have not received any notice or information of the revocation of that appointment by the death of the said ALICE MARY ROGAN or otherwise.

3. THAT the said Power of Attorney is in all respects in force at the date hereof by virtue of its terms and the provisions of Part IX of the Protection of Personal and Property Rights Act 1988.

4. THAT I this declarant am authorised by the enduring Power of Attorney to execute the annexed instrument.

5. THAT the annexed instrument complies with all conditions and restrictions set out in the said Power of Attorney.

AND I MAKE this solemn declaration conscientiously believing it to be true and by virtue of the Oaths and Declarations Act 1957.

DECLARED at Auckland)
this 6th day of)
July 1990)
before me:)

H M Rogan

A Solicitor of the High Court of New Zealand

0013P

~~Consideration of~~

~~(receipt of which sum is hereby acknowledged)~~

~~hereby Transfer (to the said~~

~~all~~ ~~estate and interest in the~~

~~said land above described~~

~~In witness whereof these presents have been executed this~~ ~~day~~ ~~of~~ ~~19~~

~~Signed by the above named~~

~~in the presence of:~~

No.

TRANSFER OF

Correct for the purposes of the Land Transfer

Solicitor for the Transf

I HEREBY CERTIFY THAT THIS TRANSACTION DOES NOT CONTRA THE PROVISIONS OF PART IIA OF THE LAND SETTLEMENT PROMC AND LAND ACQUISITION ACT 1952

SOLICITOR FOR THE TRANSF

.....Transferor

.....Transferee

Particulars entered in the Register as shown herein on the date and at the time endorsed below.

"I hereby certify, for the purposes of the Stamp and Cheque Duties Act 1971, that no conveyance duty is payable on this instrument by reason of the application of section 24(1) of the Act, and that the provisions of subsection (2) of the section do not apply.

Solicitor for the Transferee

.....
Assistant / District Land Registrar

of the District of .....

PARTICULARS ENTERED IN REGISTER
LAND REGISTRY AUCKLAND
ASST. LAND REGISTRAR
12.13 29.OCT.90 C 206294.4

Solicitors for the Transferee

Appendix 4

Consultation with Top Energy & Chorus

TOP ENERGY®
TePuna Hihiko
www.topenergy.co.nz

Top Energy Limited
Level 2, John Butler Centre
60 Kerikeri Road
P O Box 43
Kerikeri 0245
New Zealand
PH +64 (0)9 401 5440
FAX +64 (0)9 407 0611

25 July 2025

Lynley Newport
Thomson Survey
PO Box 372
KERIKERI 0245

Email: lynley@tsurvey.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
Sam Lees – 21 Martin Road, Omapere. Taiwhatiwhati 1E Block.

Thank you for your recent correspondence with attached subdivision scheme plans.

Top Energy's requirement for this subdivision is that power be made available for proposed lots 1, 2 & 3. Top Energy advises that there is an existing power supply at proposed lot 4. Design and costs to provide a power supply would be provided after application and an on-site survey have been completed.
Link to application: Top Energy | Top Energy

In order to get a letter from Top Energy upon completion of your subdivision, a copy of the resource consent decision must be provided.

If you have any further queries, please do not hesitate to contact the writer.

Yours sincerely

Aaron Birt
Planning and Design
T: 09 407 0685
E: aaron.birt@topenergy.co.nz

Chorus New Zealand Limited

28 July 2025

Chorus reference: 11309163

Attention: Lynley Newport

Quote: New Property Development

3 connections at 21 Martin Road, Omapere, Far North District, 0473

Your project reference: N/A

Thank you for your enquiry about having Chorus network provided for the above development.

Chorus is pleased to advise that, as at the date of this letter, we are able to provide reticulation for this property development based upon the information that has been provided:

Fibre network	$0.00
Pre-built fibre	$0.00

The total contribution we would require from you is **$0.00 (including GST)**. This fee is a contribution towards the overall cost that Chorus incurs to link your development to our network. This quote is valid for 90 days from 28 July 2025. This quote is conditional on you accepting a New Property Development Contract with us for the above development.

If you choose to have Chorus provide reticulation for your property development, please log back into your account and finalise your details. If there are any changes to the information you have supplied, please amend them online and a new quote will be generated. This quote is based on information given by you and any errors or omissions are your responsibility. We reserve the right to withdraw this quote and requote should we become aware of additional information that would impact the scope of this letter.

Once you would like to proceed with this quote and have confirmed all your details, we will provide you with the full New Property Development Contract, and upon confirmation you have accepted the terms and paid the required contribution, we will start on the design and then build.

For more information on what's involved in getting your development connected, visit our website www.chorus.co.nz/develop-with-chorus

Kind Regards

Chorus New Property Development Team

Appendix 5

Geotechnical Investigation Report

(Reference document obtained from property file relating to previous subdivision)

Seawood
Holdings Ltd

PROPOSED RESIDENTIAL
SUBDIVISION AT MARTIN
ROAD, OMAPERE

GEOTECHNICAL INVESTIGATION REPORT

Project 60392 ***December 2006***

Fraser Thomas Ltd
Consulting Engineers, Registered Surveyors
Planners & Resource Managers
152 Kolmar Road, Papatoetoe, Manukau 2025
PO Box 23 273, Hunters Corner, Manukau 2155
Auckland, New Zealand
Tel : +64 9 278-7078 : Fax : +64 9 278-3697
Email: mreed@ftl.co.nz

SUMMARY

The visual appraisal and geotechnical investigations reported herein address the geotechnical considerations relating to the proposed residential subdivision development at Martin Road, Omapere (1E Taiwhatiwhati, ML 7480)

The borehole and test pit data, in general, indicates that the site is underlain by soils which are inferred to be residual soils derived from the underlying Waitemata Group sandstone and mudstone. However materials inferred to be alluvial sediments of Holocene age were also encountered in the lower parts of the site.

Based on the site appraisal and borehole investigation, as reported herein, and on the basis of ground conditions existing at the time of the investigation reported herein, a "Recommended Building Line Limitation" has been determined for the site.

In general terms and within the limits of the investigation as outlined and reported herein, except for the buttress trench drain issues discussed in Sections 7.4 and 12.0 of this report, and provided proper control of any proposed earthworks is exercised, no unusual problems are anticipated with the development of the site along the general lines of that shown on Fraser Thomas Ltd drawings 60392/1 and 2.

The site is, in general, considered suitable for its intended use for residential purposes with satisfactory conditions for buildings, subject to the recommendations and qualifications reported herein, provided the design and inspection of foundations are carried out as would be done under normal circumstances in accordance with the requirements of NZS 3604: 1999, New Zealand Standard, Timber Framed Buildings and, in particular, the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604.

Conclusions and recommendations arising from the investigations are summarised in Section 18.0 of this report.

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE (1E TAIWHATIWHATI, ML 7480)

SEAWOOD HOLDINGS LTD

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1 TYPICAL BUTTRESS TRENCH DRAIN DETAIL 17

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A FIELD TEST RESULTS

DRAWINGS:

60392/1 SITE PLAN
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60392/3 CROSS SECTION AA

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE (1E TAIWHATIWHATI, ML 7480)

SEAWOOD HOLDINGS LTD

1.0 INTRODUCTION

This report presents the results of a visual appraisal and a geotechnical investigation undertaken at Martin Road, Omapere (1E Taiwhatiwhati, ML 7480). It is understood that it is proposed to subdivide the subject site in order to create six new residential lots, numbered proposed new Lots 1 to 6 inclusive.

The subsurface conditions at the site have been investigated by means of four hand augered boreholes and associated dynamic cone (DCP) penetrometer (Scala) tests, and four machine excavated test pits. A visual appraisal of the site, a study of geological maps, and a stereoscopic study of aerial photographs, have also been undertaken.

The purpose of the geotechnical investigation reported herein was to determine the subsoil conditions at the site as they may affect the proposed subdivisional development with particular regard to slope stability; and foundation considerations; and to confirm the suitability of the site, in support of an application for subdivision consent.

2.0 GEOLOGY

In carrying out the appraisal of the site, reference has been made to the New Zealand Geological Map, scale 1:250,000, Whangarei, Sheet 2A, 1961.

The New Zealand Geological Map indicates that the site is underlain by sandstone and mudstone of the Waitemata Group of Miocene age. The results of the borehole investigation reported herein generally confirm the stratigraphy as indicated on the geological map. However materials inferred to be alluvial sediments of the Holocene age were also encountered in the lower parts of the site.

The geological map also indicates that a south east trending fault is located generally to the north east of the subject site.

3.0 PROPOSED SUBDIVISIONAL DEVELOPMENT

It is understood that it is proposed to subdivide the subject site in order to create six new residential lots, numbered Proposed New Lots 1 to 6 inclusive.

It is understood that it is proposed to form an access way extending from the northern side of Martin Road in order to provide access to the proposed new lots.

It is understood that minor cut earthworks will be undertaken in order to form the access way in the northern part of the site.

The approximate location and extent of the proposed new lots, and the proposed new access way, are shown on Fraser Thomas Ltd drawings 60392/1 and 2.

4.0 AERIAL PHOTOGRAPHS

Stereoscopic pairs of aerial photographs for the year 1962 were examined as part of the site appreciation.

The site is generally located on the lower slopes of a west facing side slope. A steep scarp, inferred to be associated with the fault identified from the geological map for the site, was observed extending in a south easterly direction upslope and to the north of the site.

A west trending ridge was observed extending across the northern part of the site.

The majority of the site appears to be vegetated with paddock grass. An existing fenceline appears to extend in a northerly direction through the western part of the site. This fenceline is inferred to be the fenceline observed during the visual appraisal of the site discussed in Section 5.2 of this report. The area of the site located to the west of this fenceline appears to be vegetated with scrub and occasional trees.

In general no significant signs of slope instability within the site were evident in the aerial photographs.

5.0 FIELD INVESTIGATION

5.1 GENERAL

The field investigation comprised a visual appraisal and four hand augered boreholes. Dynamic Cone Penetrometer (DCP) tests (scalas) were carried out beyond the base of Boreholes H2 and H3.

Four machine excavated test pits were also put down at the site.

The site was surveyed using a tape and clinometer to produce a cross section for slope stability appraisal purposes.

5.2 RESULTS OF VISUAL APPRAISAL

A visual appraisal of the site was undertaken by a Fraser Thomas geotechnical engineer on 6 October 2006.

The site is generally located along the northern side of Martin Road, which extends from the northern side of Waihuka Road, Omapere.

The site topography generally slopes slightly to moderately with a southerly aspect, at slope angles ranging between approximately 5° to the horizontal (1V:11.43H) and 20° to the horizontal (1V:2.74H).

A slightly sloping west trending ridge extends through the northern part of the site.

The upper parts of the southerly facing side slopes associated with the ridge slope steeply at between approximately 20° to the horizontal (1V:2.74H) and 31° to the horizontal (1V:1.66H). The lower parts of the south facing slopes generally slope at between approximately 10° to the horizontal (1V:5.67H) and 12° to the horizontal (1V:4.70H).

The majority of the site was generally vegetated with paddock grass at the time of the investigation reported herein. Existing macrocarpa trees, up to approximately 1.0 m bole diameter, were located along an existing fenceline which extends through the western part of the site in a northerly direction. The approximate location and extent of the existing macrocarpa tress and fenceline are shown on Fraser Thomas Ltd drawing 60392/1.

The western part of the site, to the west of the row of macrocarpa trees, was generally well vegetated with smaller trees, weeds and grass.

Isolated patches of wetland grasses, possibly indicating the existence of springs or high groundwater were observed on the south facing slopes located below the west trending ridgeline. Wetland grasses were also observed in the vicinity of a shallow watercourse located in the south western corner of the site.

The area in the vicinity of the existing watercourse is, in our opinion, likely to be underlain by recent alluvial sediments.

The approximate location and extent of the shallow watercourse within the site, and the approximate inferred extent of the recent alluvial sediments are shown on drawing 60392/1.

The upper parts of the slopes within the site, located downslope of the ridge, appear to be hummocky.

Some of the macrocarpa trees show signs of past slope instability by way of bole curvature and inclined bole orientation.

5.3 HAND AUGERED BOREHOLES

Four hand augered boreholes, numbered H1 to H4 inclusive, were put down at the site in order to investigate the subsurface conditions. The approximate locations of the boreholes are shown on drawings 60392/1 and 2.

The boreholes were put down by a qualified Fraser Thomas Ltd senior geotechnical engineer. The logs of the boreholes are presented in Appendix A of this report.

Boreholes H1 and H4 were terminated at a target depth of approximately 2.0 m below the ground surface existing at the time of the investigation reported herein (the existing ground surface). Boreholes H2 and H3 were generally terminated when the soils became too stiff or too difficult to auger at depths of approximately 2.5 m and 4.5 m respectively below the existing ground surface. In situ undrained shear strength measurements were carried out in the boreholes at approximately 0.5 m intervals of depth using hand held field shear vane equipment. These tests were carried out down the hole and enabled a strength profile to be obtained from the boreholes. All soils in the boreholes were carefully logged.

A dynamic cone (Scala) penetrometer (DCP) test was performed beyond the base of Boreholes H2 and H3. The results of the DCP tests are also presented in Appendix A of this report.

5.4 TEST PIT INVESTIGATION

Four machine excavated test pits, numbered TP1 to TP4 inclusive, were put down at the site on 8 November 2006, in order to examine the nature and fabric of the soils underlying the site. The test pits were inspected and logged by a Fraser Thomas senior geotechnical engineer.

The test pits were excavated to depths ranging between approximately 3.4 m and 5.6 m below the existing ground surface. Where possible in situ undrained shear strength measurements were carried out in the sides of the test pits using hand held field shear vane equipment. These tests were carried out down the test pit and enabled a strength profile to be obtained from the test pits.

The logs of the test pits are presented in Appendix A of this report. The approximate locations of the test pits are shown on drawings 60392/1 and 2.

