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?	See attached correspondence
Who else have you consulted with?	Heritage NZ Pouhere Taonga

*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: Tania Fox and Grant Stevens

Email: [redacted]

Phone number: [redacted]

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

6. Address for Correspondence

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

Name/s: Northland Planning & Development 2020 Ltd

Email: [redacted]

Phone number: [redacted]

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

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

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

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

Name/s: Tania Jane Fox, Robert Theodore Huys and Grant McKenzie Stevens

Property Address/ Location:
488 Manawaora Road
Parekura Bay

Postcode 0184

8. Application Site Details

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

Name/s: Tania Fox and Grant Stevens

Site Address/ Location:
488 Manawaora Road
Parekura Bay

Postcode 0184

Legal Description: Lot 6 DP45917 **Val Number:** 00413-32414

Certificate of title: NA16B/1156

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

Site visit requirements:

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

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

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

Please contact applicants to arrange a site visit.

9. Description of the Proposal:

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

Land use resource consent to construct a dwelling which results in a sunlight infringement along the western boundary and a breach of fire risk to residential units.
The site is zoned as Coastal Residential and the proposal has been assessed as a Discretionary Activity.

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

10. Would you like to request Public Notification?

◯ **Yes** ✔ **No**

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

(more than one circle can be ticked):

- [x] **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**
- [x] **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) Tania Jane Fox & Grant McKenzie Stevens

Email: [redacted]

Phone number:

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

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

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

Name: (please write in full) Tania Jane Fox & Grant McKenzie Stevens

Signature: [redacted]
(signature of bill payer MANDATORY

Date 08-May-2025

15. Important Information:

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

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

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

15. Important information continued...

Declaration

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

Name: (please write in full) Tania Jane Fox & Grant McKenzie Stevens

Signature: [redacted]

Date 08-May-2025

Checklist (please tick if information is provided)

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

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

Land-Use Consent for

Tania Fox and Grant Stevens

488 Manawaora Road, Parekura Bay

27 May 2025

Attention: Liz Searle and Whitney Peat, Resource Consent Team Leaders

Please find attached:

- an application form for a Land-use Resource Consent for the construction of a dwelling within the ***Coastal Residential Zone***; and
- an Assessment of Environmental Effects of the potential and actual effects of the proposal on the environment.

The application has been assessed as a **Discretionary Activity** under the Far North Operative District Plan and a **Permitted Activity** under the Proposed District Plan.

If you require further information, please do not hesitate to contact our office.

Regards,

Alex Billot

Resource Planner

Reviewed by:

Rochelle Jacobs

Director/Senior Planner

NORTHLAND PLANNING & DEVELOPMENT 2020 LIMITED

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Attachments:

1. **FNDC Application Form**
2. **Record of Title –** *LINZ*
3. **Site and Elevation Plans –** *Going Architectural*
4. **Engineers Report –** *TMC*
5. **Approved Earthworks Permit 3000017-LGAEWK –** *FNDC*
6. **Correspondence / Written Approval –** *Fire and Emergency New Zealand (FENZ)*
7. **Correspondence / Written Approval –** *FNDC Roading Team*
8. **Correspondence –** Heritage NZ Pouhere Taonga
9. **Correspondence –** Iwi
10. **Easement Documents 512068 & A495267 -** *LINZ*

Assessment of Environment Effects Report

1. Description of the Proposed Activity

1.1. The Applicant is seeking resource consent to construct a dwelling at 488 Manawaora Road, Parekura Bay, which is zoned as Coastal Residential. The proposal will see a two-storey dwelling constructed, with an upper storey attached deck. The lower storey will contain a garage, workshop and utility area, with the upper floor containing living and kitchen areas as well as 3 bedrooms, one bathroom and an ensuite. Given the existing slope of the land, the proposed design of the dwelling is considered to be best suited for the site.

Figure 1: 3D model of the proposed dwelling.

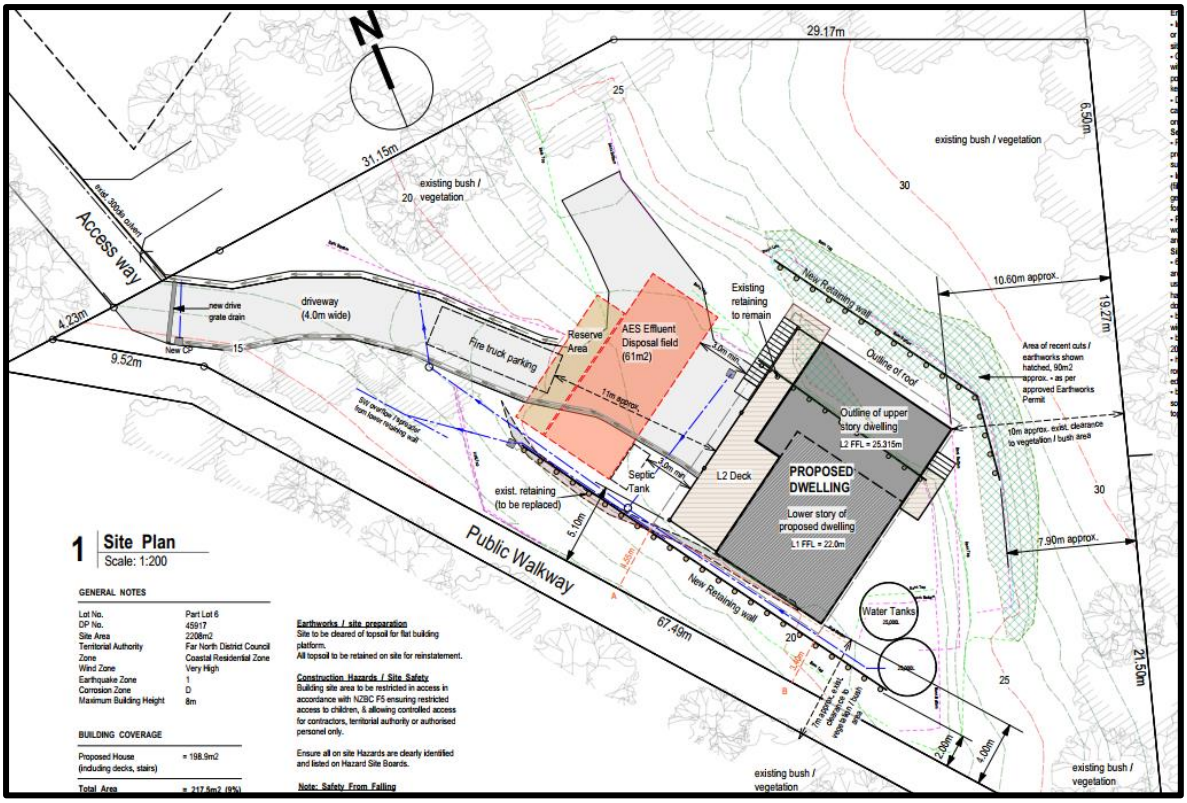

Figure 2: Proposed Site Plan

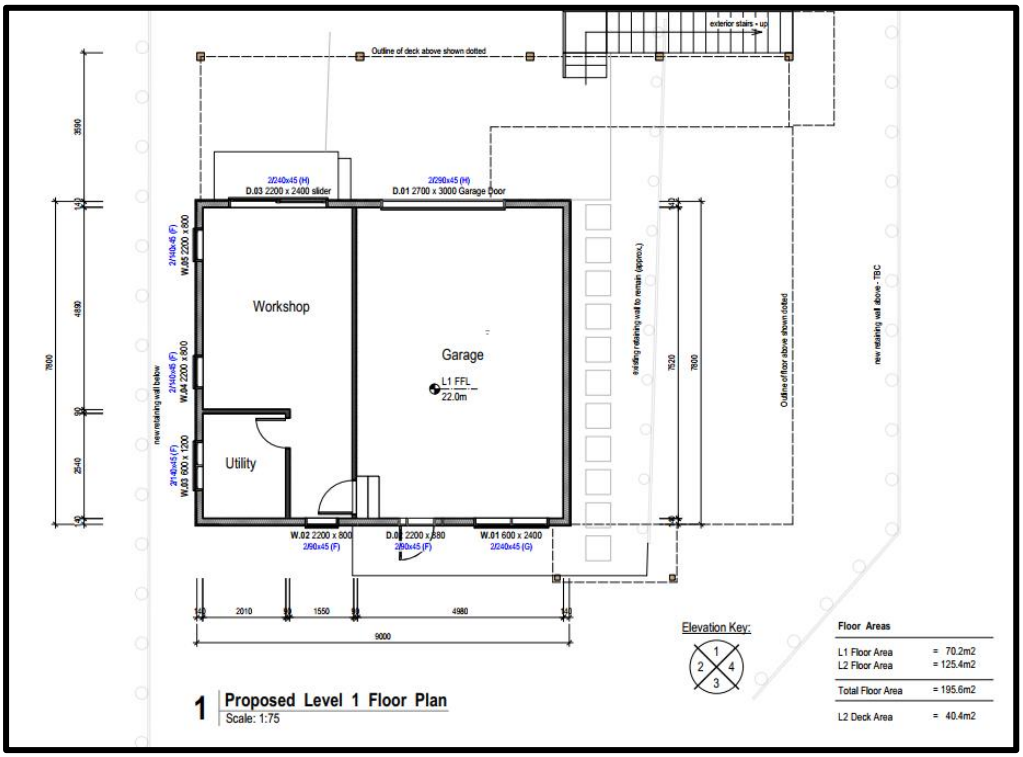

Figure 3: Proposed first floor plan.

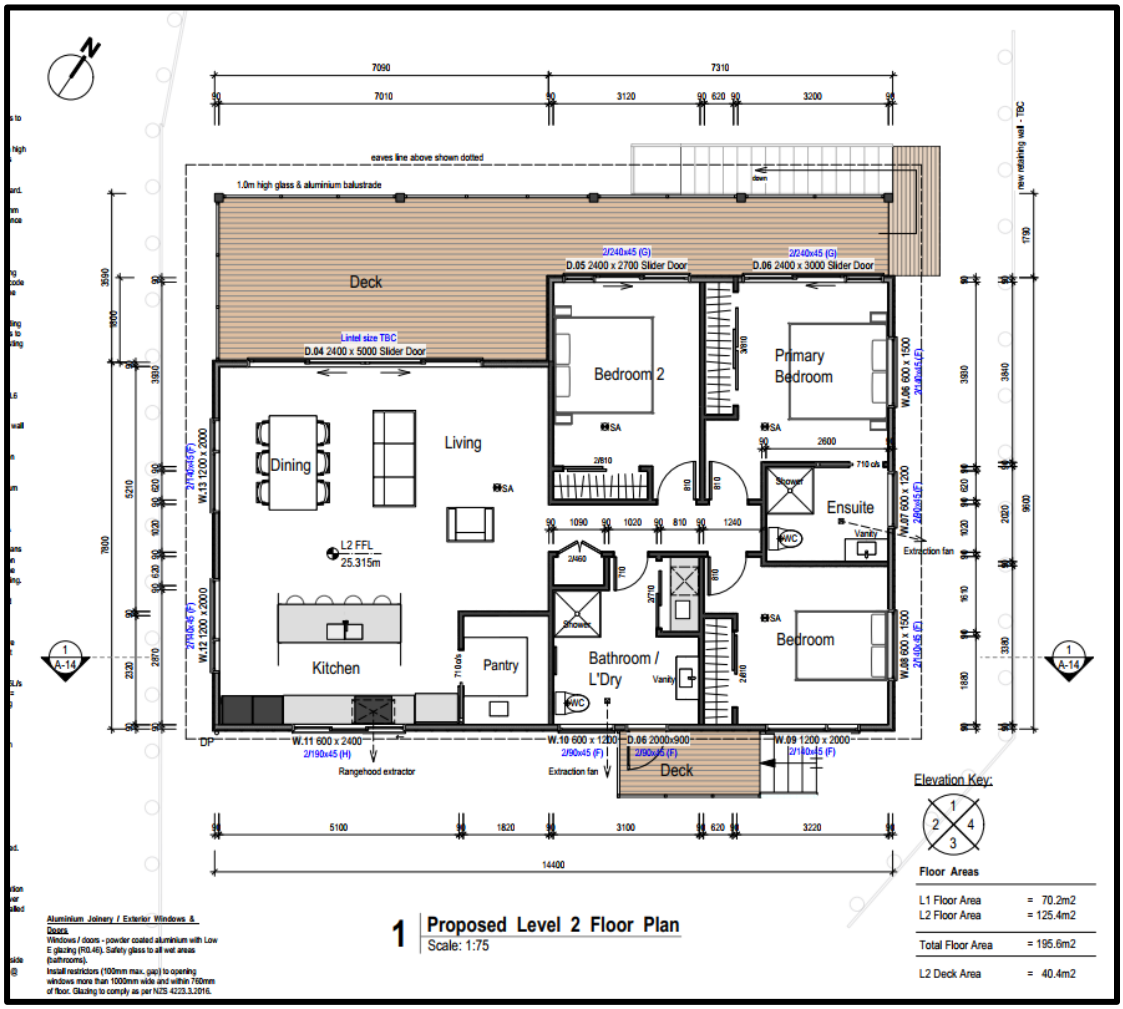

Figure 4: Proposed second floor plan.

1.2. One new retaining wall (no more than 3 metres in height) will be constructed to the east of the dwelling, in front of an existing cut face. The existing retaining wall which runs through the middle of the site will remain, and will be incorporated into the design of the dwelling by utilising the surrounding area as a walkway through the lower storey. A new retaining wall will also be constructed to replace an existing failing retaining wall along the western side of the dwelling. The full set of plans prepared by Going Architectural are attached within **Appendix 3** of this application.

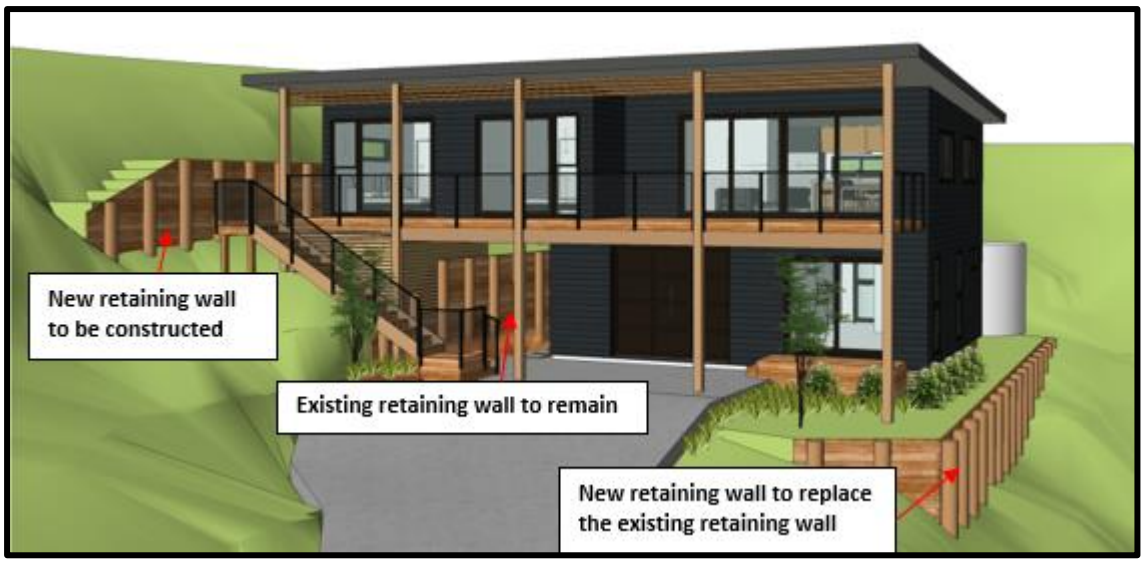

Figure 5: Image showing existing and proposed retaining walls.