5.5 LABORATORY INVESTIGATION

A test to determine the linear shrinkage value for the site soils, undertaken in accordance with NZS 4404:1986, Test 2.6, was conducted on disturbed soil samples recovered from Boreholes H1 and H4. The laboratory testing was carried out by Stevenson's Civil Engineering Laboratory, an IANZ accredited soils and materials testing laboratory, under the instruction of Fraser Thomas Ltd.

The results of the laboratory tests are presented in Appendix A of this report and are summarised in Table 1.

TABLE 1: LABORATORY TEST RESULTS

Sample	Depth Below Ground Surface (m)	Field Water Content (%)	Linear Shrinkage (%)
Borehole H1	0.5 to 0.7	34.9	15
Borehole H4	0.5 to 0.7	21.0	12

6.0 SUBSURFACE CONDITIONS

6.1 GENERAL

The borehole and test pit data, in general, indicates that the site is underlain by soils which are inferred to be residual soils derived from the underlying Waitemata Group sandstone and

mudstone. However materials inferred to be alluvial sediments of Holocene age were also encountered in the lower parts of the site.

It has been assumed that even though the various subsoil strata, their depth and thickness and the locations of groundwater levels have been determined only at the locations and within the depths of the various boreholes and test pits recorded herein, these various subsurface features can be projected between the various test locations. Even though such inference is made, no guarantee can be given as to the validity of this inference or of the nature and continuity of these various subsurface features.

6.2 TOPSOIL

Topsoil was generally encountered to depths ranging between approximately 0.1 m and 0.2 m below the existing ground surface at the locations of the boreholes and test pits put down during the investigations reported herein.

6.3 ALLUVIAL SEDIMENTS

Material, inferred to be alluvial sediments of Holocene age, was encountered at the locations of Boreholes H3 and H4 and Test Pits TP 1 and TP2, put down generally on the lower parts of the site. These soils generally comprised silty clays. Fragments of decaying wood were encountered in the lower layers of the alluvial sediments, at depths ranging between approximately 3.4 m and 3.5m below the existing ground surface. In situ undrained shear strength values measured in the alluvial sediments generally ranged from 60 kPa to 150 kPa, corresponding to a stiff to very stiff consistency.

6.4 RESIDUAL SOILS

Material, inferred to be residual soils of the Waitemata Group of Miocene age, was encountered generally from the ground surface at the locations of Boreholes H1 and H2 and Test Pits TP3 and TP4, put down in the northern part of the site. A thin layer of residual soils was also encountered beneath the alluvial sediments at the locations of Borehole H3 and Test Pit TP2, at depths of approximately 4.3m and 3.8 m respectively below the existing ground surface. These soils generally comprised silty clays. In situ undrained shear strength values measured in the cohesive soils generally ranged from 75 kPa to greater than 240 kPa, corresponding to a stiff to hard consistency. Generally the in situ undrained shear strength values measured were in excess of 100 kPa, corresponding to a very stiff consistency.

6.5 MUDSTONE & SANDSTONE BEDROCK

The surficial soils at the site are inferred to be underlain by sandstone and mudstone assigned to the Waitemata Group of Miocene age.

It is usual to take a DCP blow count of about 5 to 10 blows per 50 mm penetration as being indicative of the level of the highly to moderately weathered sandstone and mudstone. Based on the results of the DCP tests, the depth to the level of highly to moderately weathered sandstone and mudstone has been determined to be approximately 2.9 m and 4.8 m below the existing ground surface at the locations of Boreholes H2 and H3 respectively.

Material inferred to be highly weathered very weak to extremely weak siltstone was encountered at the locations of Test Pits TP1 to TP4 inclusive, at depths ranging between approximately 1.7 m and 4.5 m below the existing ground surface.

6.6 GROUNDWATER

Groundwater was encountered at a depth of approximately 3.6 m below the existing ground surface at the location of Borehole H3, at the time of the investigation reported herein.

Groundwater was also encountered at depths of approximately 5.2 m and 4.4 m below the existing ground surface at the locations of Test Pits TP1 and TP 4 respectively.

Groundwater was not encountered in the other boreholes and test pits during the investigation reported herein.

7.0 SLOPE STABILITY APPRAISAL

7.1 GENERAL

A slope stability appraisal has been undertaken of the soil veneer materials for the slope profile represented by Cross Section AA, shown on Fraser Thomas Ltd drawing 60392/3.

The location of Cross Section AA is shown on drawing 60392/1.

7.2 METHOD OF ANALYSIS

The stability of the slope profile shown on Cross Section AA has in general been analysed using the computer programme Slope/W for various potential slip surfaces, and for two groundwater conditions, corresponding to the estimated "wet winter" and assumed "extreme transient" cases.

Slope/W is a computer programme that uses the limit equilibrium theory to solve for the theoretical factor of safety of earth and rock slopes. The comprehensive formulation of Slope/W makes it possible to select a variety of methods for computing the factor of safety, and to analyse both simple and complex geometric, stratigraphic, and loading conditions. Slope/W allows slope stability to be analysed by up to nine methods, including the more mathematically rigorous Morgenstern-Price and Generalised Limit Equilibrium (GLE) methods. For the purposes of the analyses reported herein, the theoretical factor of safety values derived from the Morgenstern-Price method of analysis have been adopted for the potential slip surfaces.

For the soil veneer analyses, potential slip surfaces have been considered which pass through the natural soil veneer and generally exit at the toe of the slope.

The slopes at the site have been analysed for a circular slip surface, as appropriate to the slope geometry and stratigraphy, using the computer programme Slope/W for critical circular slip surfaces, and assuming design effective strength parameters of 30° friction angle and 5 kPa cohesion, for the residual soils, and effective strength parameters of 28° friction angle and 3 kPa cohesion, for the alluvial sediments encountered at the site. For the purposes of the slope stability analyses reported herein, a weak layer of alluvial sediments was also assumed to be located immediately above the underlying bedrock.

As discussed in Section 5.2 of this report, evidence of past slope movement was observed for the lower parts of the site by way of hummocky ground. As discussed in Section 6.3 of this report, a layer of alluvial sediments comprising decaying wood fragments was encountered immediately above the underlying Waitemata Group bedrock during the investigations reported herein. It has been assumed, for the purposes of the appraisal reported herein, that the past slope instability at the site, which resulted in the observed hummocky appearance of the lower slopes at the site, may have occurred as a result of a circular slip failure through the alluvial sediments and along a weak layer of sediments located immediately above the Waitemata Group bedrock underlying the site.

The slope profile has been back analysed for a defined potential slope movement assuming a weak layer extending along the interface between the alluvial sediments and the underlying bedrock. The back analyses have been carried out in order to determine the soil strength parameters for the theoretical weak layer immediately above the bedrock that would be required for a circular slope failure to have occurred in the past. The slope profile was back analysed under near fully saturated groundwater conditions in order to obtain a theoretical factor of safety value of 1.00 (i.e an assumed failure condition). The back analyses yielded effective strength parameters of zero cohesion and 22° friction angle for the theoretical weak layer located immediately above the underlying bedrock.

These effective strength parameters for the assumed weak layer, and the effective strength parameters for the other soils at the site discussed in the foregoing, were then used in forward analyses for the existing slope profile and for the inferred groundwater surface, estimated to represent wet winter groundwater conditions. Wet winter groundwater conditions were based on the groundwater levels measured during the field investigation.

If the near fully saturated groundwater condition, assumed for the back analyses of the slope profile, represents the extreme transient ground water conditions, then it is evident that the existing slope profile has a theoretical factor of safety value of unity, which is less than the conventionally acceptable limiting values of 1.2 to 1.3 for the extreme transient groundwater conditions.

Analyses have therefore been undertaken in order to determine the groundwater level required to achieve a satisfactory theoretical factor of safety value against future slope movement for the extreme transient groundwater condition limiting values.

7.3 RISK CATEGORIES

Traditionally, if a theoretical factor of safety value of 1.5 can be achieved by analysis, then the slope is considered to be stable. The problem arises in determining the correct parameters to use and the influence of subsurface conditions on the form of analysis, and which is consequently dependent on the nature and level of investigation.

Cumulating experience suggests that the proper selection of a theoretical factor of safety value for slope stability purposes is dependent upon a proper assessment of the level of risk.

The risk category of a particular slope is governed by the consequences of failure in terms of loss of life, property damage, or destruction of communications and services.

Typical high risk slopes are those where there is a likelihood of loss of life should the slope fail, eg. schools or apartments below cut slopes. A low risk slope, for example, is one which will only threaten a secondary road.

Brand (1982) cites design theoretical factor of safety values for residual soils for a 1 in 10 year return period storm for various risk categories as shown in Table 2 of this report.

TABLE 2: ACCEPTABLE FACTORS OF SAFETY FOR VARIOUS CATEGORIES OF RISK AS PROPOSED BY BRAND (1982)

Risk Category	Minimum Factor of Safety for Transient Conditions (eg. a 1 in 10 Year Storm)
Low	1.2
Significant	1.3
High	1.4

Factors of safety have been adopted in geotechnical design to cover the uncertainties in slope geology, soil data, the method of analysis adopted and the validity of assumptions made.

For these reasons, it is customary to adopt a theoretical factor of safety value of 1.5 for subdivisions or housing development. This factor of safety does not in every case assure safety from instability or slope movement. Based on published literature, the average risk of failure, or the probability of failure occurring, for different adopted factors of safety, is given in Table 3.

TABLE 3: RISK OF FAILURE OCCURRING FOR VARIOUS FACTORS OF SAFETY

Factor of Safety	Risk of Failure Per Annum
1.1	1:10
1.3	1:50
1.5	1:200
1.7	1:1000

It is our opinion that the slopes on the subject site fall into the low to possibly significant risk category. It is, therefore, concluded that while the conventionally accepted minimum value of approximately 1.5 should be adopted for the conventional stability analyses relating to groundwater levels "raised" for wet winter conditions, a lower acceptable theoretical factor of safety value of between 1.2 and 1.3 could be adopted for the transient groundwater condition for saturation states that could occur during a period of prolonged intense rainfall, such as a 1 in 10 year return period storm.

7.4 RESULTS

As discussed in Section 7.2 of this report, the results of back analyses undertaken for the slope represented by Cross Section AA yielded effective strength parameters of zero cohesion and 22° friction angle for the theoretical weak layer located immediately above the underlying bedrock.

Forward Slope/W analyses yielded a theoretical factor of safety value of 1.82 for the as measured groundwater conditions at the site using the effective strength parameters discussed in Section 7.2 of this report, for the existing slope profile represented by Cross Section AA. This value is considered to be satisfactory, being greater than the limiting value of 1.5 for wet winter groundwater conditions.

Forward Slope/W analyses yielded a theoretical factor of safety value of 1.31 for an assumed groundwater level located at a depth of approximately 1.5 m below the existing ground surface. This value is considered to be satisfactory, being greater than the limiting value of 1.2 and approximating the value of 1.3 for extreme transient groundwater conditions. It is anticipated that buttress trench drains will be required at the site to control the groundwater levels at the site to prevent the groundwater from rising above a depth of approximately 1.5 m below the existing ground surface, so as to mitigate against the risk of slope instability occurring at the site. Buttress trench drain design details are discussed in Section 12.0 of this report.

8.0 VEGETATION

As a vegetative mantle on a slope tends to improve the stability of that slope, it is recommended that the existing vegetation on the slopes at the site be retained and protected, as far as practicable, from damage by felling or clearing. Slope stability is enhanced by binding of the soil by the root systems of trees and other vegetation, which provides mechanical reinforcement and resists erosion by surface water, and by shedding of water by transpiration processes.

9.0 LIMITATIONS ON BUILDING CONSTRUCTION

9.1 GENERAL

This section of the report provides the location of a "Recommended Building Line Limitation" for the site and for the proposed development.

9.2 RECOMMENDED BUILDING LINE LIMITATION

Based on the site appraisal and borehole investigation, as reported herein, and on the basis of ground conditions existing at the time of the investigation reported herein, a "Recommended Building Line Limitation" has been determined for the site.

The "Recommended Building Line Limitation" shown in plan on drawing 60392/1, and on Cross Section AA, represents, in our opinion, the limit up to which residential buildings can be constructed in accordance with the requirements of NZS 3604:1999, New Zealand Standard, Timber Framed Buildings.

Although satisfactory factor of safety values against slope instability were obtained for the slope profile represented by Cross Section AA, for the buttress trench drain treated slope

profile, it is our opinion that slopes steeper than approximately 1V:3H (18° to the horizontal) at the site could be affected by surficial soil creep and should therefore be subject to specific building foundation design. As discussed in Section 5.2 of this report, signs of slope instability were observed for the slopes at the site.

An eight metre margin of safety has, in general, been applied at the crest of the slopes steeper than 18° to the horizontal, in order to define the "Recommended Building Line Limitation" for Cross Section AA. This line is shown in plan on drawing 60392/1.

The "Recommended Building Line Limitation" defines the boundary between:-

(a) A non specific building foundation design zone, in which the foundations of any proposed residential building do not require specific design and which may, therefore, be constructed in accordance with the requirements of NZS 3604:1999, New Zealand Standard, Timber Framed Buildings, providing the inspection and design of foundations are carried out as would be done under normal circumstances in accordance with the requirements of NZS 3604, including the provisions of Clauses 3.1.2 and 3.1.3 of NZS3604.

(b) A specific building foundation design zone, in which the foundations of any proposed residential building should be subject to specific design with particular regard to slope stability and settlement by a chartered professional engineer either experienced in geotechnical engineering or with the assistance of an engineer experienced in geotechnical engineering. Within this zone, the designer should, along with other criteria considered appropriate, undertake the following:

    (i) The design of a foundation system which properly takes into account the ground conditions at the specific location of any proposed structure.

    (ii) An assessment of founding depths and the locations of foundation lines to provide secure foundations for any proposed structure in the event of slope movement.

    (iii) The design of a foundation type to suit the proposed structure and to allow for soil creep and the distribution of lateral loads from the structure.

It is recommended that any proposed building development be designed to satisfy the relevant requirements of the Building Code, so as to ensure compliance with the Building Act.