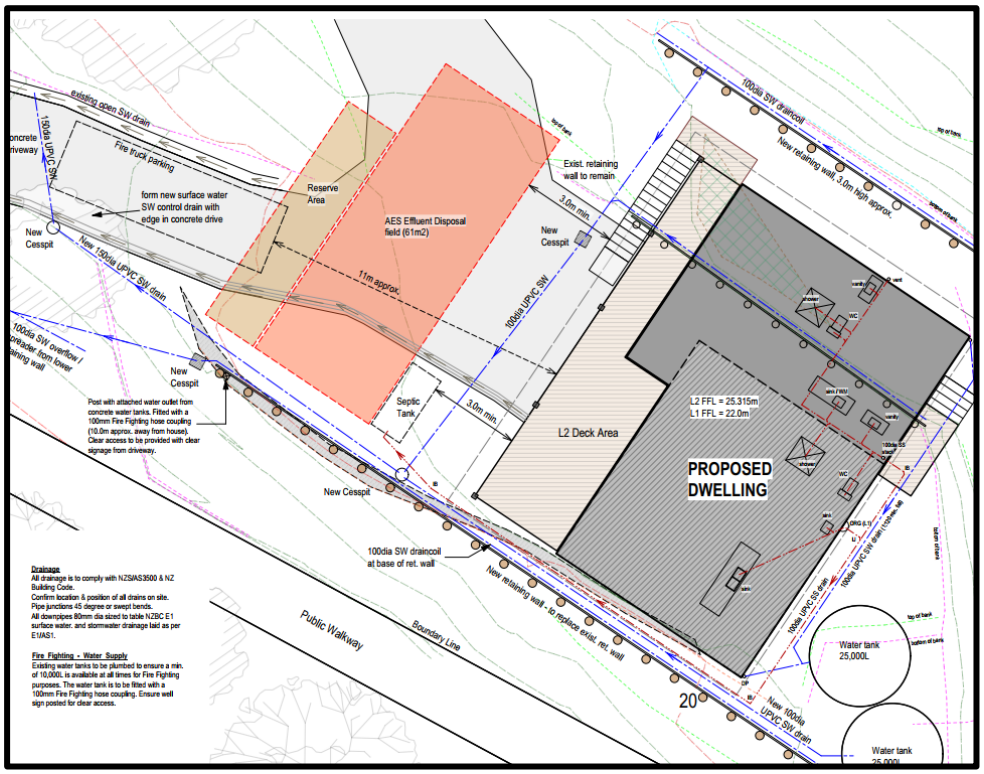

Figure 6: Site Plan showing retaining wall locations.

1.3. The proposal results in an infringement of permitted rule 10.8.5.1.5 Sunlight along the western boundary which adjoins a public walkway. As the walkway is shown as being defined as part of a road on the FNDC Maps, the FNDC Roading Team have been contacted in regards to the proposal. Although a formal written response has not been received, a verbal conversation was had which confirmed that the walkway was an 'unformed trail' and so long as maintenance and

use of the trail would not be affected, it was considered there would be no issues with the proposal.

1.4. The proposal also results in a breach of permitted rule 12.4.6.1.2 Fire Risk to Residential Units, as the closest pint of the dwelling to the bush to the west is 7 metres, with the dwelling being 10 metres from the existing bush to the south-east of the dwelling. Fire and Emergency New Zealand (FENZ) have been contacted as part of this application process, with their approval attached within **Appendix 6** of this application.

1.5. The proposal has therefore been assessed as a **Discretionary Activity** under the Operative District Plan (ODP).

2. Site Description

2.1. The application site address is 488 Manawaora Road, Parekura Bay. The site is zoned Coastal Residential as is the surrounding environment. The site is legally described Lot 6 DP 45917. A copy of the record of title is attached at **Appendix 2**.

2.2. The site is currently a vacant site. A metalled pan handle drive leads from Manawaora Road to the building platform. The site has existing cut faces and a cleared area for the building platform, which was done prior to the applicants purchasing the property. As will be discussed further in this report, an Earthworks Permit was issued from FNDC in September 2024 to allow the Applicants to undertake minor excavations in order to provide an area for water tanks and retaining walls and generally tidy up the site. The approved Earthworks Permit is attached within **Appendix 5** of this application. As mentioned, there are two existing retaining walls on site, one which is to remain and one which is to be replaced. The exposed cut face within the eastern portion of the site will be retained by a retaining wall as part of this proposal.

2.3. The site is not serviced by reticulated services, with an onsite wastewater system being incorporated into the design as well as water supply via rainwater harvesting to proposed tanks on site and stormwater also being managed on site.

2.4. The surrounding environment is an established coastal residential area. Te Uenga Bay is located to the north of the site, with Parekura Bay located to the east. Both of which are separated from the site by Manawaora Road and existing built development.

Figure 7: Aerial image of the site and surrounding environment.

Site Photos

2.5. A site visit was completed in June 2024, with a later visit completed by the Architect in April 2025. A compilation of the photos taken are shown below

Figure 8: Existing access to the site.

Figure 9: Existing access taken from near building platform. Looking north towards the CMA.

Figure 10: Building platform with two existing retaining walls. Cut face to the right of the image is proposed to be retained.

Figure 11: Image of proposed building area. Bush in background is located on adjoining allotments.

Figure 13: Existing cut face to be retained.

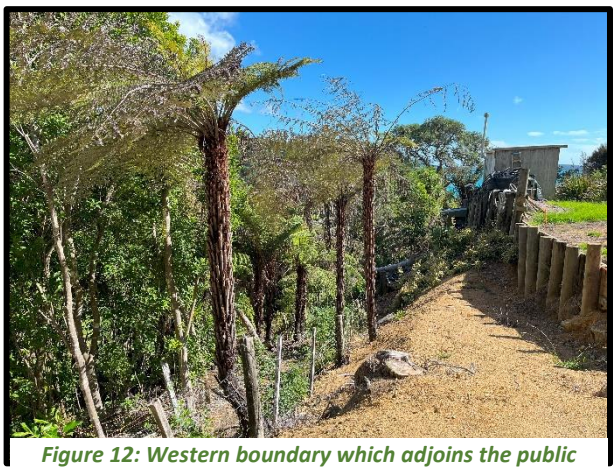

Figure 12: Western boundary which adjoins the public walkway, where sunlight infringement occurs.

3. Background

Record of Title

3.1. The Record of Title is contained within **Appendix 2** of this application. The site is legally described as Lot 6 DP 45917, with a land area of 2208m^2. The site is held within Title Identifier NA16B/1156 which is dated 26th February 1969. There are no consent notices registered on the title. There are easements registered on the title which have been included within **Appendix 10** of this application.

Site Features

3.2. The site is located within the Coastal Residential zone under the ODP and is zoned as Settlement, as well as being within the Coastal Environment overlay under the Proposed District Plan (PDP).

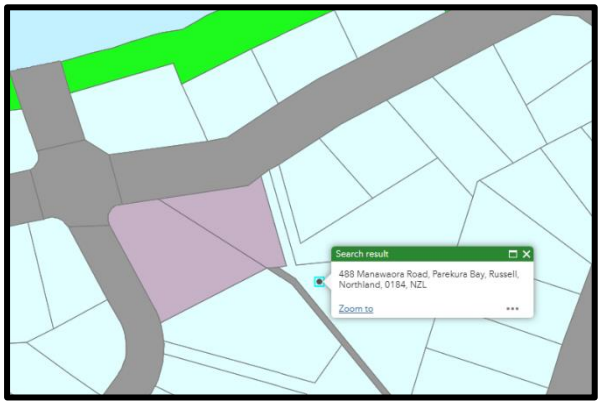

Figure 14: FNDC ODP Zoning Maps

Figure 15: FNDC PDP Zoning Maps

3.3. The site is not shown to be registered as a HAIL site on the FNDC Maps, nor are there any historical sites registered on the property. The application has been sent to Heritage NZ Pouhere Taonga (HNZPT) with no response received to date.

3.4. The site and surrounding environment are not benefited by reticulated service. All services will be provided for onsite (wastewater, water and stormwater).

3.5. The site is not shown to contain a PNA. PNA Q05003 Russell Forest is located to the east and south of the site but is not shown to encroach within the boundaries of the site. As mentioned, there is a public trail which adjoins the western boundary of the site. This trail joins the public reserve to the north of the site and Manawaora Road to the south of the site, as shown in **Figure 16** below. The site is located within an area noted as having kiwi present.

Figure 16: FNDC PNA Maps showing location of PNA to the south and east.

3.6. Under the Regional Policy Statement for Northland, the site is shown to be within the Coastal Environment. Russell Forest is shown to be of High Natural Character but as mentioned, this does not encroach into the subject site.

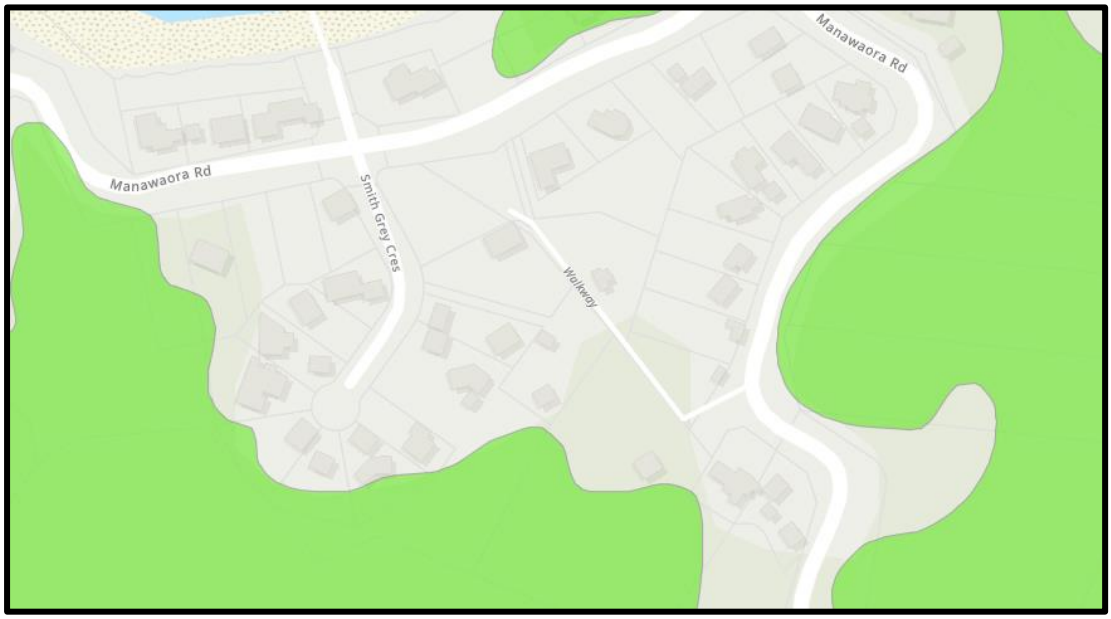

Figure 17: RPS Maps showing area of HNC to the south, east and west of the site.

3.7. The site is not shown to be susceptible to coastal or river flood hazards. TMC have completed a Geotechnical Assessment of the site which has been included within **Appendix 4** of this report.

3.8. The site is not shown be within or adjoining a Statutory Acknowledgement Area. The application has been sent to the relevant Iwi, with no response received to date.

4. Weighting of Plans

4.1. The site is zoned as Settlement under the Proposed District Plan and is subject to the Coastal Environment overlay.

4.2. The Council notified its' PDP on 27 July 2022. The period for public submissions closed on the 21 October 2022. A summary of submissions was notified on the 4 August 2023. The further submission period closed on the 5 September 2023. It is apparent from the summary of submissions relating to the applicable zone that a large number relate to the application of these provisions. Based on the volume and comprehensive nature of these submissions, the Council has confirmed that no other rules will have legal effect until such time as a decision is made on those provisions.

4.3. District Plan hearings on submissions are currently underway and are scheduled to conclude in October 2025. No decision on the PDP has been issued. For this reason, little weight is given to the PDP provisions with the exception of those rules which have immediate legal effect.

5. Activity Status of the Proposal

Operative Far North District Plan (ODP)

5.1. The site is zoned 'Coastal Residential' zone in the ODP.

5.2. An assessment of the relevant District Plan rule standards is set out in Table 1 and Table 2 below:

Coastal Residential Zone Standards

Table 1 - Assessment against the Coastal Residential Zone rule standards		
Plan Reference	**Rule**	**Performance of Proposal**
10.8.5.1.1	**Relocated Buildings**	This proposal is for a new dwelling. No relocated buildings are proposed. **Permitted.**
10.8.5.1.2	**Residential Intensity**	The proposal is for a single dwelling. Although the site is less than 3000m2 in area, this rule is not for the purpose of limiting the use of a site for a single residential unit. Given past assessments within this zone, it is considered that the proposal complies with this rule. **Permitted.**

10.8.5.1.3	**Scale of Activities**	The proposal does not include any other activities on the site other than for residential purposes. **Permitted**
10.8.5.1.4	**Building Height**	The proposed building is within the permitted height limit for the Coastal Residential zone. **Permitted**
10.8.5.1.5	**Sunlight**	The proposed building will infringe the permitted sunlight recession planes along the western boundary. This rule allows for an exemption for a maximum of 10m along one boundary, other than a road boundary, provided the maximum height of any building where it exceeds the standard is 2.7m. The proposal cannot meet this exemption. The adjoining allotment along this boundary is public trail. Correspondence with the FNDC Roading Team has been had as part of this application process. **Discretionary Activity**
10.8.5.1.6	**Stormwater Management**	The maximum permitted area of impermeable surface on the site is 50%. The proposed area of impermeable surface on the site is **435.5m^2 (19.7%)** and therefore the proposal complies with the permitted threshold. **Permitted.**
10.8.5.1.7	**Setback from boundaries**	The minimum building set back from road boundaries is 3m. The minimum set back from any boundary other than a road boundary is 1.2m, except that no setback is required for a maximum total length of 10m along any one such boundary. As shown on the Site Plan (Sheet A-02) of the attached plan set, the proposal can comply with the permitted setback distances on all boundaries. **Permitted.**
10.8.5.1.8	**Screening for Neighbours – Non Residential Activities**	Not applicable
10.8.5.1.9	**Outdoor Activities**	**Permitted**

10.8.5.1.10	**Transportation**	Refer below
10.8.5.1.11	**Site Intensity – Non-Residential Activities**	Not applicable
10.8.5.1.12	**Hours of operation – Non-residential activities**	Not applicable
10.8.5.1.13	**Keeping of Animals**	Not applicable
10.8.5.1.14	**Noise**	Able to comply **Permitted**
10.8.5.1.15	**Helicopter Landing Area**	Not applicable
10.8.5.1.16	**Building Coverage**	The maximum building area permitted on a site is 45% of the total site area. The proposed area of building coverage on the site is **217.5m^2 or 9%.** **Permitted**

District Wide Standards

Table 2 – Assessment against the relevant District Wide rule standards		
Plan Reference	**Rule**	**Performance of Proposal**
Chapter 12 – Natural and Physical Resources		
12.1	**Landscapes and Natural Features**	**Not applicable**
12.2	**Indigenous Flora and Fauna**	No indigenous vegetation clearance is proposed. **Permitted.**
12.3 **12.3.6.1.2 (P)**	**Excavation and/or filling**	Under the ODP definition of 'excavation', excavation for building foundations, onsite wastewater disposal and cuts behind retaining walls are exempt. Given the above, the proposal does therefore not involve any excavations which would trigger consent under this rule. The cut faces are existing and retaining walls will be no more than 3m in height. Assessment of the Control of Earthworks Bylaw will be undertaken further in this application. **Permitted.**

12.4 12.4.6.1.2 (P)	**Fire Risk to Residential Units**	The proposed dwelling will be located 7 metres from the bush to the west of the site and 10 metres from the bush to the south of the site. Therefore, the proposal cannot comply with the permitted 20m setback distance. Approval from FENZ has been obtained, as will be discussed further in this report. **Discretionary Activity.**
Sections 12.5 – 12.9 are not applicable to this proposal.		
Chapter 15 - Transportation		
15.1.6A	**Traffic Intensity**	Single dwelling is exempt. **Permitted**
15.1.6B	**Parking**	Two carparking spaces will be provided on site. **Permitted**
15.1.6C	**Access**	The site is accessed directly via a panhandle access from Manawaora Road. This will remain unchanged as part of this proposal. **Permitted**

ODP Activity Status

5.3. The proposal results in an infringement of the Permitted rules 10.8.5.1.5 Sunlight within the Coastal Residential Zone and District Wide Rule 12.4.6.1.2 Fire Risk to Residential Units. Correspondence with the affected parties of the infringements has been had as part of this application and is contained within **Appendices 6 & 7** of this application.

5.4. The proposal has been assessed as a **Discretionary Activity** in accordance with Sections 10.8.5.3 and 12.4.6.3 of the ODP. An assessment of the relevant sections of Chapter 11 and 12.4.7 will be undertaken as part of this application.

Proposed District Plan (PDP)

5.5. The proposal is also subject to the Proposed District Plan process. The proposed site zone is **Settlement** and is located within the Coastal Environment overlay.

5.6. An assessment of the proposed activities against the PDP rules that have immediate legal effect, is set out in **Table 3** below:

Table 3 – Assessment against the PDP rule standards that have immediate legal effect		
Chapter	Rule Reference	Compliance of Proposal
Hazardous Substances	The following rules have immediate legal effect: Rule HS-R2 has immediate legal effect but only for a new significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a scheduled heritage resource Rules HS-R5, HS-R6, HS-R9	**Not applicable.** The site does not contain any hazardous substances nor are any proposed.
Heritage Area Overlays	All rules have immediate legal effect (HA-R1 to HA-R14) All standards have immediate legal effect (HA-S1 to HA-S3)	**Not applicable.** The site is not located within a Heritage Area Overlay.
Historic Heritage	All rules have immediate legal effect (HH-R1 to HH-R10). Schedule 2 has immediate legal effect.	**Not applicable.** The site does not contain any areas of Historic Heritage.
Notable Trees	All rules have immediate legal effect (NT-R1 to NT-R9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect	**Not applicable.** The site does not contain any notable trees.
Sites and Areas of Significance to Maori	All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect	**Not applicable.** The site does not contain any sites or areas of significance to Māori.
Ecosystems and Indigenous Biodiversity	All rules have immediate legal effect (IB-R1 to IB-R5)	**Not applicable.** The site does not contain any known ecosystems or indigenous biodiversity to which these rules would apply.
Subdivision	The following rules have immediate legal effect: SUB-R6, SUB-R13, SUB-R14, SUB-R15, SUB-R17	**Not applicable.** The proposal is not for subdivision.
Activities on the Surface of Water	All rules have immediate legal effect (ASW-R1 to ASW-R4)	**Not applicable.** The proposal does not involve activities on the surface of water.
Earthworks	The following rules have immediate legal effect: EW-R12, EW-R13	**Permitted.** All earthworks in all zones are subject to Accidental Discovery Protocol standards EW-S3 and the GD-005 sediment control

	The following standards have immediate legal effect: EW-S3, EW-S5	standards EW-S5. The proposal will be carried out in accordance with these documents.
Signs	The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area	**Not applicable.**
Orongo Bay Zone	Rule OBZ-R14 has partial immediate legal effect because RD-1(5) relates to water	**Not applicable.**

PDP Activity Status

5.7. The proposed activities are **Permitted** under the PDP.

National Environmental Standards

National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011

5.8. The site is not identified as a HAIL site on the Council database of HAIL sites. The site has no known history of horticulture or agriculture activities.

National Environment Standard for Freshwater Regulations 2020 (NES-F)

5.9. The site does not contain any wetlands and would not affect any wetlands that is protected by the NES-F. The works are not located near or within a river bed and will not disrupt the passage of fish.

Control of Earthworks Bylaw

5.10. As per the assessment above, no District or Regional consents are required for earthworks, and as such an assessment under the control of earthworks bylaw is considered necessary.

5.11. It is noted that an Earthworks Permit has been issued in the past for the site under 3000017-LGAEWK, which was granted on 9th September 2024. The works approved as part of this Earthworks Permit were '*excavation of material to provide room for tanks and retaining walls, with excavated material to be removed from the site.'* Approved 3000017-LGAEWK is attached within **Appendix 5** of this application. Therefore, these works are not considered required to be assessed as part of this application.

5.12. The earthworks required for this application generally meet the exemptions under the definition of excavation being:

(e) septic tanks and associated drainage fields

(f) excavation for building foundations and stripping of topsoil to form a building footprint
(i) cuts behind retaining walls.

5.13. For completeness the earthworks triggers have been assessed below.

ASSESSMENT OF THE APPLICABLE CONTROL OF EARTHWORKS RULES:		
PERFORMANCE STANDARDS		
Bylaw Reference	**Rule**	**Performance of Proposal**
7.1	**(a)**	**Complies** While some works will be undertaken within 3m of the site boundaries these works meet the exemptions within the definition of excavation in the bylaw.
	(b)	**Complies** As above - the works are determined to meet the exemptions within the definition of excavation in the bylaw.
	(c)	**Complies** The site is not located within the Rural Production Zone.
	(d)	**Complies** The site is outside of any resource features.
	(e)	**Complies** Stormwater runoff will not adversely impact upon any adjoining properties.

5.14. As per the assessment above, no earthworks permit is required.

6. Statutory Assessment under the Resource Management Act (RMA)

Section 104B of the RMA

6.1. Section 104B governs decisions on applications for Discretionary Activities. A consent authority may grant or refuse the application. If it grants the application, it may impose conditions under Section 108.

Section 104(1) of the RMA

6.2. The relevant parts of Section 104(1) of the RMA state that when considering an application for resource consent –

"the consent authority must, subject to Part 2, and section 77M have regard to –

(a) any actual and potential effects on the environment of allowing the activity; and

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment that will or may result from allowing the activity; and

(b) any relevant provisions of –

i. a national environmental standard:

ii. other regulations:

iii. a national policy statement:

iv. a New Zealand Coastal Policy Statement:

v. a regional policy statement or proposed regional policy statement:

vi. a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application."

6.3. Actual and potential effects arising from the development as described in 104(1)(a) can be both positive and adverse (as described in Section 3 of the Act). Positive effects arising from this development is that the site will be developed with a dwelling, which is considered to be the intended use of the site. Wastewater and stormwater will be adequately managed on site and existing provisions (retaining walls) have been incorporated into the design to minimise excavation works. Adverse effects are in relation to sunlight issues on the adjoining public trail, which correspondence has been had with the FNDC Roading Team as well as fire risk, which written approval from FENZ has also been sought and obtained.

6.4. Section 104(1)(ab) requires that the consent authority consider *'any measure proposed or agreed to by the applicant for the purposes of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity'*. The proposal is not of a scale or nature that would require specific offsetting or environmental compensation measures to ensure positive effects on the

environment. Potential adverse effects on the environment would be no more than minor, as will be discussed below.

6.5. Section 104(1)(b) requires that the consent authority consider the relevant provisions of national environmental standards, regulations, national policy statements, regional policy statements or plans, including proposed plans. There are no national standards, regulations or national policy statements that are directly relevant to the proposed activities and / or that are not adequately managed within the framework hierarchy of the District Plan. An assessment of the relevant statutory documents is provided below.

6.6. Section 104(1)(c) states that consideration must be given to 'any other matters that the consent authority considers relevant and reasonable, necessary to determine the application.' There are no other matters relevant to this application.

6.7. In accordance with Section 104(6), adequate information is provided to determine this application.

7. Section 104(1)(a) - Assessment of Effects on the Environment

7.1. The proposal is to be assessed as a Discretionary Activity under District Plan Rule 10.8.5.3 and 12.4.6.3. The Council has full discretion to consider the broad range of policy matters relating to land use activities in the Coastal Residential zone.

7.2. Having reviewed the relevant plan provisions and taking into account the matters to be addressed by an assessment of environmental effects as outlined in Clause 7 of Schedule 4 of the Act, the following environmental effects are identified as being relevant to this application. These include matters relating to the construction of the dwelling, in particular the effects of the sunlight and fire risk infirngements that require a Discretionary Activity resource consent. Potential adverse effects arising from other built development activities are within the permitted thresholds of the ODP.

7.3. The proposal is to construct a dwelling on the site which has been designed to incorporate existing retaining walls on site as well as suit the lay of the land to minimise excavation requirements. Given the existing slope of the site, a sunlight infirngement occurs along the western boundary which adjoins a public trail. The FNDC Roading Team have been contacted as part of the pre-application process, and correspondence has been had which concluded there should be no major concerns so long as the maintenance and use of the trail was not adversely affected.

7.4. Given the dense vegetation on adjoining allotments, the proposed dwelling will be located 7 metres from the bush to the west of the site and 10 metres from the bush to the south of the site. Therefore, the proposal cannot comply with the permitted 20m setback distance. Approval from FENZ has been obtained, as will be discussed further in this report.

7.5. The ODP sets out assessment criteria to be considered when determining an application for Discretionary Activity for Sunlight and Fire Risk to Residential Units, which are held within Chapter 11 and 12 of the ODP. These are discussed as follows.

11.2 Building Height, Scale & Sunlight

7.6. As mentioned above, the proposal creates a sunlight infringement along the boundaries the adjoining public trail to the west of the site. This is due to the existing topography of the site, which slopes downwards towards the western boundary. The extent of the sunlight infirngement is detailed within Sheet A-05 and A-06 of the Plans and are shown below for clarity.

Figure 18: Image of walkway to the west of the site.

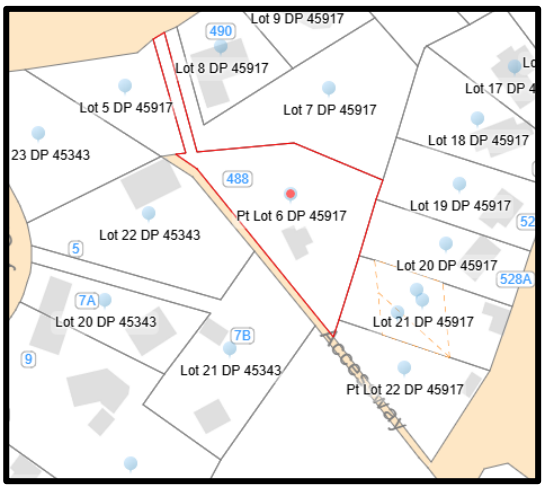

Figure 20: Site maps showing location of public walkway.

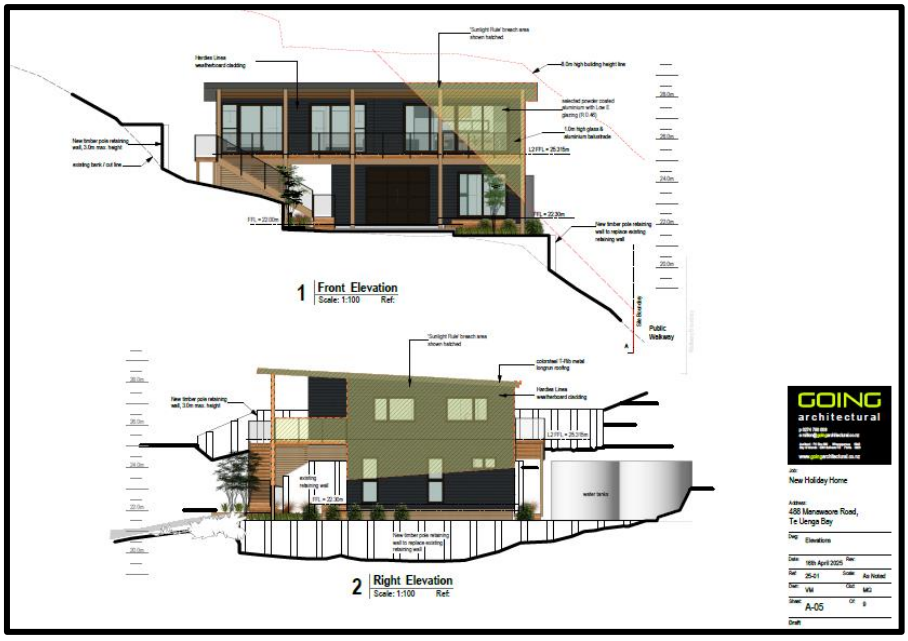

Figure 19: Sheet A-05 showing sunlight breach.

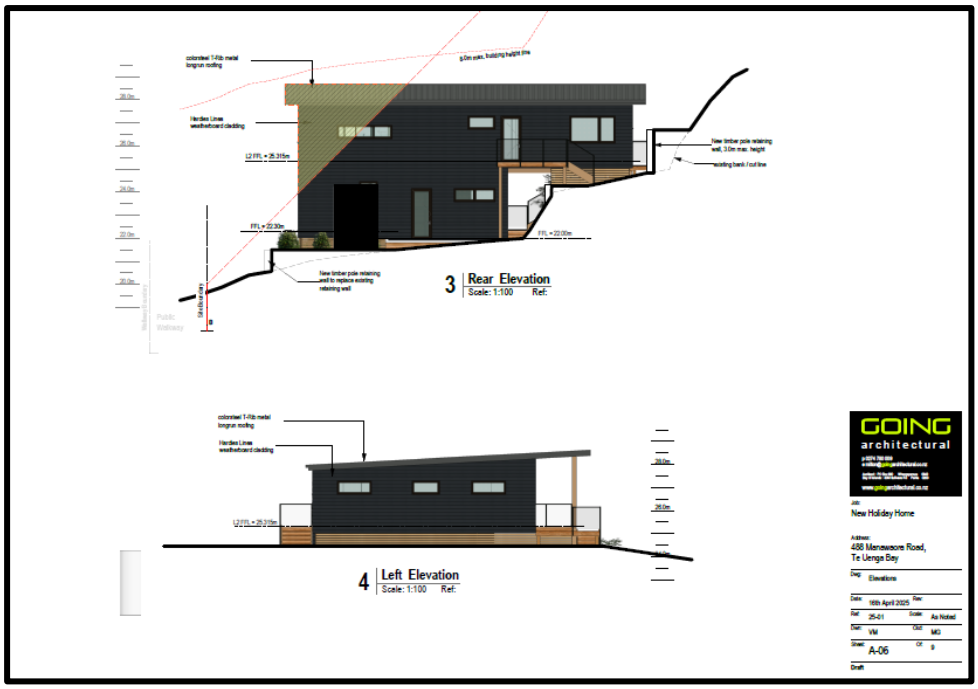

Figure 21: Sheet A-06 depicting sunlight breach.