10.0 FOUNDATION AND SETTLEMENT CONSIDERATIONS

10.1 GENERAL

It is our opinion that settlement at the site should not present a problem within the proposed subdivisional development, for buildings founded on the alluvial sediments and the Waitemata Group residual soils, providing the inspection and design of foundations are carried out in accordance with the requirements of NZS 3604, including the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604, and providing the recommendations in this report are adopted.

It is nevertheless recommended that, where brick veneer construction is proposed, consideration be given to minimising potentially unsightly cracking of veneer cladding due to possible differential settlement or movement, by ensuring that the veneer is erected in discrete panels of maximum length of approximately three metres, or greater if permitted by the cladding manufacturer's instructions. In general, however, if the good practices of NZS 3604 are adhered to, any settlement during the service life of any residential buildings so constructed should not, in our opinion, be a problem.

To assist in the interpretation of this recommendation, and by way of "good practice", it is expected that the recommendation would be applied, for example, for concrete slab-on-ground construction, in the following manner:

(a) If a design proposal involved full height expanses of brick veneer cladding in excess of three metres in length, and without substantial openings such as windows and doors, then it is our opinion that consideration should be given by the designer to incorporate movement control joints, unless other measures are applied such as the deepening or strengthening of foundations in excess of minimum code requirements, so as to minimise the risk of differential swell/shrink movements, and

(b) If a design proposal involves numerous window and door openings so as to ensure that full height expanses of brick veneer cladding are less than three metres in length, and the cladding was to be supported on continuous reinforced concrete foundation walls integrally keyed into and connected to the foundation slab, so as to ensure that the foundation wall and slab act as an integrated rigid structure, and the foundation wall is embedded not less than 450 mm depth below finished external ground levels, as recommended in Section 13.0 of this report, then it is our opinion movement control joints need not be incorporated into the cladding design.

10.2 BUILDING FOUNDATIONS LOCATED IN CLOSE PROXIMITY TO THE PROPOSED BUTTRESS TRENCH DRAINS

As discussed in Section 7.4 of this report, it is proposed to install buttress trench drains at the site in order to control the groundwater level within the lower slopes at the site. It is expected that some consolidation settlement of the buttress trench drains could occur, which could result in lateral and vertical deformation of the undisturbed ground on each side of the trench backfill. The deformation is caused by the soil wedge behind the side wall of the trench moving downwards and inwards with time, towards the trench backfill as the backfill consolidates. The geometry of the soil wedge defines the theoretical zone of influence of the service trench backfill.

Due to the risk of consolidation settlement of the trench backfill occurring, it is recommended, if any foundations of any proposed building are located within the zone of influence of any buttress trench drain, that the foundations and floor of the proposed building be designed to span across the trench backfill and the adjacent zone of influence.

The zone of influence is defined by a theoretical line projecting upwards in both directions from the centreline of the pipeline at the invert level of the pipeline at an angle of 45° to the vertical. The zone of influence is defined by the zone between the intersection point of the theoretical line and the ground surface on each side of the pipeline.

It is recommended that any proposed foundation excavations in the vicinity of the inferred extent of the zone of influence of any buttress trench drain be inspected by Fraser Thomas

Ltd to ensure that the foundations are not underlain by any trench backfill which may be associated with the buttress trench drains.

10.3 AREA INFERRED TO BE UNDERLAIN BY RECENT ALLUVIAL SEDIMENTS

As discussed in Section 5.2 of this report, the area in the vicinity of the existing watercourse is, in our opinion, likely to be underlain by recent alluvial sediments. The approximate location and extent of the shallow watercourse within the site, and the approximate inferred extent of the recent alluvial sediments are shown on drawings 60392/1 and 2.

It is our opinion, due to the variable and compressible nature of recent alluvial sediments, that there is a risk that shallow building foundations founded on recent alluvial sediments may be subject to differential settlement.

It is therefore recommended that foundations located within the area inferred to be underlain by recent alluvial sediments, as shown on drawing 60392/1, should be subject to specific investigation and appraisal by a chartered professional engineer either experienced in geotechnical engineering or with the assistance of an engineer experienced in geotechnical engineering, in order to determine the extent and consistency of the recent alluvial sediments beneath any proposed foundations for foundation design purposes within this area.

11.0 ALLOWABLE FOUNDATION BEARING PRESSURES

11.1 GENERAL

In this section of the report, ultimate bearing capacity values and strength reduction factors are provided in order to allow calculation of design (dependable) foundation bearing capacities, in accordance with the limit state design methods outlined in NZS 4203:1992, New Zealand Standard Code of Practice for General Structural Design and Design Loadings for Buildings, by applying the appropriate strength reduction factors, as provided in this report, and the factored load combinations required by NZS 4203. Allowable foundation bearing pressures are also provided, based on conventional factors of safety, for cases where unfactored load combinations are being considered.

11.2 SHALLOW PAD OR STRIP FOOTINGS

From the in situ undrained shear strengths obtained in the field investigation, a design in situ undrained shear strength value of 100 kPa has been determined for the natural alluvial sediments and Waitemata Group residual soils at the site.

On the basis of the design undrained shear strength value of 100 kPa, and assuming the subsoil is saturated and that the soil friction angle is zero, an ultimate static bearing capacity value for vertical loading of 600 kPa is recommended for shallow pad footings. It is recommended that a strength reduction factor (Φbc) of 0.5 be adopted for limit state design in accordance with the requirements of NZS 4203, resulting in a design (dependable) bearing capacity value of 300 kPa.

If unfactored load combinations are to be considered, the allowable foundation bearing pressures presented in Table 4 are recommended for shallow pad or strip footings founded on natural ground.

The allowable foundation bearing pressures shown in Table 4 are based on the design in situ undrained shear strength value of 100 kPa, and on the assumption that the subsoil is saturated and that the soil friction angle is zero.

TABLE 4: ALLOWABLE FOUNDATION BEARING PRESSURES FOR SHALLOW PAD OR STRIP FOOTINGS ON NATURAL GROUND

Load Case	Factor of Safety	Allowable Bearing Pressure (kPa)
Dead Load and Permanent Live Load	3.0	200
Dead plus Live plus Transient Load	2.0	300

11.3 PILES FOUNDED IN THE SOIL VENEER

From the in situ undrained shear strengths obtained in the field investigation, a design in situ undrained shear strength value of 100 kPa has been determined for the soil veneer materials.

On the basis of the design undrained shear strength value of 100 kPa and assuming the subsoil is saturated and that the soil friction angle is zero, an ultimate static bearing capacity value for vertical loading of 900 kPa is recommended for piled foundations founded in the soil veneer. It is recommended that a strength reduction factor (Φbc) of 0.5 be adopted for limit state design in accordance with the requirements of NZS 4203, resulting in a design (dependable) bearing capacity value of 450 kPa.

If unfactored load combinations are to be considered, the allowable foundation bearing pressures presented in Table 5 are recommended for piles founded in the soil veneer.

It is recommended that an ultimate skin friction value of 40 kPa be used for the design of piled foundations. It is recommended that a strength reduction factor (Φsf) of 0.5 be adopted for limit state design, resulting in a design (dependable) skin friction value of 20 kPa. If unfactored load combinations are to be considered, the allowable skin friction values presented in Table 5 are recommended. No reliance on skin friction should be allowed for the parts of piled foundations founded within the influence zone of any buttress trench drain or service lines at the site.

TABLE 5: ALLOWABLE END BEARING PRESSURES AND SKIN FRICTION VALUES FOR PILES FOUNDED IN THE SOIL VENEER

Load Case	Factor of safety	Allowable End Bearing Pressure (kPa)	Allowable Skin Friction (kPa)
Dead Load and Permanent Live Load	3.0	300	13
Dead plus Live plus Transient Load	2.0	450	20

11.4 PILES FOUNDED IN BEDROCK

Based on results of pile load tests undertaken by others on Waitemata Group bedrock in the Auckland area, it is our opinion and recommendation that an ultimate static bearing capacity for vertical loading of 6.0 MPa be adopted for piled foundations founded in rock, provided that the piles are socketted into bedrock with an SPT "N" value of 50 or greater or a DCP test result value greater than 11 blows per 50 mm of penetration, to a minimum depth equivalent to four pile diameters. It is recommended that a strength reduction factor (Φbc) of 0.5 be adopted for limit state design in accordance with the requirements of NZS 4203, resulting in a design (dependable) bearing capacity value of 3.0 MPa. The allowable design end bearing pressures indicated in Table 6 of this report are recommended for bored cast in situ piled foundations in rock.

The results of pile load tests undertaken on bored pile sockets in the Waitemata Group siltstone and sandstone and in similar material in Australia indicate that for soft rock with an Unconfined Compressive Strength (UCS) greater than 2 MPa and less than 10 MPa, an end bearing pressure of 0.8 UCS and a shaft shear stress of 0.4 UCS are mobilised at a pile settlement equivalent to 2% of the pile socket diameter, (the shaft shear stress relates to a grooved socket). For an ungrooved rock socket the shaft shear stress reduces from 0.4 UCS to 0.1 UCS.

If, therefore, a pile settlement equivalent to 2% of the pile socket diameter is considered acceptable for a pile with loading stresses equivalent to the dependable values, it is recommended that a design (dependable) pile socket shaft friction value of 0.8 MPa be adopted for the case of a spiral grooved pile socket in bedrock with an SPT "N" value of 50 or greater.

If unfactored load combinations are to be considered, the allowable pile end bearing and shaft friction values presented in Table 6 are recommended.

TABLE 6: ALLOWABLE END BEARING PRESSURE AND SHAFT FRICTION VALUES FOR PILE SOCKETS IN WAITEMATA GROUP BEDROCK WITH AN SPT "N" VALUE OF 50 OR GREATER

Load Case	Factor of Safety	Allowable End Bearing Pressure (MPa)	Allowable Shaft Friction* (MPa)
Dead Load plus Permanent Live Load	3.0	2.0	0.8
Dead plus Live plus Transient Loads	2.0	3.0	1.2

NOTE: * Relates to a spiral grooved pile socket.

It is recommended that no reliance on skin friction be allowed for within the soil zone.

It is further recommended that Fraser Thomas Ltd be engaged to inspect any pile bores prior to placing of any foundation materials to confirm that the bores are drilled to an appropriate depth.

11.5 SAFE MAXIMUM VALUES

The allowable foundation bearing pressures indicated in Tables 4, 5 and 6 are, in our opinion, safe maximum values. These values do not, however, take account of settlement considerations or the need to limit the foundation bearing pressures so as to limit the associated settlement.

12.0 RECOMMENDED REMEDIAL MEASURES

As discussed in Section 7.4 of this report, it is anticipated that measures will be required to be undertaken at the site in order to control the groundwater levels at the site to prevent the groundwater from rising above a depth of approximately 1.5 m below the existing ground surface, so as to mitigate against the risk of slope instability occurring at the site.
It is recommended that buttress trench drains be installed at the site in order to control the groundwater level within the south facing slopes at the site.

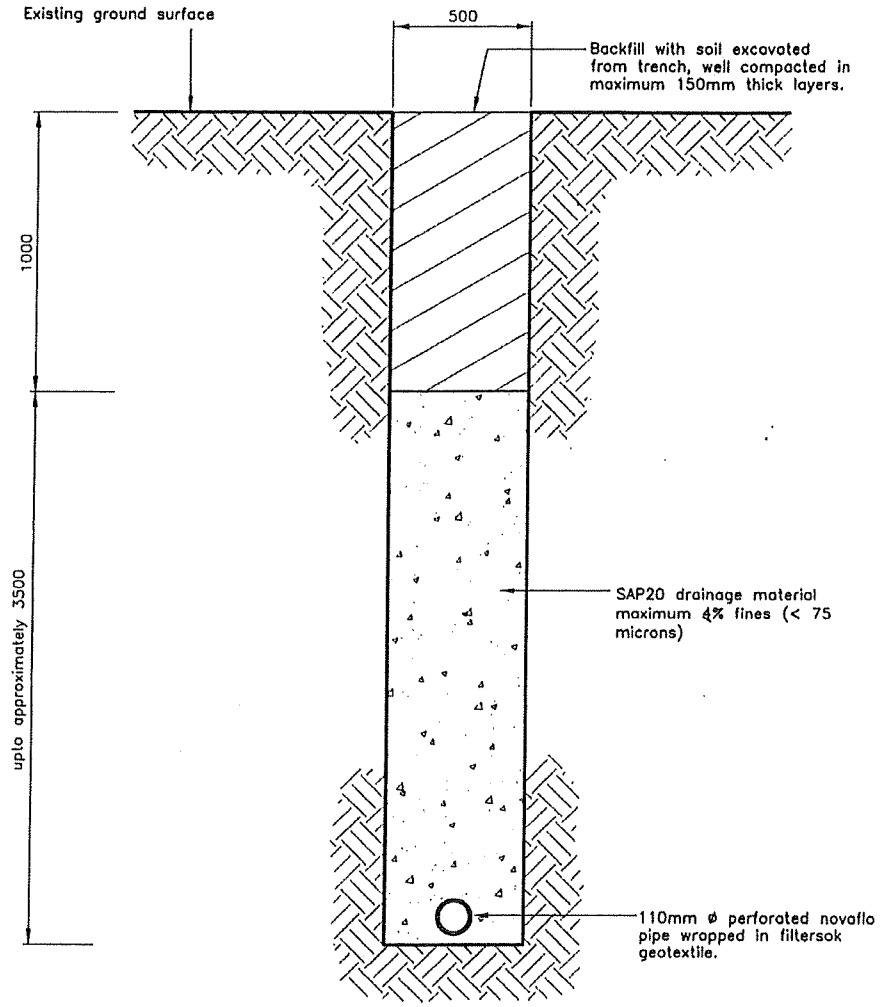
A total of eight buttress trench drains are proposed to be installed at the site, spaced at approximately 15 m centres over the extent of the lower slopes at the site.

The proposed locations of the buttress trench drains are shown on drawing 60392/2. Construction details for the buttress trench drains are shown on Figure 1.