7.7. An assessment of Section 11.2 of the ODP has been undertaken below:

> *(a) The extent to which adjacent properties will be adversely affected in terms of visual domination, overshadowing, loss of privacy and loss of access to sunlight and daylight.*
> *(b) The ability to mitigate any adverse effects by way of increased separation distances between buildings or the provision of landscaping and screening.*
> *(c) The extent of the building area and the scale of the building and the extent to which they are compatible with both the built and natural environments in the vicinity.*
> *(d) The spatial relationship between the new building and adjacent residential units, and the outdoor space used by those units.*
> *(e) The nature of the activity to be carried out within the building and its likely generated effects.*

7.7.1. Effects from visual domination, overshadowing, loss of privacy and loss of access to sunlight and daylight are considered to be less than minor. The public trail is utilised as an unformed thoroughfare from Manawaora Road to the south of the site, to the reserve located within Lot 5 DP 45917, to the northwest of the site. The public trail is surrounded by vegetation on both sides, such that sunlight and daylight are already filtered. The surrounding environment is residential in nature, with development on all adjoining sites, such that the proposal is not considered objectionable. In terms of visual domination, the dwelling will be orientated to the north, such that outdoor areas like the deck, will not be overlooking the walkway. It is therefore considered that the proposal will not create adverse effects in terms of these matters.

7.7.2. It is not considered practical to increase the separation distance given that the dwelling has been designed to suit the existing topography and retaining wall locations within the site. The proposal complies with the permitted setback distances. Landscaping is also not considered a suitable solution as this will not aid in decreasing effects, which are considered to be less than minor in any case, given the use of the public trail.

7.7.3. The proposed dwelling complies with both the permitted rules for building coverage and impermeable surfaces. The proposed dwelling is considered compatible with the surrounding environment, and it is due to the existing topography of the site and existing retaining walls, that the dwelling has been designed as such and the sunlight breach has occurred. It is considered that any built development on the site would most likely result in a sunlight breach along this boundary given the slope of the land and the constraints on the site.

7.7.4. The public walkway does not contain an existing dwelling. Further afield from the walkway other residential units are located some distance from the proposed dwelling such that it is not anticipated that there will be any adverse effects on adjacent residential units.

7.7.5. The nature of the activity will be residential. No adverse effects are anticipated.

7.7.6. The proposal was sent via email to the FNDC Roading Team with a verbal conversation had that it was in fact confirmed as a trail and there were no major concerns that arose, so long as the maintenance and use of the trail would not be adversely affected. As can be seen in the images above, there is ample area for maintenance of the trail and the use would remain unaffected. The dwelling meets the permitted setback distances, and the effects of the sunlight breach are considered to be less than minor.

7.7.7. Overall, given the fact the proposal will result in a dwelling which is considered to be the intended use of the site when it was created, the effects of the sunlight infringements are considered to be less than minor.

Fire Risk to Residential Units

7.8. The proposal will result in a 7 metre separation distance from bush to the west of the site and a 10 metre separation distance to the bush to the south of the site, as indicated in **Figure 22** below. FENZ were contacted by Going Architectural, with written approval from FENZ attached within **Appendix 6**.

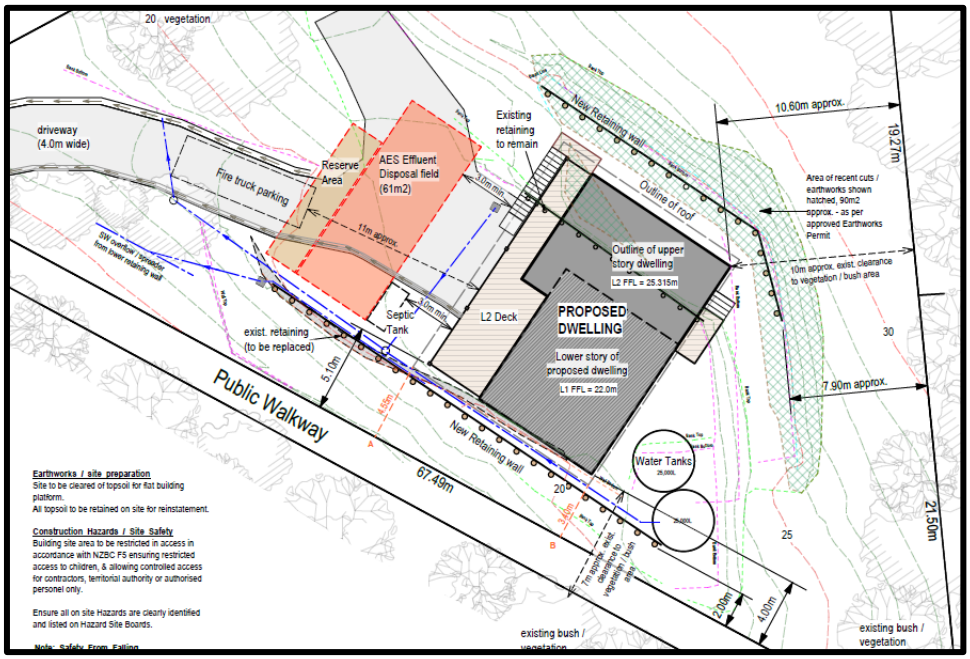

Figure 22: Site Plan showing separation distances from the dwelling to the bush.

7.9. Assessment of the relevant criteria within 12.4.7 has been provided below:

(j) in respect of fire risk to residential units:
(i) the degree of fire risk to dwellings arising from the proximity of the woodlot or forest and vice versa; and
(ii) any mitigation measures proposed to reduce the fire risk; and
(iii) the adequacy of the water supply; and
(iv) the accessibility of the water supply to fire service vehicles.

7.9.1. The degree of risk is considered to be less than minor given approval from FENZ has been obtained and water tanks will be located on site which can provide supply for fire fighting if required. The separation distances provided are considered appropriate given the intense development of the surrounding environment. Mitigation measures will be provided by general maintenance and upkeep of the areas surrounding the dwelling. Water supply is as per the plans attached. Accessibility for fire service vehicles will be provided, with signage/markers advising of tank location.

7.9.2. Overall, it is considered that fire risk will be mitigated to a less than minor degree.

8. Section 104(1)(b) – Relevant provisions of any statutory planning document

8.1. In accordance with Section 104(1)(b) of the Act, the following documents are relevant to this application.

National Environmental Standards (Section 104(1)(b)(i) & 2

8.2. There are no National Environmental Standards that are relevant to the consideration of the proposed activity.

National Policy Statements (section 104(1)(b)(iii)

8.3. There are currently 8 National Policy Statements in place. These are as follows:

- National Policy Statement on Urban Development
- National Policy Statement for Freshwater Management
- National Policy Statement for Renewable Electricity Generation
- National Policy Statement on Electricity Transmission
- New Zealand Coastal Policy Statement
- National Policy Standard for Highly Productive Land.
- National Policy Statement for Indigenous Biodiversity
- National Policy Statement for Greenhouse Gas Emissions from Industrial Process Heat.

8.4. The only relevant National Policy Statement considered as part of this proposal is the New Zealand Coastal Policy Statement, no other NPS are considered applicable.

New Zealand Coastal Policy Statement 2010

8.5. The subject site is located within the coastal environment but is not located within areas of high or outstanding natural character.

Objectives

8.6. The proposal is considered to achieve the objectives of the NZCPS as the proposal does not adversely impact on the integrity, form, functioning or resilience of the coastal environment. The proposal is not considered to affect the natural landscapes and character of the coastal environment.

8.7. The application is not known to create any cultural issues as the proposal will result in the construction of a dwelling on the site and will not impact any archaeological features as there are none identified within the site. The proposal will result in a dwelling on the site, which is consistent with other allotments in the surrounding environment. The proposal is considered to result in positive economic effects by providing employment through the construction phase of the building, while creating less than minor effects on the residential/coastal character of the locality.

Policies

8.8. The proposal is also considered to achieve the policies of the NZCPS. The character of the existing built environment will be maintained as the site and surrounding environment is

Coastal Residential in nature, meaning that the area is intensively developed. The natural character of the surrounding environment is considered to remain unaffected due to the nature of the proposal.

8.9. Overall, the proposed activity is considered to be consistent with the objectives and policies of the NZCPS as the proposal is in keeping with the existing development in the surrounding area.

Regional Policy Statement for Northland 2016 and Regional Plan for Northland (February 2024)

8.10. The Regional Policy Statement for Northland (RPS) and the Regional Plan for Northland are the governing regional statutory documents for Northland that includes the application site. The small-scale nature of the proposed land use activity is such that it can be adequately assessed under the provisions of the ODP provisions. The nature and volume of the proposal that would be generated by the proposed residential development activity is not of a regional scale that would be captured by regional rules.

8.11. It is considered the proposal would not be contrary to any Regional Policy Statement objective or policy and would not be subject to any Regional Plan rule.

Far North Operative District Plan 2009

8.12. The relevant objectives and policies of the Plan are those related to the Coastal Environment, and its' Coastal Residential Zone. As assessed above, it is considered that the proposed activity that infringes the permitted standards would generate less than minor adverse effects on the receiving environment, including the adjacent sites. The proposal will be consistent with the character of the surrounding area. The proposal would not be contrary to the objectives and policies of the ODP, as commented on in the paragraphs below.

Coastal Environment – Objectives

10.3.1 To manage coastal areas in a manner that avoids adverse effects from subdivision, use and development. Where it is not practicable to avoid adverse effects from subdivision use or development, but it is appropriate for the development to proceed, adverse effects of subdivision use or development should be remedied or mitigated.

10.3.2 To preserve and, where appropriate in relation to other objectives, to restore, rehabilitate protect, or enhance:

(a) the natural character of the coastline and coastal environment;

(b) areas of significant indigenous vegetation and significant habitats of indigenous fauna;

(c) outstanding landscapes and natural features;

(d) the open space and amenity values of the coastal environment;

(e) water quality and soil conservation (insofar as it is within the jurisdiction of the Council).

10.3.3 To engage effectively with Maori to ensure that their relationship with their culture and traditions and taonga is identified, recognised, and provided for.

10.3.4 To maintain and enhance public access to and along the coast whilst ensuring that such access does not adversely affect the natural and physical resources of the coastal environment, including Maori cultural values, and public health and safety.
10.3.5 To secure future public access to and along the coast, lakes and rivers (including access for Maori) through the development process and specifically in accordance with the Esplanade Priority Areas mapped in the District Plan.
10.3.6 To minimise adverse effects from activities in the coastal environment that cross the coastal marine area boundary.
10.3.7 To avoid, remedy or mitigate adverse effects on the environment through the provision of adequate land-based services for mooring areas, boat ramps and other marine facilities.
10.3.8 To ensure provision of sufficient water storage to meet the needs of coastal communities all year round.
10.3.9 To facilitate the sustainable management of natural and physical resources in an integrated way to achieve superior outcomes to more traditional forms of subdivision, use and development through management plans and integrated development.

8.13. As assessed within this report, the proposal is not considered to create any adverse effects. The natural character of the coastal environment will be maintained. No significant areas of vegetation or habitats of indigenous fauna will be affected nor any outstanding landscapes or natural features. Water quality and soil conservation will remain unchanged. The relationship of Māori and their culture are considered to remain unaffected, given the proposal is for the construction of a dwelling which is located within the Coastal Residential zone. Public access has not been a consideration of this proposal. No activities proposed will cross the CMA boundary. The site is not connected to the reticulated water supply system and water supply will be provided for onsite. Natural and physical resources will be maintained.

Coastal Environment – Policies

10.4.1 That the Council only allows appropriate subdivision, use and development in the coastal environment. Appropriate subdivision, use and development is that where the activity generally:
(a) recognises and provides for those features and elements that contribute to the natural character of an area that may require preservation, restoration or enhancement; and
(b) is in a location and of a scale and design that minimises adverse effects on the natural character of the coastal environment; and
(c) has adequate services provided in a manner that minimises adverse effects on the coastal environment and does not adversely affect the safety and efficiency of the roading network; and
(d) avoids, as far as is practicable, adverse effects which are more than minor on heritage features, outstanding landscapes, cultural values, significant indigenous vegetation and significant habitats of indigenous fauna, amenity values of public land and waters and the natural functions and systems of the coastal environment; and
(e) promotes the protection, and where appropriate restoration and enhancement, of areas of significant indigenous vegetation and significant habitats of indigenous fauna; and
(f) 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

(g) where appropriate, provides for and, where possible, enhances public access to and along the coastal marine area; and

(h) gives effect to the New Zealand Coastal Policy Statement and the Regional Policy Statement for Northland.

10.4.2 That sprawling or sporadic subdivision and development in the coastal environment be avoided through the consolidation of subdivision and development as far as practicable, within or adjoining built up areas, to the extent that this is consistent with the other objectives and policies of the Plan.

10.4.3 That the ecological values of significant coastal indigenous vegetation and significant habitats are maintained in any subdivision, use or development in the coastal environment.

10.4.4 That public access to and along the coast be provided, where it is compatible with the preservation of the natural character and amenity, cultural, heritage and spiritual values of the coastal environment, and avoids adverse effects in erosion prone areas.

10.4.5 That access by tangata whenua to ancestral lands, sites of significance to Maori, maahinga mataitai, taiapure and kaimoana areas in the coastal marine area be provided for in the development and ongoing management of subdivision and land use proposals and in the development and administration of the rules of the Plan and by non-regulatory methods. Refer Chapter 2, and in particular Section 2.5, and Council's "Tangata Whenua Values and Perspectives (2004)".

10.4.6 That activities and innovative development including subdivision, which provide superior outcomes and which permanently protect, rehabilitate and/or enhance the natural character of the coastal environment, particularly through the establishment and ongoing management of indigenous coastal vegetation and habitats, will be encouraged by the Council.

10.4.7 To ensure the adverse effects of land-based activities associated with maritime facilities including mooring areas and boat ramps are avoided, remedied or mitigated through the provision of adequate services, including where appropriate:

(a) parking;

(b) rubbish disposal;

(c) waste disposal;

(d) dinghy racks.

10.4.8 That development avoids, remedies or mitigates adverse effects on the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.

10.4.9 That development avoids, where practicable, areas where natural hazards could adversely affect that development and/or could pose a risk to the health and safety of people.

10.4.10 To take into account the need for a year-round water supply, whether this involves reticulation or on-site storage, when considering applications for subdivision, use and development.

10.4.11 To promote land use practices that minimise erosion and sediment run-off, and storm water and waste water from catchments that have the potential to enter the coastal marine area.

10.4.12 That the adverse effects of development on the natural character and amenity values of the coastal environment will be minimised through:

(a) the siting of buildings relative to the skyline, ridges, headlands and natural features;

(b) the number of buildings and intensity of development;

(c) the colour and reflectivity of buildings;
(d) the landscaping (including planting) of the site;
(e) the location and design of vehicle access, manoeuvring and parking areas.

8.14. In terms of Policy 10.4.1, the proposal is considered to achieve this. The proposal is not a sprawling or sporadic subdivision. The proposal will not have any adverse effects on ecological values. Public access has not been a consideration of this proposal. No adverse effects on Māori and their relationship with the land are anticipated to arise. The proposal is not considered to create effects which would require superior outcomes to be achieved, given the proposal is for the construction of a dwelling on a site zoned Coastal Residential. No maritime facilities are proposed. The site is not shown to be susceptible to natural hazards. The site is not connected to the reticulated water supply system and water supply will be provided for onsite. No adverse effects from sediment runoff, erosion or stormwater are anticipated. No adverse effects on the natural character and amenity values of the coastal environment are anticipated.

Coastal Residential Zone - 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.

8.15. The site and surrounding environment are zoned Coastal Residential. The proposal will result in the construction of a dwelling. The proposal will result in the site being utilised for its intended use. Amenity and coastal environment values will be maintained.

Coastal Residential Zone - 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.

8.16. As stated above, the proposal involves the construction of a dwelling on the site. No non-residential activities are proposed. Outdoor space can be adequately provided for. Onsite wastewater disposal has been depicted on the site plan. The proposal does not result in a breach of the permitted thresholds for building coverage or impermeable surfaces. The site has adequate access to sunlight and daylight and as assessed earlier in this report, the proposed sunlight infringement will not create any adverse effects on adjacent allotments. Amenity values and general peaceful enjoyment of adjacent residential activities will be maintained. Privacy and amenity for inhabitants will be adequately provided for.

Natural Hazards – Objectives

12.4.3.1 To reduce the threat of natural hazards to life, property and the environment, thereby to promote the well being of the community.

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

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

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

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

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

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

8.17. The threat of fire hazard has been reduced by ensuring that there is tank storage onsite for use in case of a fire emergency. The area around the dwelling will be kept clear of vegetation. As a result, it is considered that the proposal does not exacerbate the effects of natural hazards. Public awareness has been improved via this process. Fire risk is considered to be mitigated to a less than minor degree which is evident with the approval from FENZ.

Natural Hazards – Policies

12.4.4.1 That earthworks and the erection of structures not be undertaken in areas where there is a significant potential for natural hazards unless they can be carried out in such a way

so as to avoid being adversely affected by the natural hazards, and can avoid exacerbating natural hazards.

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

12.4.4.3 That protection works for existing development be allowed only where they are the best practicable option compatible with sustainable management of the environment.

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

12.4.4.5 That information on known natural hazards be made available in order that the public can make informed resource management decisions.

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

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

12.4.4.8 That the location, intensity, design and type of new coastal subdivision, use and development be controlled so that the need for hazard protection works is avoided or minimised.

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

8.18. The proposed house location is not known to be affected by significant natural hazard risk. The site does not boast any natural features that would be applicable. No existing development exists on the site which would require protection works. The site is not considered to be affected by sea level rise given the site does not adjoin the coast. Information on the fire risk was made available during this process and FENZ have provided their written approval to the proposal. The site is not shown to be susceptible to coastal hazards. The adjoining sites contain vegetation which will be managed within each of the sites. The proposal has considered and assessed fire risk for the new dwelling with measures proposed which will mitigate effects to a less than minor degree. The proposal is not a new coastal subdivision, use or development. The site does not adjoin any riparian margins.

Proposed Far North District Plan 2022

8.19. The application site is proposed to be zoned 'Settlement'. The site is also located within the Coastal Environment overlay. Based on the proposed rules that have current legal effect, the proposed residential activity is a permitted activity. For completeness, a brief assessment of the area-specific zone objectives and policies is provided below.

Settlement Zone – objectives

RSZ-O1 - Rural and coastal settlements are used predominantly for residential activities and are sustained by a range of compatible activities and services.

RSZ-O2 - Land use and subdivision is of a scale and intensity that is in keeping with the rural or coastal character and amenity of each settlement.

RSZ-O3 - Landuse and subdivision in the Settlement zone is appropriate for the physical and environmental attributes of the site and any infrastructure constraints.

RSZ-O4 - Landuse and subdivision in the Settlement zone is managed to control any reverse sensitivity issues that may occur within the zone or at the zone interface.

8.20. The proposal will result in a residential activity which is considered consistent with the surrounding environment. The scale and character are considered to be consistent with the zone. Infrastructure will be provided for onsite. No reverse sensitivity effects are anticipated.

General Residential Zone - policies

RSZ-P1 - Enable residential and complementary non-residential activities that support the role and function of the Settlement zone.

RSZ-P2 - Require land use and subdivision in the Settlement zone associated with non-residential activities to demonstrate the ability to provide for onsite infrastructure unless a reticulated service is available.

RSZ-P3 - Enable non-residential activities in the Settlement zone that:

- *a. are of a scale, intensity, character and amenity that compliments the residential activities in the settlement;*
- *b. support the social and economic well-being of the community;*
- *c. do not adversely affect the viability and vitality of nearby urban centers; and*
- *d. demonstrate the ability to provide for onsite infrastructure.*

RSZ-P4 - Avoid land use and development in the Settlement zone that results in reverse sensitivity effects either within the zone or on activities adjacent zones.

RSZ-P5 - Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:

- *a. the scale, character and amenity of the settlement, in particular impacts on existing residential activities;*
- *b. siting and design;*
- *c. cultural and social well-being, including health and safety;*
- *d. potential reverse sensitivity effects both within the settlement and on adjacent zones;*
- *e. its location within or adjoining to the settlement; and*
- *f. the vitality and viability of nearby urban environments.*
- *g. the capacity of the site to cater for on-site infrastructure associated with the proposed activity;*
- *h. the adequacy of roading infrastructure to service the proposed activity;*
- *i. managing natural hazards;*
- *j. any adverse effects on areas with historic heritage and cultural values, natural features and landscapes, natural character or indigenous biodiversity values; and*

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

8.21. The proposal will result in a residential activity on the site. No non-residential activities are proposed. No reverse sensitivity effects are anticipated. In terms of RSZ-P5, the proposal is considered consistent with the matters listed and has taken into account these matters within the design and within this application in general.

9. Notification Assessment – Sections 95A to 95G of the RMA

Public Notification Assessment

9.1. Section 95A requires a council to follow specific steps to determine whether to publicly notify an application. The following is an assessment of the application against these steps:

Step 1 Mandatory public notification in certain circumstances

An application must be publicly notified if, under section 95A(3), it meets any of the following criteria:
(a) the applicant has requested that the application be publicly notified:
(b) public notification is required under section 95C:
(c) the application is made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.

9.2. Public notification of the application is not required or requested. The application is not made jointly with an application to exchange reserve land. Step 1 does not apply. Step 2 is considered.

Step 2: Public Notification precluded in certain circumstances.

(4) Determine whether the application meets either of the criteria set out in subsection (5) and,—
(a) if the answer is yes, go to step 4 (step 3 does not apply); and
(b)if the answer is no, go to step 3.
(5) The criteria for step 2 are as follows:
(a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes public notification:
(b) the application is for a resource consent for 1 or more of the following, but no other, activities:
(i) a controlled activity:
(ii) [Repealed]
(iii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity.
(iv) [Repealed]

(6) [Repealed]

9.3. Public Notification is not precluded as the proposal is a Discretionary Activity and includes an activity other than a boundary activity. Step 3 is considered.

Step 3: Public Notification required in certain circumstances

9.4. The proposal is not subject to a rule or NES requiring public notification and the proposal does not have effects that will be more than minor. Public Notification is not required. Step 4 is considered.

Step 4: Public notification in special circumstances

9.5. Section 95A(9) states that a council must publicly notify an application for resource consent if it considers that 'special circumstances' exist.

9.6. There are no special circumstances that would warrant public notification of the application. The proposal is for the construction of a dwelling. All potential adverse effects can be avoided or mitigated to the extent that they will be no more than minor.

Public Notification Summary

9.7. It is considered that the public notification of the application is not required.

Limited Notification Assessment

9.8. If the application is not publicly notified, a consent authority must follow the steps of section 95B to determine whether to give limited notification of an application.

Step 1: Certain affected groups and affected persons must be notified

(2) Determine whether there are any—

(a) affected protected customary rights groups; or

(b) affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity).

(3) Determine—

(a) whether the proposed activity is on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11; and

(b) whether the person to whom the statutory acknowledgement is made is an affected person under section 95E.

(4) Notify the application to each affected group identified under subsection (2) and each affected person identified under subsection (3).

9.9. There are no protected customary rights groups or customary marine title groups or statutory acknowledgement areas that are relevant to this application. Step 1 does not apply and Step 2 must be considered.

Step 2: Limited notification precluded in certain circumstances

(5) Determine whether the application meets either of the criteria set out in subsection (6) and,—

(a) if the answer is yes, go to step 4 (step 3 does not apply); and

(b) if the answer is no, go to step 3.

(6) The criteria for step 2 are as follows:

(a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification:

(b) the application is for a controlled activity (but no other activities) that requires a resource consent under a district plan (other than a subdivision of land).

9.10. There is no rule in the plan or national environmental standard that precludes notification. The application is not for a controlled activity. Step 2 does not apply. Step 3 is considered.

Step 3: Certain other affected persons must be notified

(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.

(9) Notify each affected person identified under subsections (7) and (8) of the application.

9.11. The proposal does include a boundary activity which is a sunlight infringement along the boundary of the public trail. As previously discussed, correspondence has been had with the FNDC Roading Team, and it is considered that effects from the sunlight infirngement on the trail, are less than minor. Written Approval from FENZ has also been obtained.

9.12. The potential adverse effects on any persons are less than minor. Step 3 does not apply. Step 4 is considered.

Step 4: Further notification in special circumstances

(10) whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under section 95E as not being affected persons),

9.13. The proposal is for construction of a dwelling. There are no special circumstances that would apply.

Limited Notification Assessment Summary

9.14. For the reasons set out above, it is concluded that Steps 1, 2 & 4 do not apply, and that this application can be processed on a non-notified basis. Based on the details discussed within this report, the potential adverse effects on adjoining neighbours would be no more than minor.

10. RMA Part 2 Assessment

10.1. The application is subject to Part 2 of the RMA contained in Sections 5 to 8 inclusive.

10.2. The proposed activity will achieve the sustainable management purpose of the RMA expressed in Section 5 and enable social and economic wellbeing of the Applicant. Future sustainable use of natural and physical resources and the life-supporting capacity of air, water, soil and eco-systems will not be affected. Adverse effects on the environment can be avoided and/or mitigated.

10.3. The scale of the proposed activity is such that Section 6 of Matters of National Importance are not relevant. The activity would not affect the natural character the coastal environment, wetlands, lakes or rivers, any outstanding natural features or landscapes, any significant indigenous vegetation or habitats. The relationship of Māori and their culture and traditions are not anticipated to be affected. The activity is not anticipated to affect any historic heritage, area with identified customary rights. The proposal is not considered to exacerbate natural hazards.

10.4. Section 7 matters are not affected by the proposed activity. The amenity and quality of the Coastal Residential zone will be maintained in accordance with Section 7(c) and (f).

10.5. Section 8 relates to the principles of the Treaty of Waitangi. The proposed activity would not be contrary to the principles of the Treaty of Waitangi.

11. Conclusion

11.1. The Applicant seeks resource consent to construct a dwelling on the site. Discretionary resource consent is required for a departure of the Sunlight and Fire Risk rules in the Coastal Residential Zone.

11.2. This AEE concludes that any adverse effects arising from the proposal will be no more than minor. Written approval from FENZ has been sought and obtained. Correspondence with FNDC Roading Team has been had and effects are considered to be less than minor from the sunlight infringement on the adjoining trail.

11.3. The proposed activity would not be contrary to any relevant statutory policy statement or operative or proposed plan objectives or policies.

11.4. The proposed activity will enable the social and economic wellbeing of the Applicant.

11.5. The Applicant requests that the application be granted on a non-notified basis.

12. Limitations

12.1. This report has been commissioned solely for the benefit of our client, in relation to the project as described above, and to the limits of our engagement, with the exception that the Far North District Council or Northland Regional Council may rely on it to the extent of its appropriateness, conditions and limitations, when issuing their subject consent.

12.2. Copyright of Intellectual Property remains with Northland Planning and Development 2020 Limited, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants or agents, in respect of any information contained within this report.

12.3. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

12.4. Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

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

R.W. Muir
Registrar-General
of Land

Identifier **NA16B/1156**

Part-Cancelled

Land Registration District **North Auckland**

Date Issued 26 February 1969

Prior References
NA2114/55

Estate Fee Simple

Area 2208 square metres more or less

Legal Description Lot 6 Deposited Plan 45917

Registered Owners

Grant McKenzie Stevens, Tania Jane Fox and Robert Theodore Huys

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Interests

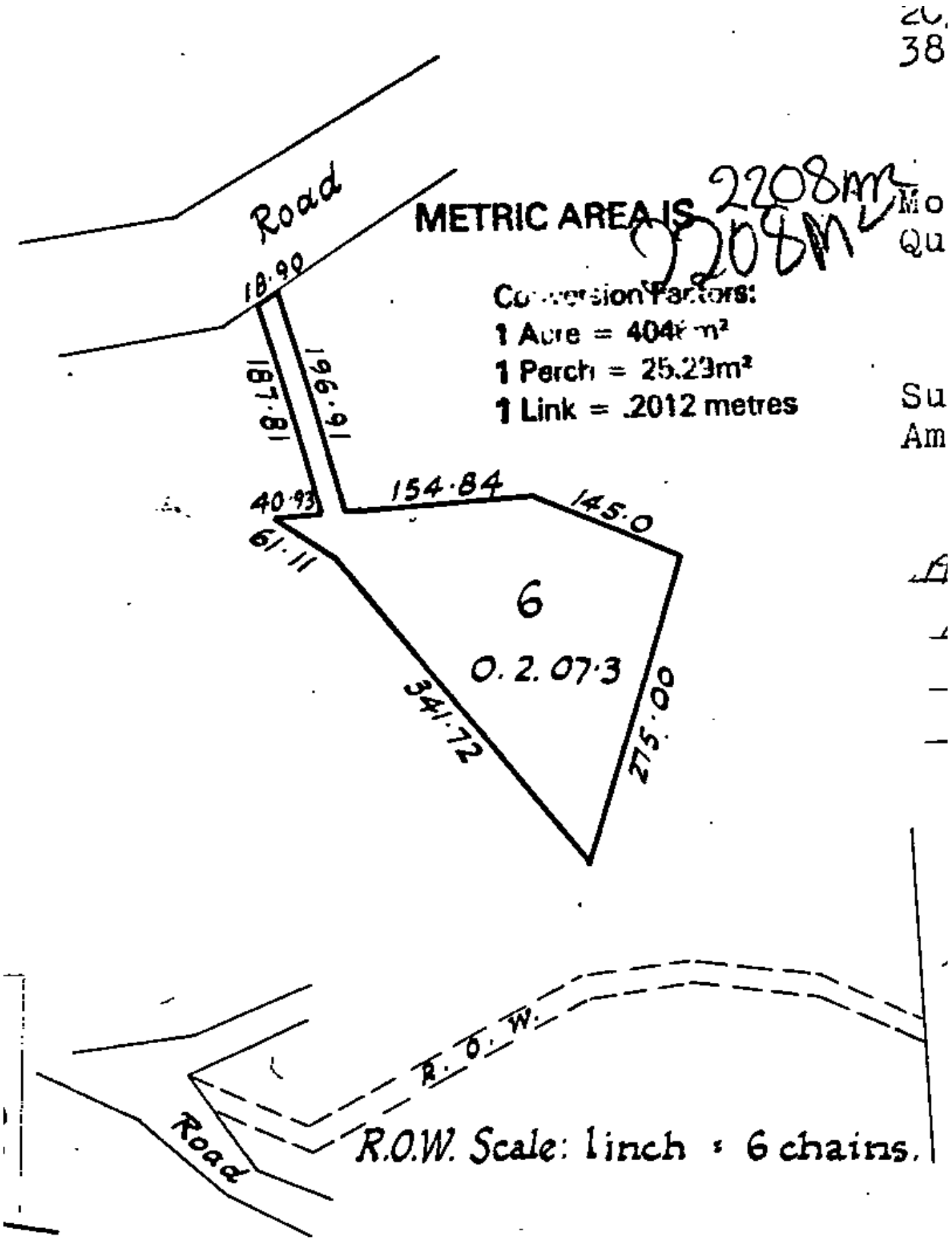
Pursuant to Section 35 (3) of the Counties Amendment Act 1961, Lot 3 Plan 75357 is vested in The Bay of Islands County Council as accessway