The drains comprise a nominal 0.5 m wide trench, with a 110 mm diameter perforated Novaflo pipe, with the trench backfilled with SAP 20 drainage material to within approximately 1.0 m depth below the ground surface. From approximately 1.0 m beneath the ground surface to the ground surface, the trenches are to be backfilled with excavated

FIGURE 1 : TYPICAL BUTTRESS TRENCH DRAIN DETAIL

Scale 1:25 (A4)



material well compacted in 150 mm thick layers to prevent the ingress of surface water. The depths of the drains vary up to approximately 4.5 m beneath the existing ground surface.

It is recommended that the buttress trench drains should be excavated at a minimum gradient of 1V:50H.

It is recommended that the water collected by the buttress trench drains be directed to an appropriate collector drain, which should be directed to discharge to the existing watercourse located in the south western part of the site.

It is anticipated that some maintenance of the buttress drain outlets may be required and would involve cleaning of debris to ensure the outlets are not blocked.

It is recommended that the as-built locations of the buttress trench drains, and associated collector drain, be accurately surveyed and an as-built plan be produced for the site showing the locations of the drains. It is also recommended that the as-built invert depth below the finished ground surface of the buttress trench drains be determined at the ends and central part of each buttress drain, and that this information also be recorded on the as-built plan for the site. It is recommended that the as-built plan for the buttress trench drains be held on the Far North District Council's property file for the site.

13.0 GROUNDWATER FLUCTUATIONS AND SOIL MOISTURE CHANGES

Building foundation settlements can be affected by seasonal variations in groundwater levels. The seasonal raising of groundwater levels affecting the site could result in a reduction of the in situ soil strengths, however, with particular regard to the development site, it is our opinion that the subsoil conditions are not likely to be significantly altered as a result of the proposed residential development at the site.

Nevertheless, seasonal moisture variations and associated swelling and shrinking of the soil mass is a characteristic of the type of surface soils encountered in the area under consideration and is likely to occur.

Even well constructed buildings on clay soils are likely to show minor cracking of plaster walls and ceilings and in masonry. In extreme cases, distortion of building frames may cause doors and windows to jam, however, these effects usually occur only after a long dry summer. Without considerable expenditure on the part of the individual responsible for building or financing any particular residential construction, it is generally not possible to entirely eliminate such troubles. Provided that the good practices of NZS 3604:1999, New Zealand Standard, Timber Framed Buildings, including the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604, are complied with, it is probable that any such influences should be minimised, although some shrinking and swelling of the surficial soils under seasonal influences will probably continue to occur and may affect such residential construction.

It should be noted that the foundation provisions of NZS 3604 apply only to buildings which, along with other requirements of the Standard, are supported on "good ground". The definition of "good ground" excludes soils which are classified as being "expansive soils". In particular, Clause 3.2.1.2 of the Standard requires that "clays shall be regarded as expansive clays if their soil properties, in soil mechanic terms, exceed the values listed in the definition of good ground."

Expansive soils are defined by NZS 3604 as those soils that have a liquid limit of more than 50 % and a linear shrinkage value of more than 15 % in accordance with NZS 4402:1986. As discussed in Section 5.5 of this report, the linear shrinkage values obtained by the specified test procedure were 12% and 15% for the soils collected at the locations of Boreholes H4 and H1 respectively, which are either less than or equivalent to the limiting value of 15 % and therefore, in our opinion, fall within the definition of "good ground" as defined by NZS 3604:1999, New Zealand Standard, Timber Framed Buildings.

However based on our experience with similar soils in the greater Auckland area it is our opinion that the site soils should be considered to be slightly expansive.

It is noted that Clause 3.3.2 of the 1990 edition of the Code required a minimum founding depth below cleared ground level of 450 mm in expansive clay. The 1999 edition does not provide a minimum depth for footings in expansive clay. Section 3.1.1 of the Code states that:

> ".... If a site does not comply with [the code site requirements] the foundations only shall be the subject of specific engineering design.
>
> Foundations on expansive soils are outside of the scope of this standard as an Acceptable Solution to the NZBC. [New Zealand Building Code]"

The Commentary clause to Section 3.1.1 of the Code (C3.1.1) directs the designer to Section 17 of the Code "which may be of assistance to those designing foundations on expansive soils". Clause 17.3 refers the designer to Sections 3, 5 and 6 of the Australian Standard AS 2870 "Residential Slabs and Footings".

Figure 3.1 of AS 2870 for concrete slabs on ground and stiffened concrete slabs specifies a minimum edge beam depth of up to 450 mm for Class S soil sites. Class S soil sites are defined as "slightly reactive clay sites with only slight ground movement from moisture changes".

Clause 7.5.2 of NZS 3604:1999 requires that the floor level of a slab on ground floor shall be a minimum height above the level of adjoining ground which is not protected by paving of 150 mm for masonry veneer exterior wall cladding, and 225 mm for other exterior wall coverings (these values reduce to 100 mm and 150 mm respectively when the adjoining ground is protected by paving).

The recommended foundation embedment depth of the 1990 edition of 450 mm below cleared ground level, based on the condition of adjoining ground which is not protected by paving, therefore equates to minimum edge beam depths in terms of AS 2870 of between 600 mm and 675 mm. These depths are greater than the minimum edge beam depth of 300 mm specified for slightly reactive sites in AS 2870 for masonry veneer construction, and are also greater than the minimum edge beam depth of 450 mm specified for slightly reactive sites in AS 2870 for full masonry construction.

Based on our experience of the type of soils encountered at the subject site, our determination that the subject site soils are slightly expansive (or slightly reactive as expressed for Class S soils in AS 2870) it is our experience and recommendation, that a minimum founding depth of 450 mm below finished external cleared ground levels, for conventional shallow concrete foundations, provides an appropriate specific foundation design embedment depth so as to minimise the effects of ground swelling and shrinkage for

clad timber frame and masonry veneer construction, and should also be appropriate for full masonry construction.

It is further recommended that the earthworks subgrade within the footprint of any proposed buildings be maintained at or close to its natural water content to avoid drying out and associated shrinkage of the subgrade. Any drying out of the subgrade may result in the subgrade swelling after building construction, resulting in the possibility of heave and cracking of the floor slab. This risk may be mitigated during construction by placement of a minimum 300 mm thick granular layer, or some other suitable barrier to soil water loss, immediately following the completion of the earthworks.

14.0 EXISTING SERVICE LINES

It is expected that any existing service line trenches underlying the site were backfilled by conventionally acceptable means, which did not involve specific compaction. It would therefore be expected that some consolidation settlement of the service trench backfill could occur, which could result in lateral and vertical deformation of the undisturbed ground on each side of the trench backfill. The deformation is caused by the soil wedge behind the side wall of the trench moving downwards and inwards with time, towards the trench backfill as the backfill consolidates. The geometry of the soil wedge defines the theoretical zone of influence of the service trench backfill.

Due to the risk of consolidation settlement of the trench backfill occurring, it is recommended, if any foundations of any proposed building are located within the zone of influence of existing service lines, that either the trench backfill be excavated and replaced with compacted hardfill, or that the foundations and floor of the proposed building be designed to span across the trench backfill and the adjacent zone of influence.

The zone of influence is defined by a theoretical line projecting upwards in both directions from the centreline of the pipeline at the invert level of the pipeline at an angle of 45° to the vertical. The zone of influence is defined by the zone between the intersection point of the theoretical line and the ground surface on each side of the pipeline.

It is recommended that any proposed foundation excavations in the vicinity of the inferred extent of the zone of influence of the existing service lines be inspected by Fraser Thomas Ltd to ensure that the foundations are not underlain by any trench backfill which may be associated with the existing service lines.

15.0 DEVELOPMENTAL EARTHWORKS

It is recommended that, unless the stability of any developmental earthworks (ie. constructed for an access driveway, building platform or landscaping) is considered in detail by a chartered professional engineer experienced in geotechnical engineering, and particularly slope stability considerations, fill end slopes should be constructed to a maximum batter slope of 26° (1V:2H) and cut slopes to a maximum slope angle of 18° (1V:3H) with maximum batter heights of approximately one metre. Any proposed higher batter slopes should be subject to specific stability appreciation so as to determine stable limiting batter slopes.

16.0 STORMWATER DISPOSAL

It is recommended that all stormwater from roofed and paved areas that is not retained for domestic use be collected and piped in sealed pipes to discharge into the existing watercourse located in the south western part of the site and be directed to discharge on to a suitable energy dissipation structure, such as rocks embedded in mass concrete.

It is our opinion that the site soils are not suitable for the disposal of stormwater, or overflow or back washing water from spa or swimming pools by means of ground soakage, and accordingly any disposal methods involving soak pits or similar systems should not be permitted.

It is recommended that, unless a specific geotechnical appraisal is undertaken, any proposed rain garden systems at the site be sealed so as not to allow any seepage of water into the subsoils. It is further recommended that, unless a specific geotechnical appraisal is undertaken, any proposed rain garden systems at the site be located within the non specific building foundation design zone shown on drawing 60392/1, i.e not within the specific building foundation design zone.

17.0 HOUSEHOLD EFFLUENT DISPOSAL

It is our opinion, based on the soil descriptions shown on the borehole logs of Appendix A of this report, and on our previous experience of the soakage characteristics of the soil types encountered at the site, that the surficial soils at the site are expected to fall within Soil Category 6 to 7 of TP58, corresponding to slow to poor drainage, as defined in Table 5.3 of TP58, and Soil Limitation Category D of NZS 4610: 1982, Household Septic Tank Systems.

It is our opinion that effluent disposal fields, comprising drip irrigation systems with a loading application rate of not more than 3 mm per day, can be located outside the non specific foundation design zones determined for the site, shown on drawing 60392/1, without adversely affecting the stability of the slopes at the site.

It is recommended that the design of any effluent disposal field at the site be undertaken and the construction supervised and certified by a chartered professional engineer experienced in wastewater disposal.

18.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations should be read together and not be taken in isolation.

18.1 CONCLUSIONS

Our conclusions based on the field data obtained from the site and as presented in this report, our visual appraisal of the site, our study of the geological maps relating to the area and our professional judgement and opinions, are as follows:

(a) In general terms and within the limits of the investigation as outlined and reported herein, except for the buttress trench drain issues discussed in Sections 7.4 and 12.0 of this report, and provided proper control of any proposed earthworks is exercised, no unusual problems are anticipated with the development of the site along the general lines of that shown on drawings 60392/1 and 2.

The site is, in general, considered suitable for its intended use for residential purposes with satisfactory conditions for buildings, subject to the recommendations and qualifications reported herein, provided the design and inspection of foundations are carried out as would be done under normal circumstances in accordance with the requirements of NZS 3604: 1999, New Zealand Standard, Timber Framed Buildings and, in particular, the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604.

In arriving at this conclusion and expressing this opinion, reliance has been based on the various topographical data as discussed herein and on subsoil strata, their depths and thicknesses, and the locations of groundwater levels, which have only been obtained at the locations and within the depths of the boreholes and test pits reported herein. It has been assumed that these subsoil features can be projected between the various boreholes. Even though such inference is made and forms the basis of the conclusions and opinions expressed herein, no guarantee can be given as to the validity of this inference or of the nature and continuity of the subsoil features underlying the proposed development.

(b) The purpose of the geotechnical investigation reported herein was to determine the subsoil conditions at the site as they may affect the proposed subdivisional development with particular regard to slope stability; and foundation considerations; and to confirm the suitability of the site, in support of an application for subdivision consent.

(c) The borehole and test pit data, in general, indicates that the site is underlain by soils which are inferred to be residual soils derived from the underlying Waitemata Group sandstone and mudstone. However materials inferred to be alluvial sediments of Holocene age were also encountered in the lower parts of the site.

(d) Topsoil was generally encountered to depths ranging between approximately 0.1 m and 0.2 m below the existing ground surface at the locations of the boreholes and test pits put down during the investigations reported herein.

(e) Material, inferred to be alluvial sediments of Holocene age, was encountered at the locations of Boreholes H3 and H4 and Test Pits TP 1 and TP2, put down generally on the lower parts of the site. These soils generally comprised silty clays. Fragments of decaying wood were encountered in the lower layers of the alluvial sediments, at depths ranging between approximately 3.4 m and 3.5m below the existing ground surface. In situ undrained shear strength values measured in the alluvial sediments generally ranged from 60 kPa to 150 kPa, corresponding to a stiff to very stiff consistency.

(f) Material, inferred to be residual soils of the Waitemata Group of Miocene age, was encountered generally from the ground surface at the locations of Boreholes H1 and H2 and Test Pits TP3 and TP4, put down in the northern part of the site. A thin layer of residual soils was also encountered beneath the alluvial sediments at the locations of Borehole H3 and Test Pit TP2, at depths of approximately 4.3m and 3.8 m respectively below the existing ground surface. These soils generally comprised silty clays. In situ undrained shear strength values measured in the cohesive soils generally ranged from 75 kPa to greater than 240 kPa, corresponding to a stiff to hard consistency. Generally the in situ undrained shear strength values measured were in excess of 100 kPa, corresponding to a very stiff consistency.

(g) Based on the results of the DCP tests, the depth to the level of highly to moderately weathered sandstone and mudstone has been determined to be approximately 2.9 m and 4.8 m below the existing ground surface at the locations of Boreholes H2 and H3 respectively. Material inferred to be highly weathered very weak to extremely weak siltstone was encountered at the locations of Test Pits TP1 to TP4 inclusive, at depths ranging between approximately 1.7 m and 4.5 m below the existing ground surface.

(h) Groundwater was encountered at a depth of approximately 3.6 m below the existing ground surface at the location of Borehole H3, at the time of the investigation reported herein. Groundwater was also encountered at depths of approximately 5.2 m and 4.4 m below the existing ground surface at the locations of Test Pits TP1 and TP 4 respectively.

(i) A slope stability appraisal has been undertaken of the soil veneer materials for the slope profile represented by Cross Section AA, shown on Fraser Thomas Ltd drawing 60392/3.

(j) As discussed in Section 5.2 of this report, evidence of past slope movement was observed for the lower parts of the site by way of hummocky ground. As discussed in Section 6.3 of this report a layer of alluvial sediments comprising decaying wood fragments was encountered immediately above the underlying Waitemata Group bedrock during the investigations reported herein. It has been assumed, for the purposes of the appraisal reported herein, that the past slope instability at the site, which resulted in the observed hummocky appearance of the lower slopes at the site, may have occurred as a result of a circular slip failure through the alluvial sediments and along a weak layer of sediments located immediately above the Waitemata Group bedrock underlying the site.

(k) The back analyses have been carried out in order to determine the soil strength parameters for the theoretical weak layer immediately above the bedrock that would be required for a circular slope failure to have occurred in the past. The slope profile was back analysed under near fully saturated groundwater conditions in order to obtain a theoretical factor of safety value of 1.00 (i.e an assumed failure condition). The back analyses yielded effective strength parameters of zero cohesion and 22° friction angle, for the theoretical weak layer located immediately above the underlying bedrock.

(l) If the near fully saturated groundwater condition, assumed for the back analyses of the slope profile, represents the extreme transient ground water conditions, then it is evident that the existing slope profile has a theoretical factor of safety value of unity, which is less than the conventionally acceptable limiting values of 1.2 to 1.3 for the extreme transient groundwater conditions.

(m) Analyses have therefore been undertaken in order to determine the groundwater level required to achieve a satisfactory theoretical factor of safety value against future slope movement for the extreme transient groundwater condition limiting values.

(n) Forward Slope/W analyses yielded a theoretical factor of safety value of 1.82 for the as measured groundwater conditions at the site using the effective strength parameters discussed in Section 7.2 of this report, for the existing slope profile

represented by Cross Section AA. This value is considered to be satisfactory, being greater than the limiting value of 1.5 for wet winter groundwater conditions.

(o) Forward Slope/W analyses yielded a theoretical factor of safety value of 1.31 for an assumed groundwater level located at a depth of approximately 1.5 m below the existing ground surface. This value is considered to be satisfactory, being greater than the limiting value of 1.2 and approximating the value of 1.3 for extreme transient groundwater conditions. It is anticipated that buttress trench drains will be required at the site to control the groundwater levels at the site to prevent the groundwater from rising above a depth of approximately 1.5 m below the existing ground surface, so as to mitigate against the risk of slope instability occurring at the site. Buttress trench drain design details are discussed in Section 12.0 of this report.

(p) Based on the site appraisal and borehole investigation, as reported herein, and on the basis of ground conditions existing at the time of the investigation reported herein, a "Recommended Building Line Limitation" has been determined for the site.

(q) Although satisfactory factor of safety values against slope instability were obtained for the slope profile represented by Cross Section AA, for the buttress trench drain treated slope profile, it is our opinion that slopes steeper than approximately 1V:3H (18° to the horizontal) at the site could be affected by surficial soil creep and should therefore be subject to specific building foundation design.

An eight metre margin of safety has, in general, been applied at the crest of the slopes steeper than 18° to the horizontal, in order to define the "Recommended Building Line Limitation" for Cross Section AA. This line is shown in plan on drawing 60392/1.

(r) The "Recommended Building Line Limitation" defines the boundary between:-

(i) A non specific building foundation design zone, in which the foundations of any proposed residential building do not require specific design and which may, therefore, be constructed in accordance with the requirements of NZS 3604:1999, New Zealand Standard, Timber Framed Buildings, providing the inspection and design of foundations are carried out as would be done under normal circumstances in accordance with the requirements of NZS 3604, including the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604.

(ii) A specific building foundation design zone, in which the foundations of any proposed residential building should be subject to specific design with particular regard to slope stability and settlement by a chartered professional engineer either experienced in geotechnical engineering or with the assistance of an engineer experienced in geotechnical engineering. Within this zone, the designer should, along with other criteria considered appropriate, undertake the following:

(a) The design of a foundation system which properly takes into account the ground conditions at the specific location of any proposed structure.

(b) An assessment of founding depths and the locations of foundation lines to provide secure foundations for any proposed structure in the event of slope movement.

(s) It is our opinion that settlement at the site should not present a problem within the proposed subdivisional development, for buildings founded on the alluvial sediments and the Waitemata Group residual soils, providing the inspection and design of foundations are carried out in accordance with the requirements of NZS 3604, including the provisions of Clauses 3.1.2 and 3.1.3 of NZS 3604, and providing the recommendations in this report are adopted.

(t) Based on our experience with similar soils in the greater Auckland area it is our opinion that the site soils should be considered to be slightly expansive.

(u) It is our opinion, based on the soil descriptions shown on the borehole logs of Appendix A of this report, and on our previous experience of the soakage characteristics of the soil types encountered at the site, that the surficial soils at the site are expected to fall within Soil Category 6 to 7 of TP58, corresponding to slow to poor drainage, as defined in Table 5.3 of TP58, and Soil Limitation Category D of NZS 4610: 1982, Household Septic Tank Systems.

(v) It is our opinion that effluent disposal fields, comprising drip irrigation systems with a loading application rate of not more than 3 mm per day, can be located outside the non specific foundation design zones determined for the site, shown on drawing 60392/1, without adversely affecting the stability of the slopes at the site.

18.2 RECOMMENDATIONS

Our recommendations based on the field data obtained from the site and as presented in this report, our visual appraisal of the site, our study of the geological maps relating to the area and our professional judgement and opinions, are as follows:

(a) That the existing vegetation on the slopes at the site be retained and protected, as far as practicable, from damage by felling or clearing. Slope stability is enhanced by binding of the soil by the root systems of trees and other vegetation, which provides mechanical reinforcement and resists erosion by surface water, and by shedding of water by transpiration processes.

(b) That any proposed building development be designed to satisfy the relevant requirements of the Building Code, so as to ensure compliance with the Building Act.

(c) That, where brick veneer construction is proposed, consideration be given to minimising potentially unsightly cracking of veneer cladding due to possible differential settlement or movement, by ensuring that the veneer is erected in discrete panels of maximum length of approximately three metres, or greater if permitted by the cladding manufacturer's instructions. In general, however, if the good practices of NZS 3604 are adhered to, any settlement during the service life of any residential buildings so constructed should not, in our opinion, be a problem.

(d) That, due to the risk of consolidation settlement of the trench backfill occurring, associated with the proposed buttress trench drains, if any foundations of any proposed building are located within the zone of influence of any buttress trench drain, the foundations and floor of the proposed building be designed to span across the trench backfill and the adjacent zone of influence.

The zone of influence is defined by a theoretical line projecting upwards in both directions from the centreline of the pipeline at the invert level of the pipeline at an angle of 45° to the vertical. The zone of influence is defined by the zone between the intersection point of the theoretical line and the ground surface on each side of the pipeline.

(e) That any proposed foundation excavations in the vicinity of the inferred extent of the zone of influence of any buttress trench drain be inspected by Fraser Thomas Ltd to ensure that the foundations are not underlain by any trench backfill which may be associated with the buttress trench drains.

(f) That foundations located within the area inferred to be underlain by recent alluvial sediments, as shown on drawing 60392/1, should be subject to specific investigation and appraisal by a chartered professional engineer either experienced in geotechnical engineering or with the assistance of an engineer experienced in geotechnical engineering, in order to determine the extent and consistency of the recent alluvial sediments beneath any proposed foundations for foundation design purposes within this area.

(g) That the ultimate static bearing capacity for vertical loading of shallow pad or strip footings and the corresponding strength reduction factor and dependable bearing capacity values presented in Section 11.0 of this report be adopted for limit state design in accordance with NZS 4203:1992, New Zealand Standard Code of Practice for General Structural Design and Design Loadings for Buildings.

(h) That, if unfactored load combinations are to be considered, the allowable foundation bearing pressures presented in Table 4 of this report be adopted for shallow pad or strip footings.

(i) That the ultimate static bearing capacity and skin friction values for vertical loading of piled foundations, founded in the soil veneer and the underlying bedrock, and the corresponding strength reduction factor and dependable bearing capacity values presented in Section 11.0 of this report, be adopted for limit state design in accordance with the requirements of NZS 4203.

(j) That, if unfactored load combinations are to be considered, the allowable end bearing pressures and skin friction values presented in Tables 5 and 6 of this report be adopted for piled foundations founded in the soil veneer and underlying bedrock respectively.

(k) The allowable foundation bearing pressures indicated in Tables 4, 5 and 6 are, in our opinion, safe maximum values. These values do not, however, take account of settlement considerations or the need to limit the foundation bearing pressures so as to limit the associated settlement.

(l) That buttress trench drains be installed at the site in order to control the groundwater level within the south facing slopes at the site.

The proposed locations of the buttress trench drains are shown on drawing 60392/2. Construction details for the buttress trench drains are shown on Figure 1.

(m) That the buttress trench drains should be excavated at a minimum gradient of 1V:50H.

(n) That the water collected by the buttress trench drains be directed to an appropriate collector drain, which should be directed to discharge to the existing watercourse located in the south western part of the site.

(o) That the as-built locations of the buttress trench drains, and associated collector drain, be accurately surveyed and an as-built plan be produced for the site showing the locations of the drains. It is also recommended that the as-built invert depth below the finished ground surface of the buttress trench drains be determined at the ends and central part of each buttress drain, and that this information also be recorded on the as-built plan for the site. It is recommended that the as-built plan for the buttress trench drains be held on the Far North District Council's property file for the site.

(p) That a minimum founding depth of 450 mm below finished external cleared ground levels, for conventional shallow concrete foundations, provides an appropriate specific foundation design embedment depth so as to minimise the effects of ground swelling and shrinkage for clad timber frame and masonry veneer construction, and should also be appropriate for full masonry construction.

(q) That the earthworks subgrade within the footprint of any proposed buildings be maintained at or close to its natural water content to avoid drying out and associated shrinkage of the subgrade. Any drying out of the subgrade may result in the subgrade swelling after building construction, resulting in the possibility of heave and cracking of the floor slab. This risk may be mitigated during construction by placement of a minimum 300 mm thick granular layer, or some other suitable barrier to soil water loss, immediately following the completion of the earthworks.

(r) That, due to the risk of consolidation settlement of the trench backfill occurring, if any foundations of any proposed building are located within the zone of influence of existing service lines, either the trench backfill be excavated and replaced with compacted hardfill, or that the foundations and floor of the proposed building be designed to span across the trench backfill and the adjacent zone of influence.

The zone of influence is defined by a theoretical line projecting upwards in both directions from the centreline of the pipeline at the invert level of the pipeline at an angle of 45° to the vertical. The zone of influence is defined by the zone between the intersection point of the theoretical line and the ground surface on each side of the pipeline.

(s) That any proposed foundation excavations in the vicinity of the inferred extent of the zone of influence of the existing service lines be inspected by Fraser Thomas Ltd to ensure that the foundations are not underlain by any trench backfill which may be associated with the existing service lines.

(t) That, unless the stability of any developmental earthworks (ie. constructed for an access driveway, building platform or landscaping) is considered in detail by a chartered professional engineer experienced in geotechnical engineering, and particularly slope stability considerations, fill end slopes should be constructed to a maximum batter slope of 26° (1V:2H) and cut slopes to a maximum slope angle of 18° (1V:3H) with maximum batter heights of approximately one metre. Any proposed higher batter slopes should be subject to specific stability appreciation so as to determine stable limiting batter slopes.

(u) That all stormwater from roofed and paved areas that is not retained for domestic use be collected and piped in sealed pipes to discharge into the existing watercourse located in the south western part of the site and be directed to discharge on to a suitable energy dissipation structure, such as rocks embedded in mass concrete.

It is our opinion that the site soils are not suitable for the disposal of stormwater, or overflow or back washing water from spa or swimming pools by means of ground soakage, and accordingly any disposal methods involving soak pits or similar systems should not be permitted.

(v) That, unless a specific geotechnical appraisal is undertaken, any proposed rain garden systems at the site be sealed so as not to allow any seepage of water into the subsoils. It is further recommended that, unless a specific geotechnical appraisal is undertaken, any proposed rain garden systems at the site be located within the non specific building foundation design zone shown on drawing 60392/1, i.e not within the specific building foundation design zone.

(w) That the design of any effluent disposal field at the site be undertaken and the construction supervised and certified by a chartered professional engineer experienced in wastewater disposal.

19.0 LIMITATION

The professional opinion expressed herein has been prepared solely for, and is furnished to the Far North District Council and our client, Seawood Holdings Ltd, for their purposes only, on the express condition that it will not be relied upon by any other person and on the understanding that where heavy or unusual constructions are proposed that do not come within the scope of NZS 3604:1999, New Zealand Standard, Timber Framed Buildings, then the building site of concern will be specifically investigated with regard to the proposed foundation loadings and structural systems by a chartered professional engineer experienced in geotechnical engineering.

No liability is accepted by this firm or by any principal, or director, or any servant or agent of this firm, in respect of its use by any other person, and any other person who relies upon any matter contained in this report does so entirely at its own risk. This disclaimer shall apply notwithstanding that this report may be made available to any person by any person in connection with any application for permission or approval, or pursuant to any requirement of law.

Notwithstanding the foregoing, if the circumstances at the subject site change with respect to topography or the proposed development concept, or if a period of more than three years has

elapsed since the date of this report, this report should not be used without our prior review and written agreement.

Notwithstanding the foregoing conclusions and recommendations, any proposed building development should be designed to satisfy the relevant requirements of the Building Code, so as to ensure compliance with the Building Act.

The conclusions and recommendations expressed herein should be read in conjunction with the remainder of this Geotechnical Investigation Report and should not be referred to out of context with the remainder of this report.

Report prepared by:
FRASER THOMAS LTD.