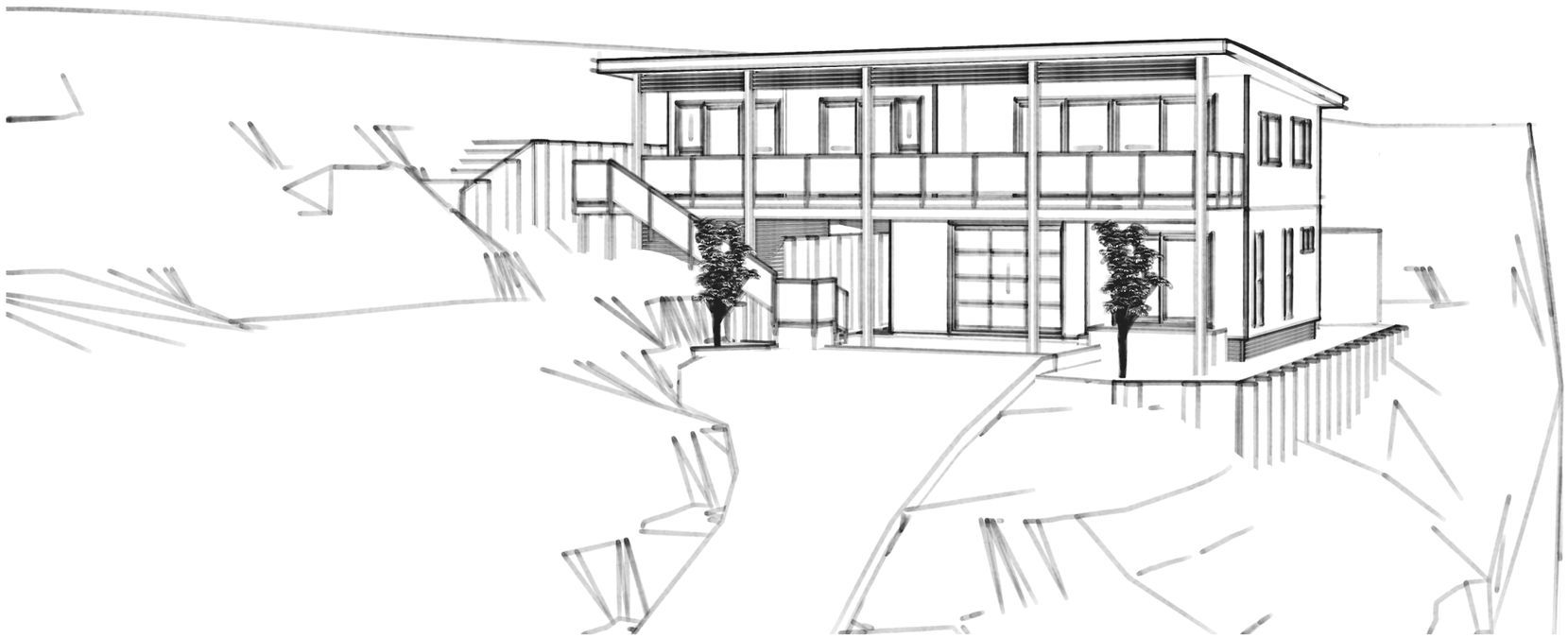
Appurtenant hereto is a right of way created by Transfer 512068

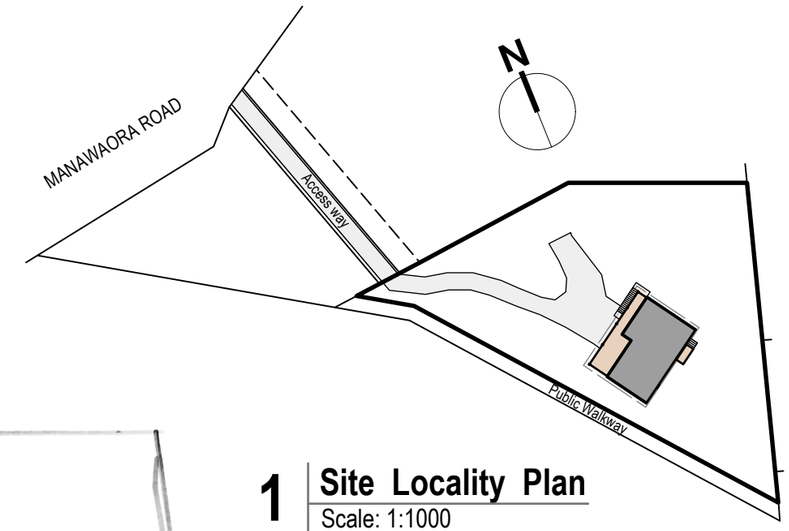
Subject to a right of way over part created by Transfer A495267 - 11.9.1970 at 11.35 am

Appurtenant hereto is a right of way created by Transfer A495267 - 11.9.1970 at 11.35 am

The easements created by Transfer A495267 are subject to Section 37 (1) (a) Counties Amendment Act 1961


Road
18.90
187.81
196.91
40.93
154.84
145.0
61.11
6
0.2.07.3
341.72
275.00
METRIC AREA IS 2208m²
Conversion Factors:
1 Acre = 4047 m²
1 Perch = 25.23m²
1 Link = .2012 metres
R.O.W.
Road
R.O.W. Scale: 1 inch = 6 chains.





1 **Site Locality Plan**
Scale: 1:1000

Proposed New Holiday House
488 Manawaora Road, Te Uenga Bay

Grant Stevens & Tania Fox

Drawing List

Sheet:		Rev:
Design Sheets		
A-01	Cover Page	None
A-02	Site Plan	
A-03	D1_Proposed L1 Floor Plan	
A-04	D1_Proposed L2 Floor Plan	
A-05	Elevations	
A-06	Elevations	
A-07	3D Renders_Design 1	
A-08	3D Renders_Design 1	
A-09	Drainage Plan	

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Job:
New Holiday Home

Address:
488 Manawaora Road,
Te Uenga Bay

Dwg: Cover Page

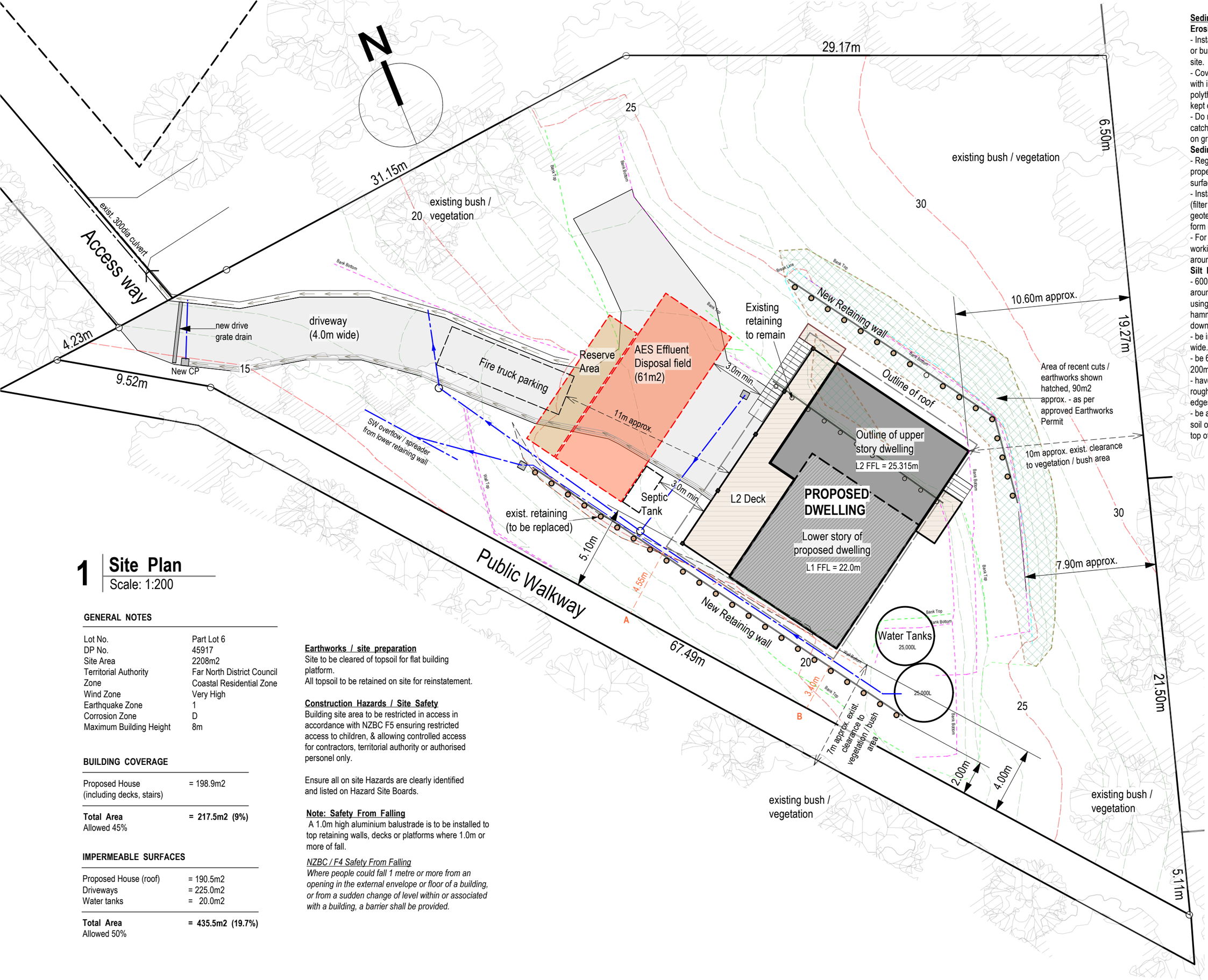
Date: 16th April 2025 Rev:

Ref: 25-01 Scale: As Noted

Dwn: VM Ckd: MG

Sheet: A-01 Of: 9

RC Plans 1



1 Site Plan

Scale: 1:200

GENERAL NOTES

Lot No.	Part Lot 6
DP No.	45917
Site Area	2208m2
Territorial Authority	Far North District Council
Zone	Coastal Residential Zone
Wind Zone	Very High
Earthquake Zone	1
Corrosion Zone	D
Maximum Building Height	8m

BUILDING COVERAGE

Proposed House (including decks, stairs)	= 198.9m2
Total Area Allowed 45%	**= 217.5m2 (9%)**

IMPERMEABLE SURFACES

Proposed House (roof)	= 190.5m2
Driveways	= 225.0m2
Water tanks	= 20.0m2
Total Area Allowed 50%	**= 435.5m2 (19.7%)**

Earthworks / site preparation
Site to be cleared of topsoil for flat building platform.
All topsoil to be retained on site for reinstatement.

Construction Hazards / Site Safety
Building site area to be restricted in access in accordance with NZBC F5 ensuring restricted access to children, & allowing controlled access for contractors, territorial authority or authorised personel only.

Ensure all on site Hazards are clearly identified and listed on Hazard Site Boards.

Note: Safety From Falling
A 1.0m high aluminium balustrade is to be installed to top retaining walls, decks or platforms where 1.0m or more of fall.

NZBC / F4 Safety From Falling
Where people could fall 1 metre or more from an opening in the external envelope or floor of a building, or from a sudden change of level within or associated with a building, a barrier shall be provided.

Sediment & Dust Management
Erosion Controls
- Install clean water diversion measures (sandbags or bunding) to divert surface water around the work site.
- Cover stockpiled material completely and securely with impermeable material like tarpaulin or polythene sheet. Re-vegetate stockpiles that will be kept on site long term.
- Do not stockpile material near stormwater catchpits, kerb channels, in over land flow paths or on gradients steeper than 15 per cent.

Sediment Controls
- Regularly sweep up anu dust and dispose of it properly so that it will not become airborne or enter surface water.
- Install stormwater catchpit protection measures (filter bags, geotextile material, silt fences, filter socks etc) as a form of secondary control.
- For large sites or works areas, especially when working close to watercourse, install a silt fence around works area and stockpiles.

Silt Fence Installation
- 600mm high silt detention fence to be errected around side and lower areas for duration of project using geofabric supported with waratahs or post hammer-staked at least 400mm deep on the downhill side of the fabric, no more than 2m apart.
- be installed in a trench 200mm deep x 100mm wide.
- be 600mm high above ground, with an additional 200mm of cloth below ground in the trench.
- have each end of the fence return up the slope roughly 2m to prevent water going around the edges.
- be anchored by backfilling the trench and placing soil on top of the fabric.