M V REED
Geotechnical Engineer
Chartered Professional Engineer

WOODrep061015MVRmvr

Report reviewed and approved by:

P R GOLDSMITH
Director
Chartered Professional Engineer

Appendix A

Field Test Results

BOREHOLE AND TEST PIT LOGS SYMBOLS AND TERMS

(Based on New Zealand Geomechanics Society "Guidelines for the Field Description of Soils and Rock in Engineering Use" November 1988)

SYMBOLS AND ABBREVIATIONS

RL	Reduced level
EOB	End of borehole
X	Shear vane test result
UTP	Unable to penetrate
⊗	Pocket penetrometer test result
SPT	Standard Penetration Test
N	SPT blows per 300mm penetration
35/90	35 blows per 90mm penetration after seating for SPT
(s)	Inclusive of seating blow count for SPT
▼	Recorded water level
GWL	Groundwater level

W_f	Field water content
W_P	Plastic limit (%)
W_L	Liquid limit (%)
RQD	Rock quality designation
SG	Specific gravity
% F	Percentage fines (<75 micron)
PSD	Particle size distribution
CONS	Consolidation test
COMP	Compaction test
UCS	Unconfined compressive strength
k	Permeability coefficient (m/s)
LS	Linear shrinkage (%)
OC	Organic content (%)

SAMPLE TYPES

- Bulk disturbed (arrows denote depth interval)
- Small disturbed
- "Undisturbed" tube
- Block
- Standard Penetration Test

SOIL

Symbol	Description
	Clay
	Silt
	Sand
	Gravel
	Boulders and Cobbles
	Organic Material
	Fill

STRENGTH

(a) Cohesive Description	Undrained Shear Strength (kPa)
Very soft	less than 10
Soft	10 to 25
Firm	25 to 50
Stiff	50 to 100
Very stiff	100 to 200
Hard	>200

(b) Non-cohesive Description	SPT "N" Value
Very loose	0 to 4
Loose	4 to 10
Medium dense	10 to 30
Dense	30 to 50
Very dense	>50

ROCK

Symbol	Description
	Limestone
	Mudstone
	Sandstone
	Conglomerate
	Breccia
	Volcanic Rock
	Fossiliferous

STRENGTH

Description	Unconfined Compressive Strength (MPa)
Extremely weak	<1
Very weak	1 to 5
Weak	5 to 20
Moderately strong	20 to 50
Strong	50 to 100
Very strong	100 to 250
Extremely strong	>250

WEATHERING

UW	unweathered
SW	slightly weathered
MW	moderately weathered
HW	highly weathered
CW	completely weathered

SPACING OF DISCONTINUITIES

Description	Spacing (mm)
Very widely spaced	>2000
Widely spaced	600 to 2000
Moderately widely spaced	200 to 600
Closely spaced	60 to 200
Very closely spaced	20 to 60
Extremely closely spaced	<20

Notes
1. Composite soil types are signified by combined symbols

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- RESOURCE MANAGERS
- ENVIRONMENTAL CONSULTANTS
- SURVEYORS & PLANNERS

HAND AUGER LOG

SHEET 1 OF 1

BOREHOLE NO. H1

PROJECT. SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 06.10.06 Logged by M Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
0.5	CLAY, silty, grey streaked orange, brown, moderately plastic, very stiff [WAITEMATA GROUP]						
1.0	becomes orange streaked light grey, very plastic						
1.5							
2.0	EOB @ 2.0 m TARGET DEPTH						
2.5							
3.0							
3.5							
4.0							
4.5							
5.0							
5.5							
6.0							
6.5							
7.0							

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT (%): 20, 40, 60, 80

REMARKS: 1. Groundwater not encountered on 06.10.06

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- ENVIRONMENTAL CONSULTANTS
- SURVEYORS & PLANNERS

HAND AUGER LOG

SHEET 1 OF 1

BOREHOLE NO. H2

PROJECT. SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 06.10.06 Logged by M Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
0.5	CLAY, silty, orange, brown, moderately plastic, very stiff [WAITEMATA GROUP]						
1.0	becomes orange streaked light grey, very plastic						
1.5				>240			
2.0				>240			
2.5	EOB @ 2.5 m TOO STIFF TO AUGER FURTHER			>240			
3.0							
3.5							
4.0							
4.5							
5.0							
5.5							
6.0							
6.5							
7.0							

REMARKS: 1. Groundwater not encountered on 06.10.06

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- RESOURCE MANAGERS
- ENVIRONMENTAL CONSULTANTS
- SURVEYORS & PLANNERS

HAND AUGER LOG

SHEET 1 OF 1

BOREHOLE NO. H3

PROJECT. SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 06.10.06 Logged by M Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
0.5	CLAY, silty, light grey streaked orange, moderately to very plastic, very stiff [ALLUVIAL SEDIMENTS]						
1.0							
1.5							
2.0							
2.5							
3.0	becomes grey						
	becomes grey streaked light brown						
3.5							
4.0							
4.5	CLAY, silty, grey, moderately plastic, very stiff to hard [WAITEMATA GROUP]						
5.0	EOB @ 4.5 m TOO DIFFICULT TO AUGER FURTHER						
5.5							
6.0							
6.5							
7.0							

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT (%): 20, 40, 60, 80

REMARKS: 1. Groundwater encountered @ 3.6 m depth on 06.10.06

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HAND AUGER LOG

SHEET 1 OF 1

BOREHOLE NO. H4

PROJECT. SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 06.10.06 Logged by M Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable			50 100 150 200	20 40 60 80		
0.5	CLAY, silty, orange streaked orange, moderately plastic, very stiff [ALLUVIAL SEDIMENTS]						
1.0							
1.5							
2.0	EOB @ 2.0 m TARGET DEPTH						
2.5							
3.0							
3.5							
4.0							
4.5							
5.0							
5.5							
6.0							
6.5							
7.0							

REMARKS: 1. Groundwater not encountered on 06.10.06

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DYNAMIC CONE PENETROMETER TEST

TEST METHOD : NZS 4402 : 1988, TEST 6.5.2.

PROJECT NAME:	**SEAWOOD HOLDINGS LTD** MARTIN ROAD OMAPERE	Sheet 1 Of 1	Date tested: 06.10.06
PROJECT No.:	**60392**	Tested by: M Reed	Checked by:

TABLE OF BLOWS PER PENETRATION INCREMENT

Test No.	H2	H3								
Start Depth (mbgl)	2.5	4.5								
50mm	3	2								
100	3	3								
150	3	4								
200	3	5								
250	3	6								
300	5	7								
350	5	9								
400	5	9								
450	5									
500	6									
550	5									
600	6									
650	6									
700	6									
750	6									
800	6									
850										
900										
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1500										
1550										
1600										
1650										
1700										
1750										
1800										
1850										
1900										
1950										
2000										

Remarks: mbgl metres below ground level

R Refusal

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TEST PIT LOG

SHEET 1 OF 1

TEST PIT NO. TP1

PROJECT SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

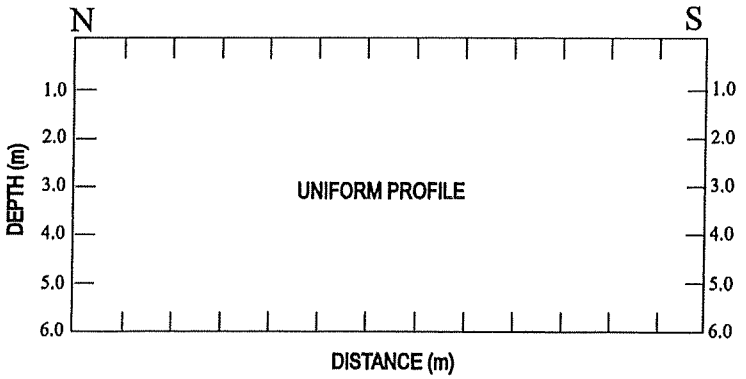
GROUND LEVEL DATUM

Date Drilled 08.11.06 Logged by M. Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
0.5	CLAY, silty, orange streaked light grey, very plastic, stiff to very stiff [ALLUVIAL SEDIMENTS]						
2.5	CLAY, silty, grey, moderately to very plastic, stiff						
3.5	CLAY, silty, grey, moderately to very plastic, stiff, intermixed with occasional wood inclusions						
5.0	SILTSTONE, grey, highly weathered, very weak to extremely weak [WAITEMATA GROUP]						

EOTP @ 5.6 m TARGET DEPTH

TEST PIT PROFILE:



EXCAVATION METHOD: X220 Excavator

GROUNDWATER DATA AND REMARKS:

1. Groundwater at 5.2 m on 08.11.06, approximately 1 hour following excavation

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TEST PIT LOG

SHEET 1 OF 1

TEST PIT NO. TP2

PROJECT SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

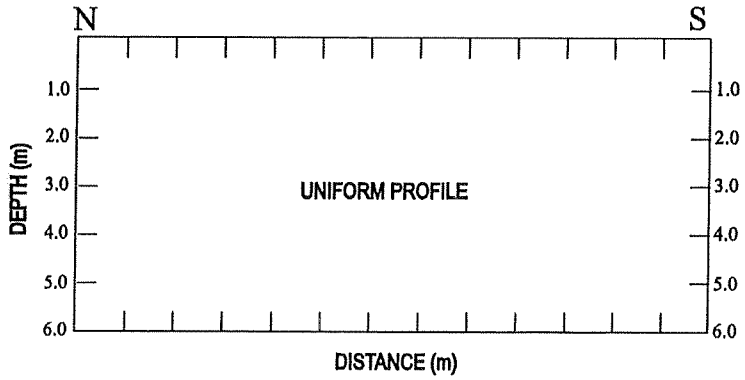
CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 08.11.06 Logged by M. Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane (50, 100, 150, 200)	WATER CONTENT (%) W_p W_f W_l (20, 40, 60, 80)	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
0.5	CLAY, silty, orange streaked light grey, very plastic, stiff to very stiff [ALLUVIAL SEDIMENTS]						
1.0				x			
1.5				x			
2.0				x			
2.5	becoming firm			x			
3.0							
3.5	CLAY, silty, grey, moderately plastic, stiff, intermixed with occasional wood inclusions			x			
4.0	CLAY, silty, grey, moderately plastic, very stiff to hard [WAITEMATA GROUP]			x			
	SILTSTONE, cream streaked grey, highly weathered, very weak to extremely weak [WAITEMATA GROUP]						
	EOTP @ 4.4 m TARGET DEPTH						
5.0							

TEST PIT PROFILE:



EXCAVATION METHOD: X220 Excavator

GROUNDWATER DATA AND REMARKS:

1. Groundwater not encountered on 08.11.06.

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TEST PIT LOG

SHEET 1 OF 1

TEST PIT NO. TP3

PROJECT SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

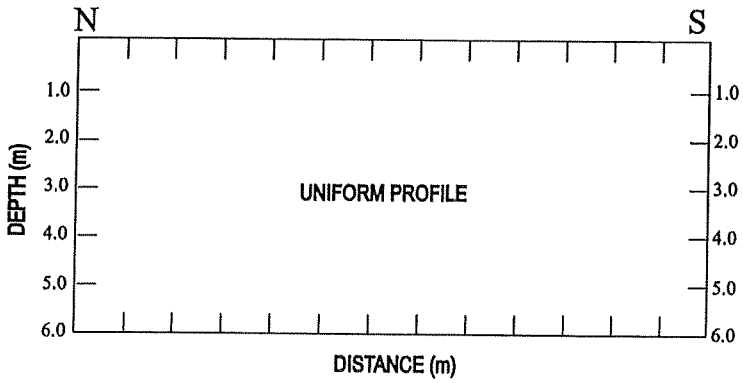
CO-ORDINATES E N

GROUND LEVEL DATUM

Date Drilled 08.11.06 Logged by M. Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable			50 100 150 200	20 40 60 80		
0.5	CLAY, silty, orange, moderately plastic, stiff to very stiff [WAITEMATA GROUP]						
1.0							
1.5							
2.0	SILTSTONE, cream streaked grey, highly weathered, very weak to extremely weak [WAITEMATA GROUP]						
2.5							
3.0							
3.5	EOTP @ 3.4 m TARGET DEPTH						
4.0							
5.0							

TEST PIT PROFILE:



EXCAVATION METHOD: X220 Excavator

GROUNDWATER DATA AND REMARKS:

1. Groundwater not encountered on 08.11.06.

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TEST PIT LOG

SHEET 1 OF 1

TEST PIT NO. TP4

PROJECT SEAWOOD HOLDINGS LTD
MARTIN ROAD
OMAPERE

PROJECT NO. 60392

CO-ORDINATES E N

GROUND LEVEL DATUM

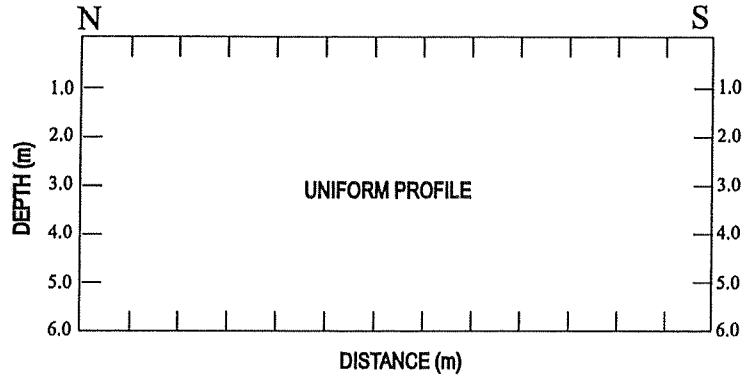
Date Drilled 08.11.06 Logged by M. Reed Checked

DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC LOG	SAMPLE TYPE	UNDRAINED SHEAR STRENGTH (kPa) Vane readings corrected as per BS 1377 X Shear Vane ○ Residual Shear Vane	WATER CONTENT (%) W_p W_f W_l	WATER CONTENT (%)	TESTING AND COMMENTS
0.0	[TOPSOIL] SILT, brown, friable						
	CLAY, silty, orange, moderately plastic, stiff to very stiff [WAITEMATA GROUP]						
3.5	becoming very stiff to hard						
4.0	SILTSTONE, cream streaked grey, highly weathered, very weak to extremely weak [WAITEMATA GROUP]						
5.0	EOTP @ 4.6 m TARGET DEPTH						

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT (%): 20, 40, 60, 80

TEST PIT PROFILE:



EXCAVATION METHOD: X220 Excavator

GROUNDWATER DATA AND REMARKS:

1. Groundwater at 4.4 m on 08.11.06, approximately 1 hour following excavation

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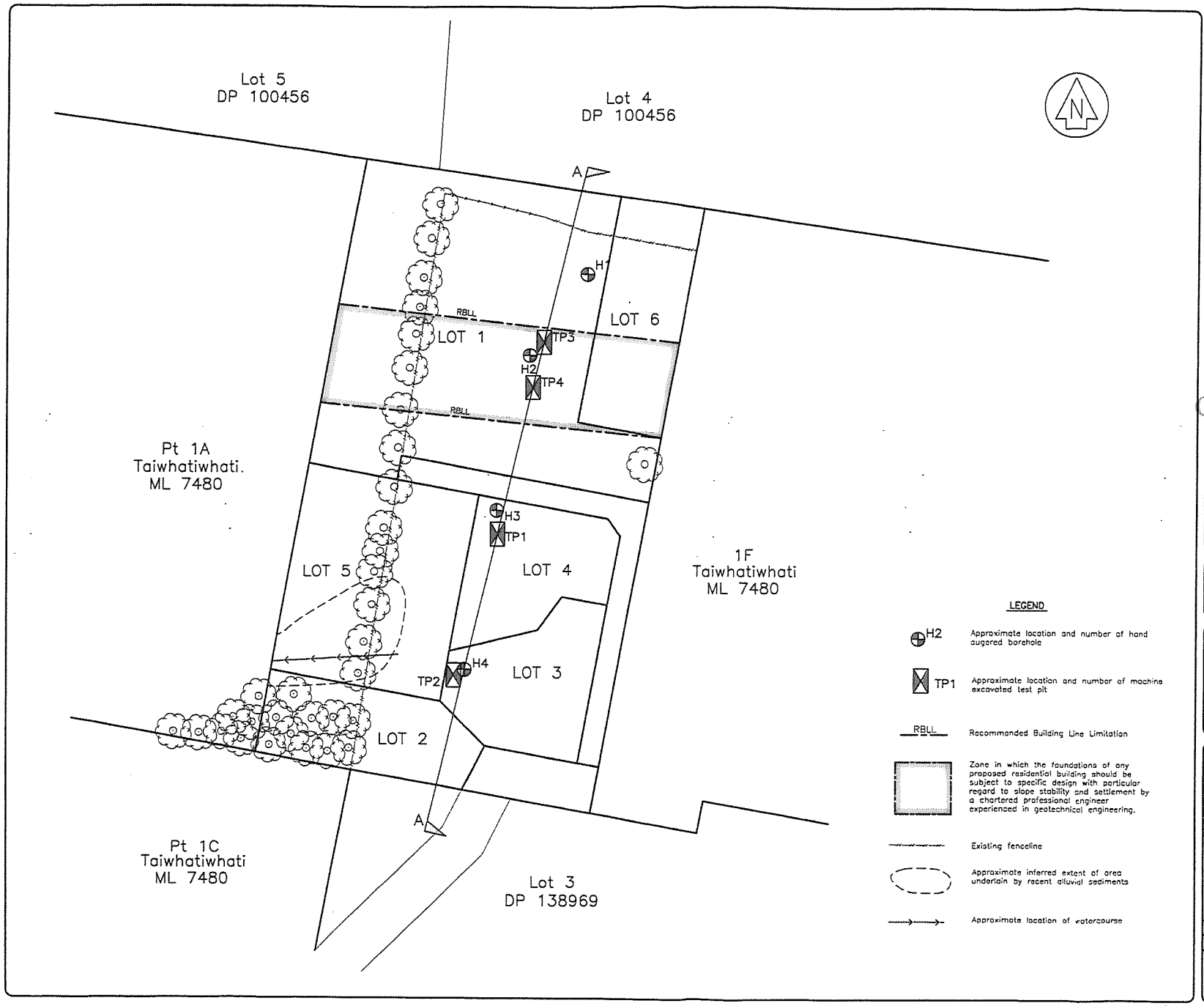

SURVEYED			
DESIGNED	MR	DEC 06	
DRAWN	MR	DEC 06	
CAD	AD	DEC 06	
CHECKED			

APPROVED PRG DATE DECEMBER 2006

REVISION	CHANGES	CHECKED	DATE

NOTES

1. This site plan is adopted from Fraser Thomas Ltd Drawing No.12251/SC, Revision 1.

CLIENT
SEAWOOD HOLDINGS LTD

PROJECT
PROPOSED RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE

TITLE
SITE PLAN

Fraser Thomas

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- RESOURCE MANAGERS
- ENVIRONMENTAL CONSULTANTS
- SURVEYORS & PLANNERS

152 KOLMAR ROAD, PAPATOETOE
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www.fraserthomas.co.nz

SCALE 1:1500 (A3)

CAD FILE No.

DRAWING No 60392/1 REVISION

SHEET ... of ...

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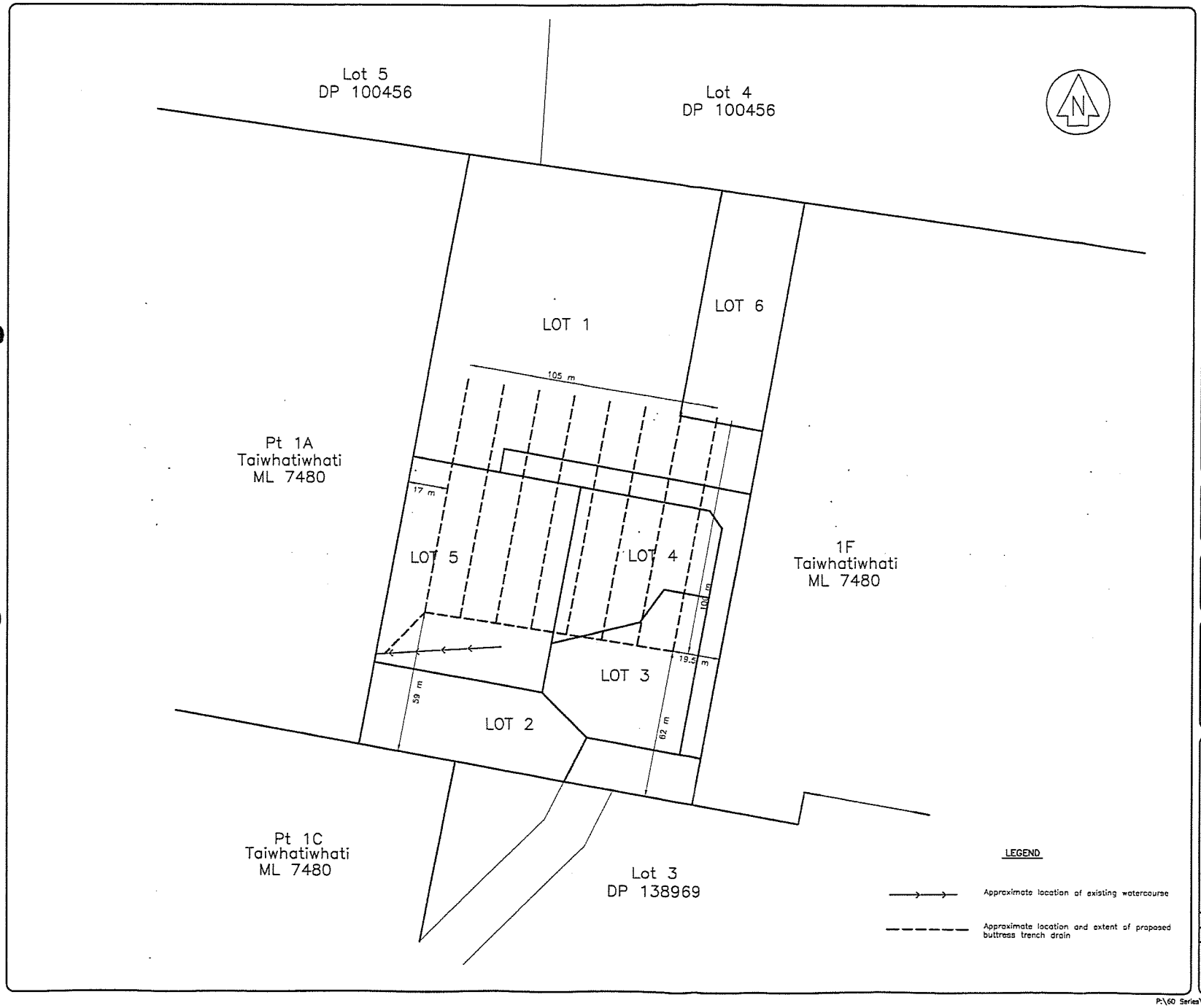

SURVEYED			
DESIGNED	MR	DEC 05	
DRAWN	MR	DEC 05	
CAD	AB	DEC 05	
CHECKED			

APPROVED PRG DATE DECEMBER 2005

REVISION	CHANGES	CHECKED	DATE

NOTES

1. This site plan is adopted from Fraser Thomas Ltd Drawing No.12251/SC, Revision 1.

CLIENT
SEAWOOD HOLDINGS LTD

PROJECT
PROPOSED RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE

TITLE
SITE PLAN SHOWING LOCATIONS OF PROPOSED BUTTRESS TRENCH DRAINS

Fraser Thomas

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- RESOURCE MANAGERS
- ENVIRONMENTAL CONSULTANTS
- SURVEYORS & PLANNERS

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www.fraserthomas.co.nz

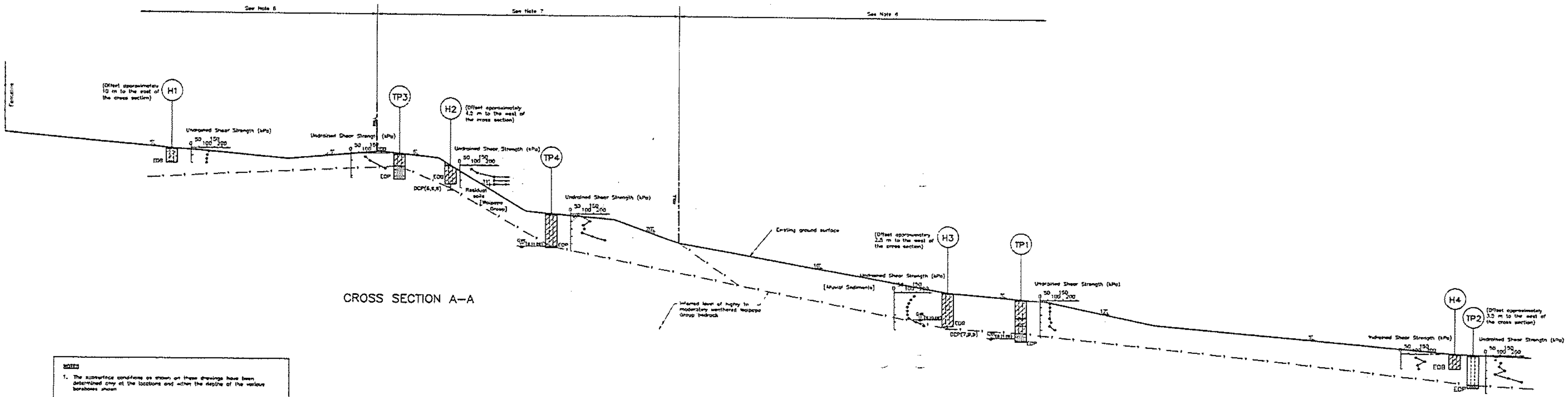
SCALE 1:1500 (A2)

CAD. FILE No.

DRAWING No. 60392/2 REVISION

SHEET ___ of ___

P:\60 Series\60392\ 60392-1,2_rev layout.dwg 31 May, 2007 - 3:40P



CROSS SECTION A—A

NOTES

1. The subsurface conditions as shown on these drawings have been determined only at the locations and within the depths of the various boreholes shown.
2. The subsurface conditions have been projected between the boreholes and represent a rational assessment based on all available data.
3. In making any assessment of subsurface conditions from small diameter boreholes it should be noted that such an assessment is based upon data obtained at the test locations. Such an assessment will not identify any variation that may exist away from these locations.
4. No guarantee can be given as to the validity of, and the nature and continuity of the various subsurface features shown.
5. The soil descriptions on this drawing have been simplified for this presentation. For detailed descriptions refer to the logs of the boreholes as presented in the related Fraser Thomas Report No. 60392.
6. Zone within which the foundations of any proposed building do not require specific design and which may, therefore, be constructed in accordance with the requirements of NZS 3604: 1999, New Zealand Standard, Timber Framed Buildings.
7. Zone within which the foundations of any proposed building should be subject to specific design with particular regard to slope stability and settlement by a chartered professional engineer experienced in geotechnical engineering.

LEGEND

EOP	End of Test Pit
EOB	End of Borehole
DCP(7,9,9)	Number of blows per 50mm penetration
	Shear vane reading
	Shear vane reading exceeds 223kPa
RBLL	Recommended Building Line Limitation

BOREHOLE LOG SYMBOLS

Clay
Sandy
Siltstone
Silty
Organic material

SEAWOOD HOLDINGS LTD

PROPOSED RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE

CROSS SECTION A-A

Fraser Thomas

PRG

1:300

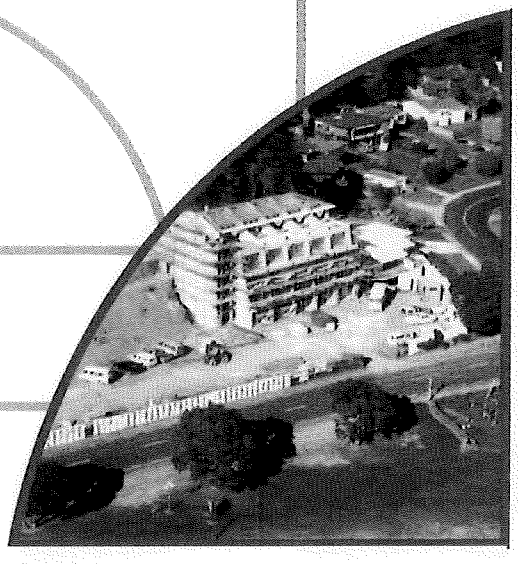
60392/3

Appendix 6

Engineering Report (Civil)

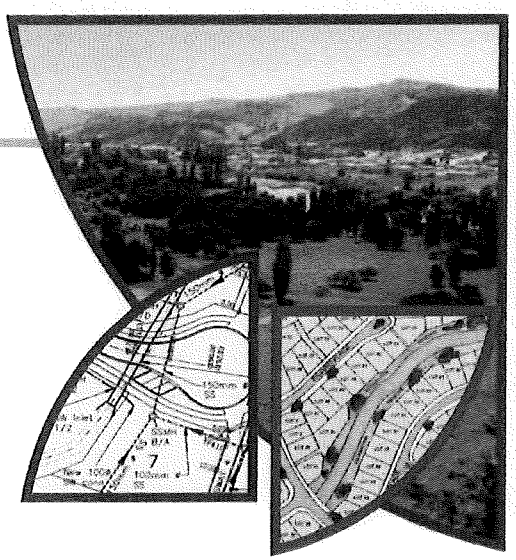
(Provided in support of previous subdivision)

Seawood Holdings Ltd



Fraser Thomas

ENGINEERS: RESOURCE MANAGERS: SURVEYORS



PROPOSED SUBDIVISION AT
MARTIN ROAD, OMAPERE

ENGINEERING REPORT

ENGINEERING REPORT

6 LOT COASTAL RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE (1E TAIWHATIWHATI, ML 7480)

SEAWOOD HOLDINGS LTD

TABLE OF CONTENTS

SUMMARY

1	INTRODUCTION	1
2	SITE SUITABILITY/STABILITY	1
2.1	ACCESS	2
2.2	STORMWATER	2
2.3	SEWAGE	3
2.4	WATER	3
2.5	SERVICES	3
2.6	EARTHWORKS	3
2.7	CONCLUSION	4

ENGINEERING REPORT

6 LOT COASTAL RESIDENTIAL SUBDIVISION AT MARTIN ROAD, OMAPERE (1E TAIWHATIWHATI, ML 7480)

SEAWOOD HOLDINGS LTD

1 INTRODUCTION

This report addresses the engineering issues relevant to the proposed subdivision of the above property into six coastal residential allotments.

This report is based on a site inspection, walk over assessment and preliminary design calculations.

It is understood that it is proposed to subdivide the site into 5 residential lots with a 6th lot being the undeveloped balance.

2 SITE SUITABILITY/STABILITY

Lots 2-4, & 6 are approximately 3000m^2 and Lot 5 is approximately 6300m^2 in area and are of ample size and grade to accommodate a residential structure. Lot 1 is approximately 1.7ha in area and will be left in pasture & scrub.

The Fraser Thomas Ltd Geotechnical Investigation Report details a "Recommended Building Line Limitation" that affects Lots 1 & 6 within which proposed residential building foundations should be subject to specific design (S9.2, pg 9). Suitable building sites have been identified outside this area on all of the new lots and are shown on the scheme plan. All proposed building envelopes exceed the 15x15m requirement whilst exceeding minimum setbacks from boundaries.

Effluent fields of sufficient size to comply with TP-58 have been identified and shown on the attached scheme plan. Effluent field size is based on a 3-4 bedroom house and the soil classification 6-7 and application rate of 3mm/day as specified in the accompanying Geotechnical Investigation Report.

The proposal will follow all of the recommendations outlined in the accompanying Geotechnical Investigation Report. That report makes several recommendations to ensure site stability including buttress trench drains, control of earthworks, a "Recommended Building Line Limitation" and concludes that, provided the recommendations in the report are followed, then no "*...unusual problems are anticipated with the development...*" and "*The site is, in general, considered suitable for its intended use for residential purposes with satisfactory conditions for buildings...*"

2.1 ACCESS

Metalled accessways of 5m and 3m wide are to be constructed on the site to serve the new lots as detailed in the Resource Consent Application and Assessment of Environmental Effects. A portion of the accessway from Martin Road to the site is also to be upgraded to a 5m wide, metalled carriageway with further widening to 5.5m on the curve adjacent to the entrance to the site,

These accessways in some cases traverse side slopes of grades of approximately 1 in 6. It is recommended that these accessways are to be subject to specific engineering design by a Chartered Professional Engineer or Independent Qualified Person prior to construction. Cut and fill slopes will be restricted to the grades and batter heights recommended in Section 15.0 *Developmental Earthworks* in the accompanying Geotechnical Report being 1V:3H for Cut and 1V:2H for Fill and a maximum of 1m high batters.

Table drains of approximately 0.3m deep shall be provided on either side of the proposed accessways as outlined below in **2.2 Stormwater.**

Subsurface soil drains are to be installed beneath the carriageway to comply with NZS 4404:2004.

Practical access driveways to each dwelling can be provided from the proposed rights of way.

2.2 STORMWATER

Stormwater run-off from the development shall be directed to reticulated drains consisting of 0.3m deep table drains on either side of the proposed accessways and an existing open drain located approximately on the boundary between Lots 3 and 4.

A new detention pond located in the southeast corner of Lot 5 shall be constructed to collect run-off from the above drains.

The purpose of the detention pond is to mitigate run-off from the property to pre-development levels. The pond will also collect water from the buttress drains to be installed as per the recommendation in the attached Geotechnical Report.

The northern table drains will feed into the existing open drain and then into the detention pond. The table drains to the south of the existing drain will run to the existing table drains in the accessway from Martin Road.

The location and size of the proposed drains, culverts and pond will be subject to specific engineering design prior to the start of construction.

Proposed design plans will be submitted to Council for approval prior to the start of construction.

Stormwater from drives, paved areas and water tank overflows are to be collected and piped to the nearest practicable drain for entry into this system as recommended in the accompanying Geotechnical Report. Roof water is to be stored in water tanks with extended storage capacity for the 10 year storm as specified in ARC TP10 to help mitigate the flows.

The existing ground cover is considered greenfield pasture in good condition. The maximum allowable impervious area is 6000m² (Refer RPDP Rule 10.8.5.1.6 *Impermeable Surfaces*). The total area of the subdivision is 3.6ha (area of lots and ROWs). The estimated actual impermeable surface area post development is approximately 3000m² or approximately 50% of the allowable area. This is based on a generous estimate per lot of 250m² dwellings plus drives and rights of way.

In summary, specific stormwater provisions will include:

- Open water table drains on accessways with culverts and discharge outlets where required.
- Disposal of roof water to water tanks with extended storage capacity for the 10 year storm as specified in ARC TP10 as a mitigation measure. This will require a Consent Notice on the title.
- Tank overflows and stormwater from drives and paved areas to be piped into drains instead of overland flows. This will require a Consent Notice on the title.
- Detention pond designed to reduce stormwater flows off-site to pre-development levels.

2.3 SEWERAGE

The proposed allotments are of at least 3000m^2 in area and of ample size to accommodate either a conventional septic tank and effluent soakage disposal system, or if deemed necessary, a proprietary secondary treatment system. This will be determined by a TP58 investigation and by assessment of soil permeability and ground water levels. The scheme plan shows indicative effluent fields based on drip irrigation systems for a 3-4 bedroom house and the soil classification 6-7 and application rate of 3mm/day as specified in the accompanying Geotechnical Investigation Report.

It is recommended that the design of any effluent disposal field at the site be undertaken and the construction supervised and certified by a Chartered Professional Engineer or Independent Qualified Person experienced in wastewater disposal.

2.4 WATER

Water supply will be by way of roof collection into tanks.

2.5 SERVICES

Telecom and Top Energy have been contacted in regard to their requirements. Their comments will be passed on to Council once they have been received.

2.6 EARTHWORKS

Building platforms will not be cut at this stage. Consideration of earthworks quantities and controls for building platforms should be considered at the building consent stage.

Earthworks are thus limited to creation of the new shared accessway (Section 3.3 Above). Preliminary design contours indicate approximately 175m³ Cut and 160m³ Fill (Total 335m³).

Retaining will not be required and cut/fill heights will not exceed 1m.

Cut batters are to be at a maximum grade of 1V:3H. Fill batters are to be at a maximum grade of 1V:2H.

2.7 CONCLUSION

The engineering requirements of the proposal are straight-forward and pose no significant problems.

The proposal should be carried out in accordance with the recommendations specified in this report.

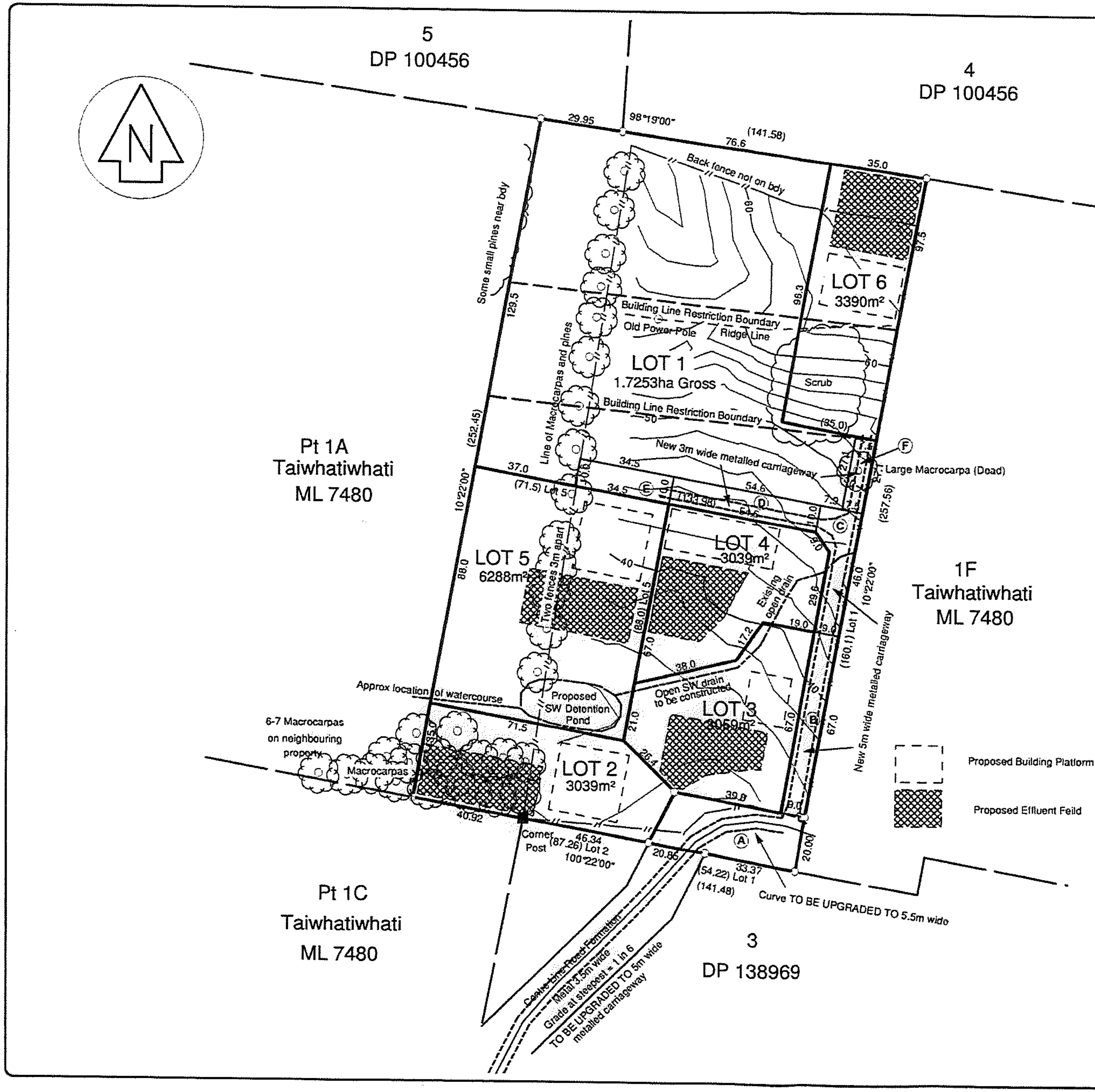
Access, stormwater and sewerage should be subject to specific design by a Chartered Professional Engineer or Independent Qualified Person prior to construction.

Report prepared by:
FRASER THOMAS LTD.

G W PETRIE
Surveyor

Report reviewed and approved by:

R TOPLIS
Director
Chartered Professional Engineer



Existing Easements			
Purpose	Shown	Dominant Tenement	Servient Tenement
Right of Way	(A)	1F & 1I Taiwhatiwhati Block, and Lots 5 & 6 DP 138969	Lot 1 Hereon

Proposed Easements			
Purpose	Shown	Dominant Tenement	Servient Tenement
R.O.W., Stormwater, Telecom-munications & Computer Media	(A)	Lots 2-6 Hereon	Lot 1 Hereon
	(B)	Lots 3-6 Hereon	
	(C)	Lots 4-6 Hereon	
	(D)	Lots 4 & 5 Hereon	
	(E)	Lot 5 Hereon	
	(F)	Lot 6 Hereon	

Proposed Easements in Gross			
Purpose	Shown	Servient Tenement	Grantee
Electricity Supply	(A) (B) (C) (D) (E) (F)	Lot 1 Hereon	Top Energy Ltd

SURVEYED	BW	26/5/07	APPROVED / DATE
DESIGNED			
DRAWN	GP	04/05/07	
TRACED			
CHECKED			
REVISION	CHANGES	CHECKED	DATE

NOTES
1. Levels are in terms of Approx. Mean Sea Level.
2. Contours are at 2m intervals.
3. Dimensions and areas are subject to final land transfer survey.

TOTAL AREA: 3.6068ha
COMPRISED IN CT NA361/127

CLIENT
Seawood Holdings Ltd

PROJECT
Martin Road
Omapere

TITLE
Lots 1-6 Being a Proposed Subdivision 1E Taiwhatiwhati Block ML 7480

Fraser Thomas
• CONSULTING ENGINEERS
• RESOURCE MANAGERS
• ENVIRONMENTAL CONSULTANTS
• SURVEYORS & PLANNERS
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SCALE 1:1500 (A3)
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