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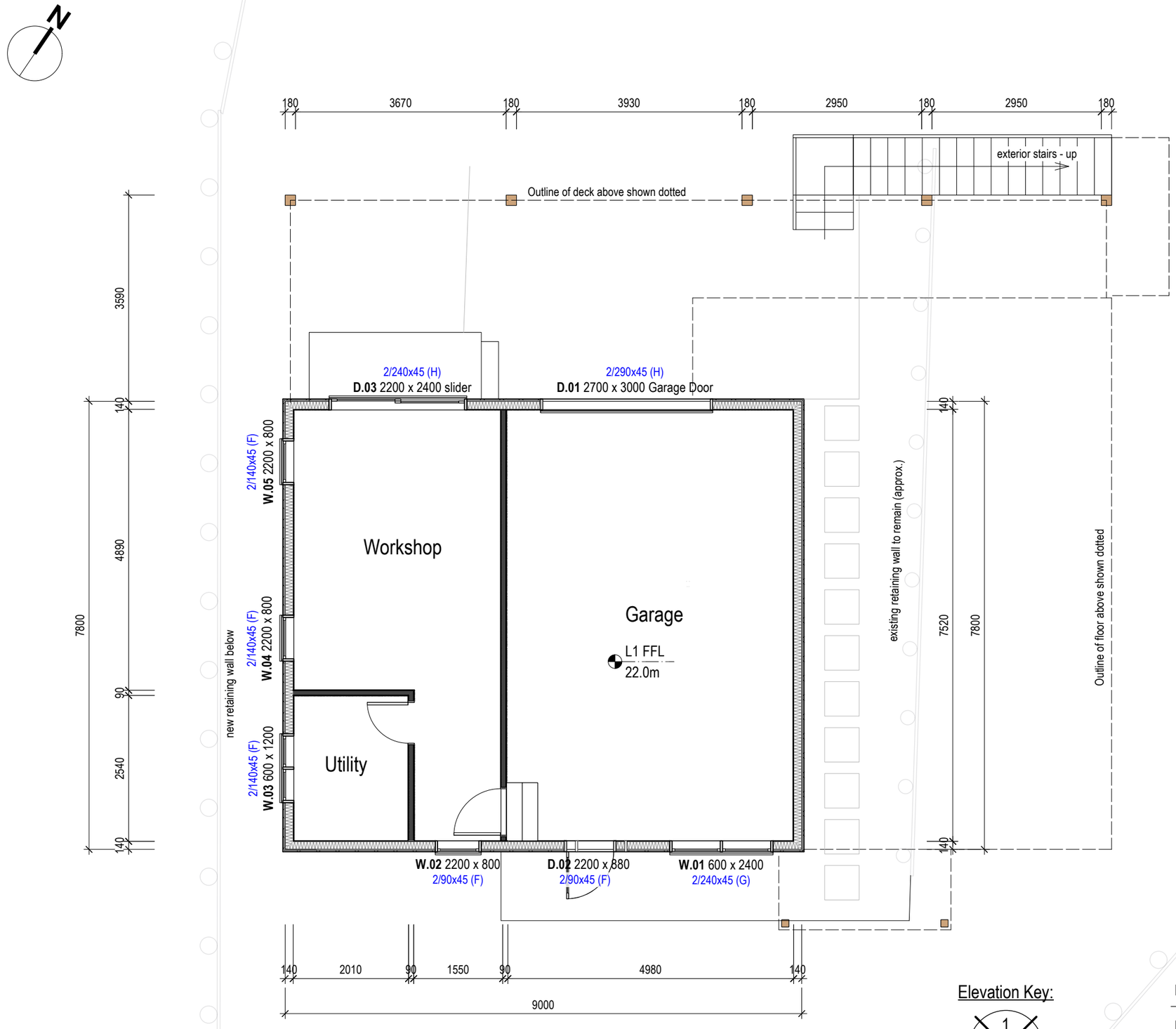
Job:
New Holiday Home

Address:
488 Manawaora Road,
Te Uenga Bay

Dwg:	Site Plan		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-02	Of:	9

Draft



1 Proposed Level 1 Floor Plan

Scale: 1:75

Elevation Key:

Floor Areas

L1 Floor Area	= 70.2m2
L2 Floor Area	= 125.4m2
Total Floor Area	= 195.6m2
L2 Deck Area	= 40.4m2

Notes:

All timber framed construction to comply with NZS 3604:2011 and the NZ Building Code.

Building Wrap

Wrap framing with Tekton Wall Wrap

New walls - Addition

2.4m high walls = 90x45 H1.2 studs @ 600crs
2.7m high walls = 90x45 H1.2 studs @ 400crs
3.0m high walls = 90x45 H1.2 studs @ 300crs
Dwangs to be @ 800crs. Studs, lintels and beams to be MSG8 grade.

Internal / non load-bearing wall framing: 2.4-3.0m high = 90x45 H1.2 studs @ 600crs. Dwangs @ 800crs

Internal Linings

Internal wall linings to be standard 10mm GIB Board. Wet area walls / ceilings to be lined with GIB Aqualine. 13mm GIB board to raked ceilings. 10mm GIB board to trussed / flat ceilings. Fix in accordance with manufacturers specifications.

H1 - Energy Efficiency

Building Code Note:
When carrying out building work to alter an existing building, the new work must comply with current code and section 112 of the Building Act, which says the building as a whole must to comply with the requirements of the Building Code to at least the same extent as it did immediately before the building work began and not make it worse When it comes to H1 Energy Efficiency, the performance of the existing building does not need to meet current H1 requirements

H1 / Insulation

Ceiling insulation = Install where possible new R3.6 roof batts between new roof framing.

Wall insulation = Install where possible new R2.6 wall batts between new studs.

Floor insulation = Install new R2.5 Expol insulation panels between new floor joists.

Windows / doors = Install powder coated aluminium joinery, with Low E / R0.46 glazing

Aluminium Joinery / Exterior Windows & Doors

Windows / doors - powder coated aluminium with Low E glazing (R0.46). Safety glass to all wet areas (bathrooms).
Install restrictors (100mm max. gap) to opening windows more than 1000mm wide and within 760mm of floor. Glazing to comply as per NZS 4223.3.2016.

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Dwg:	D1_Proposed L1 Floor Plan		
Date:	16th April 2025	Rev:	
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Dwn:	VM	Ckd:	MG
Sheet:	A-03	Of:	9

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Notes:
All timber framed construction to comply with NZS 3604:2011 and the NZ Building Code.

Building Wrap
Wrap framing with Tekton Wall Wrap

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2.4m high walls = 90x45 H1.2 studs @ 600crs
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Ceiling insulation = Install where possible new R3.6 roof batts between new roof framing.

Wall insulation = Install where possible new R2.6 wall batts between new studs.

Floor insulation = Install new R2.5 Expol insulation panels between new floor joists.

Windows / doors = Install powder coated aluminium joinery, with Low E / R0.46 glazing

Lighting note:
Recessed down lights to comply with NZBC C2 & AS/NZS 60598.2.2 - The insulation rating is IC or IC-F. The IC-F rating is a NZ only rating that means that the downlight can be installed under insulation that is only rated to 90 degrees C.and also that the light is sealed so insulation cannot get into the fitting.

Lighting features location and model to be agreed between Owner and Electrician.

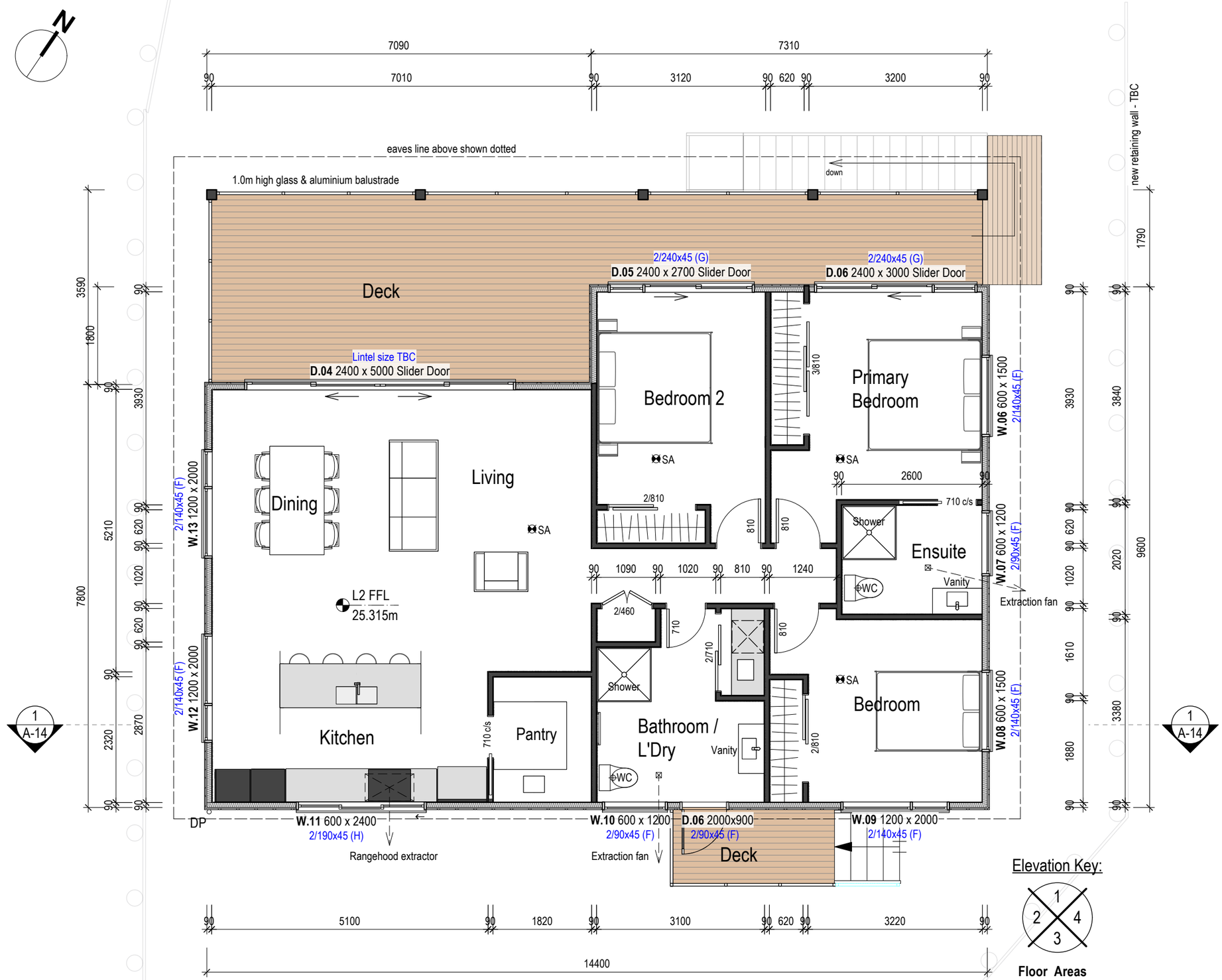
Rangehood & extraction fans
Fans to be extracted through soffits or walls where indicated on plans. Where terminating under soffit line, no specific weatherproofing req. Where terminating through wall cladding, refer detail for weatherproofing penetration. Min. Flow rates = 25L/s (shower & bath), 50L/s (cooktops), Laundry area = 20L/s (condensing dryer) / 40L/s (non-condensing dryer)

Wet Areas
Water proof all "wet-wall-areas", floors and splash areas with Mapei Aquadefense waterproof membrane. Applications by approved applicators only.
Non -Slip floor tiles to be laid in bathrooms / wet areas.

Flooring - Sinks, Laundry Tubs, Washing Machines
All floors within 1500mm of sanitary fixtures and appliances are to be impervious and easily cleaned.

Bathrooms / showers
Shower enclosures are to consist of Mapei waterproofing to floor and walls with tiles - installation in accordance with Mapei & Pro Finish Tray Shower systems. Glass and aluminium door systems installed to suit the shower space, to manufacturers specifications. Safety glass to showers.

Deck Fixings
Deck stringer plates to be packed 12mm min. outside of cladding. Fix to boundary joists with M12 bolts @ 800crs.
Deck joists to stringer plates = joist hangers



1 Proposed Level 2 Floor Plan
Scale: 1:75

Aluminium Joinery / Exterior Windows & Doors
Windows / doors - powder coated aluminium with Low E glazing (R0.46). Safety glass to all wet areas (bathrooms).
Install restrictors (100mm max. gap) to opening windows more than 1000mm wide and within 760mm of floor. Glazing to comply as per NZS 4223.3.2016.

Elevation Key:

Floor Areas

L1 Floor Area	= 70.2m2
L2 Floor Area	= 125.4m2
Total Floor Area	= 195.6m2
L2 Deck Area	= 40.4m2

Smoke Alarms for Residential Houses

Type 1 - Domestic Smoke Alarm System
A type 1 is a smoke alarm or multiple interconnected smoke alarm device, each containing a smoke detector and an alarm sounding feature. The system shall comply with NZS 4514 (2021).

Location of Smoke Alarms
The location of smoke alarms shall be as follows:
(a) Smoke alarms shall be located on or near the ceiling;
(b) Smoke alarms shall be located in all bedrooms, living spaces, hallways, and landings within he building;
(c) Where a kitchen is seperated from the living spaces and hallways by doors that can be closed, an alarm specified by it's manufacturer as suitable for a kitchen shall be located in the kitchen. This may be a heat alarm to avoid nuisance activations;
(d) In a multi-level household unit, there shall be at least one smoke alarm in each level; and
(e) Where more than one smoke alarm is needed, these smoke alarms shall be interconnected so that when one activates, all smoke alarm devices in teh household unit will sound.

Spacing
In locations shere they are required, smoke alarms shall be spaced as follows:
(a) The distance from any wall to a smoke alarm shall not exceed 5m; and
(b) Smoke alarms shall be within 10m of each other in any direction.

Note: Refer to NZS 4514 for guidance.

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New Holiday Home

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Dwg:	D1_Proposed L2 Floor Plan		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-04	Of:	9

Draft

1 Front Elevation

Scale: 1:100 Ref:

2 Right Elevation

Scale: 1:100 Ref:

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Dwg: Elevations

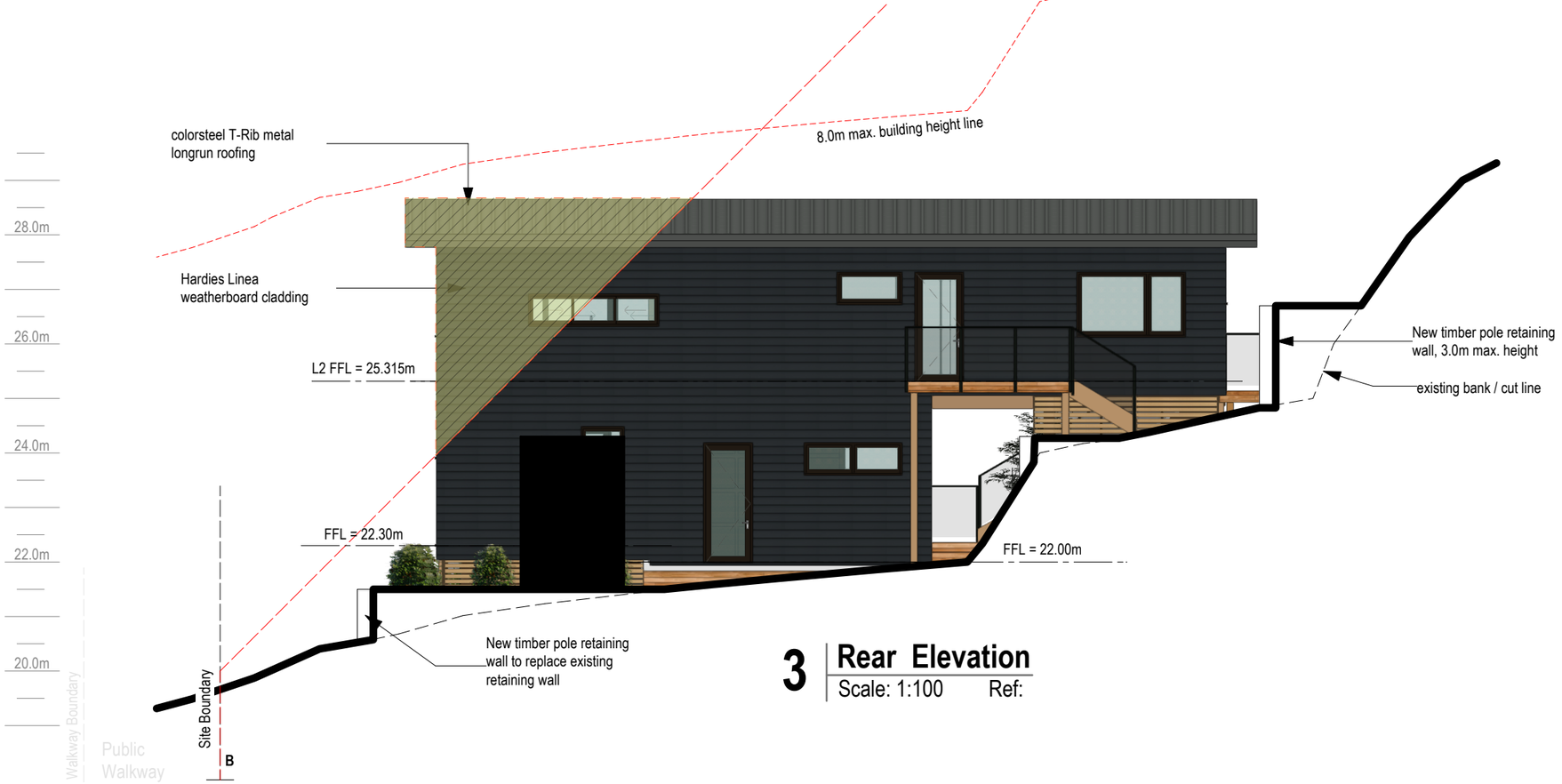
Date: 16th April 2025 Rev:

Ref: 25-01 Scale: As Noted

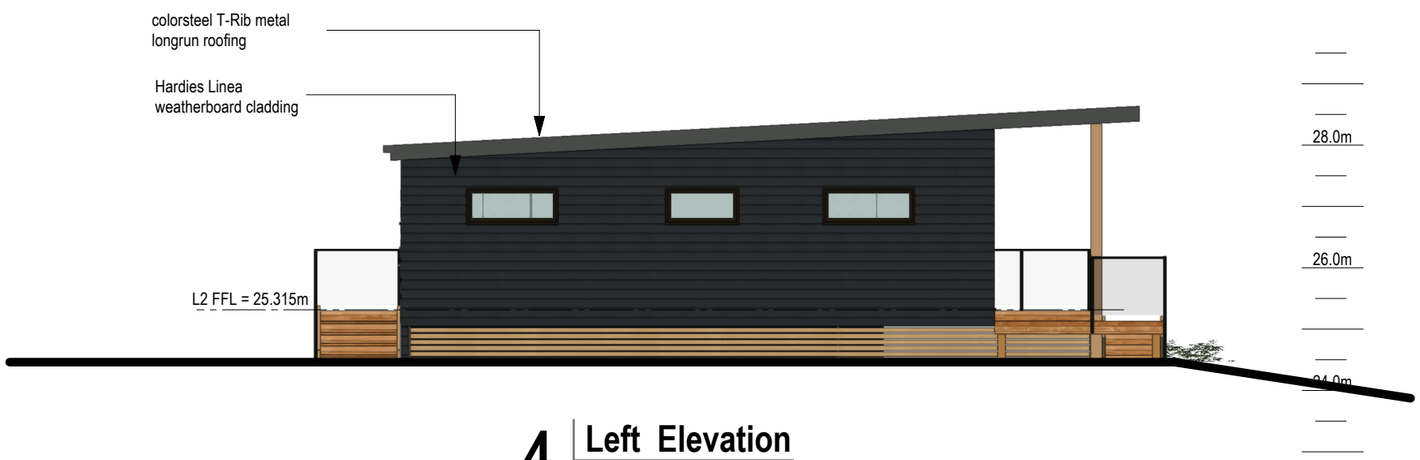
Dwn: VM Ckd: MG

Sheet: A-05 Of: 9

Draft



3 Rear Elevation
Scale: 1:100 Ref:



4 Left Elevation
Scale: 1:100 Ref:

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Dwg:	Elevations		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-06	Of:	9

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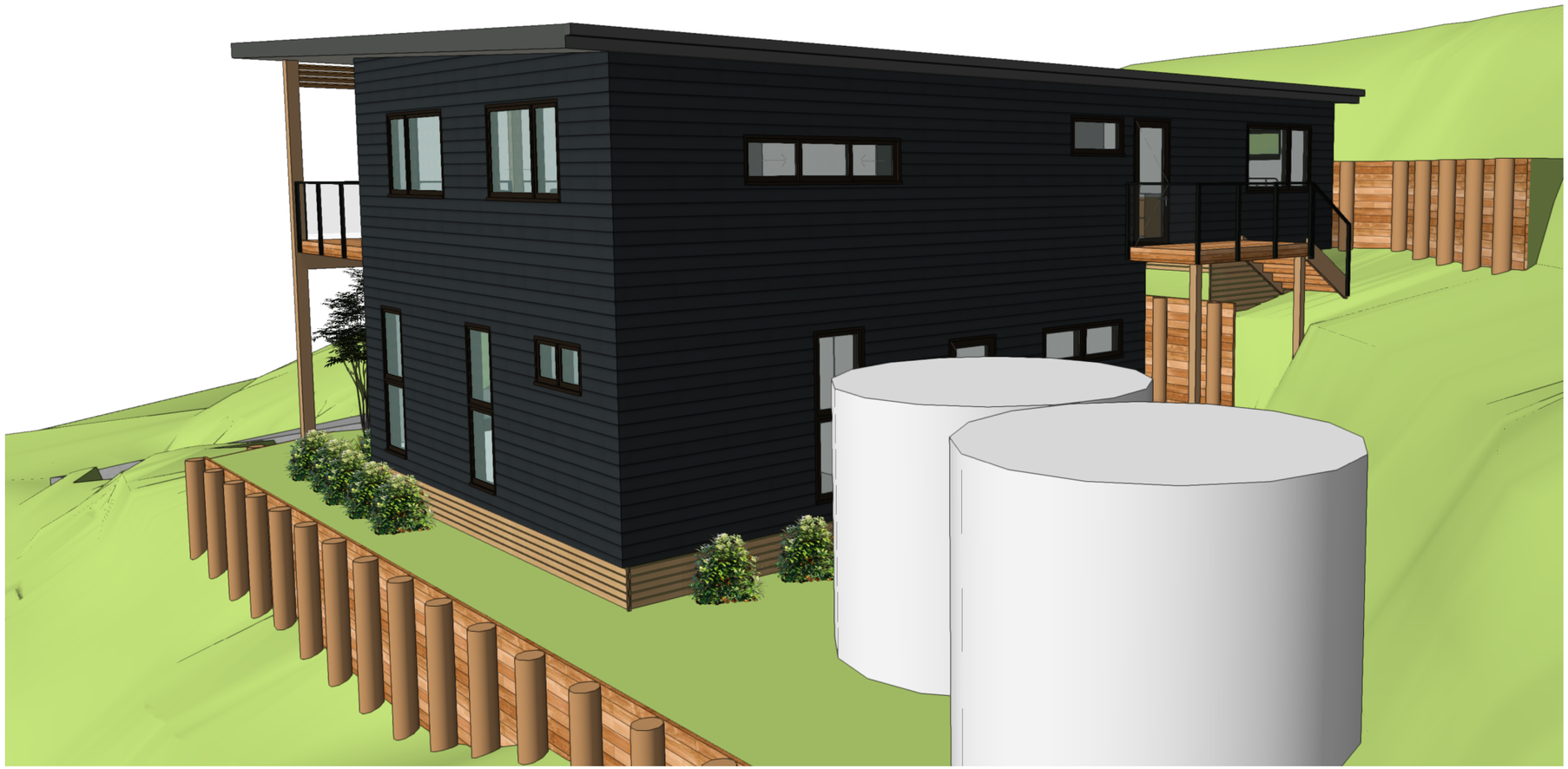
Dwg:	3D Renders_Design 1		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-07	Of:	9

Draft



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Address:
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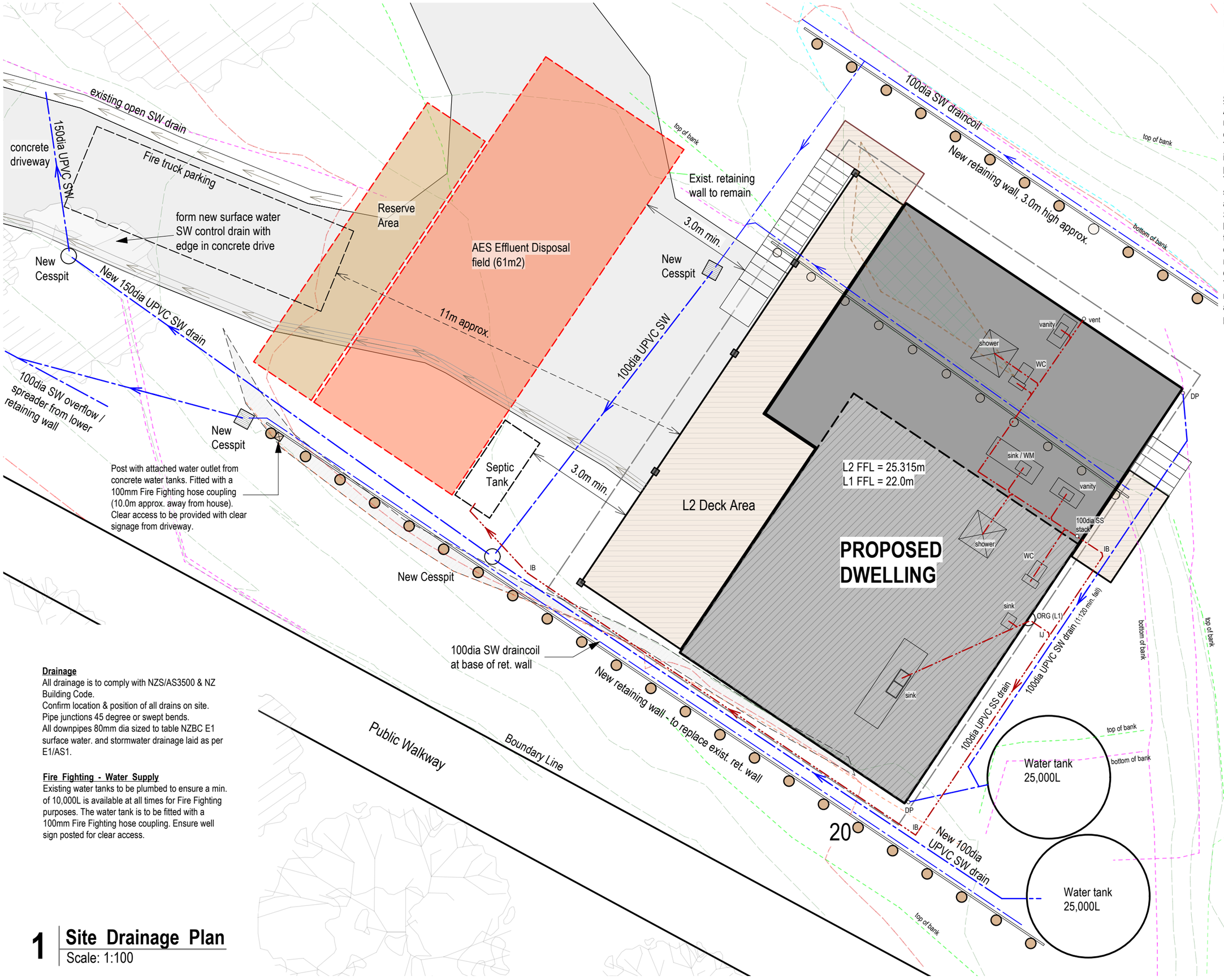
Dwg:	3D Renders_Design 1		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-08	Of:	9

Draft



Drainage
All drainage is to comply with NZS/AS3500 & NZ Building Code.
Confirm location & position of all drains on site.
Pipe junctions 45 degree or swept bends.
All downpipes 80mm dia sized to table NZBC E1 surface water. and stormwater drainage laid as per E1/AS1.

Fire Fighting - Water Supply
Existing water tanks to be plumbed to ensure a min. of 10,000L is available at all times for Fire Fighting purposes. The water tank is to be fitted with a 100mm Fire Fighting hose coupling. Ensure well sign posted for clear access.

Water Supply - Potable Water
1. Install leaf diverters on all downpipes.
2. Install under-sink water filter / purifier system.
3. Overflow from water tanks to be drawn from the bottom of the tank for cleaning in heavy falls.

Filtration System
Puretek (Z1-RW-K) Quick Twist, Dual Undersink Rainwater Filter Kit, 0.1 Micron or eq. product

Stormwater Attenuation Design
A single 25,000 litre attenuation tank is to be utilised receiving flows from the proposed dwelling roof catchment.
Two orifice outlets to the attenuation tank are to be installed to reduce post development flows from the property.
The tank should be positioned in such a way to allow sufficient gravity-fall from the tank outlet to the appropriate dispersal device.
Suitable litter filters or leaf slides shall be installed in line between the roof catchments and the attenuation tank. The filters will require regular inspection and cleaning in accordance with the manufacturers recommendations to ensure the effective operation of the system.
The proposed system will provide the attenuation requirements for the proposed development and allows approximately 15,880 L of capacity for potential reuse and tank stability.

1 Site Drainage Plan
Scale: 1:100

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Address:
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Dwg:	Drainage Plan		
Date:	16th April 2025	Rev:	
Ref:	25-01	Scale:	As Noted
Dwn:	VM	Ckd:	MG
Sheet:	A-09	Of:	9

Draft

Job# S2089-J05621

488 Manawaora Road
Parekura Bay
Russell

Site Suitability Report

16 May 2023

TMC Consulting Engineers Ltd.
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TMC Consulting Engineers Ltd.

Site Suitability Report

Geotechnical Investigation and Assessment Report for a Proposed New Residential Dwelling, at: Lot 6 DP 45917, 488 Manawaora Road, Parekura Bay, Russell

Prepared by:

Joel Scheepens
BSc (Geology)

Reviewed by:

Cole Anderson
BE(Hons), MEngNZ

Approved for Release by:

Gareth Cottrell
CMEngNZ, CPEng, IntPE (NZ), MCGI

Date:	16 May 2023
Reference:	S2089-J05621
Client:	Tania Fox and Grant Stevens
Status:	Final
Revision:	NA
Revision Date:	NA
TMC QA:	GTv1.3 290322

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EXECUTIVE SUMMARY

REPORT APPLICABILITY and PLAN REVIEW
Specifically, on this site, this report is provided to accord solely with the Client development proposal and the information made available to TMC at the time of report writing.
No building plans (only indicative) have been provided at the time of report writing. We strongly recommend that TMC be engaged to undertake a review of both this report and finalised plans (when available), to confirm appropriateness and alignment with the recommendations provided therein, or otherwise.

GROUND CONDITIONS	**See Section 6**
The investigated site consists of; very stiff Silty CLAY, Clayey SILT and SILT with some clay and fine gravel. In BH1, these in-situ natural soils are overlain by approximately 2.7 m of FILL (comprised firm to very stiff Silty CLAY with minor gravel, Silty CLAY, Clayey SILT and Buried TOPSOIL). Up to approximately 0.3m of TOPSOIL overlies the above soils.	
The natural soils on-site are assessed as Moderately Sensitive to Sensitive and in terms of expansiveness are classified as **CLASS M, Moderately Expansive**.	
No groundwater was encountered in the boreholes during investigations.	
At the time of report writing, TMC are unaware of any mapped hazards associated with the property.	
Based on the results of our investigation, we consider the site to be **Class C** in accordance with NZS1170.5:2004	

FOUNDATIONS and RETAINING	**See Section 7**
Prior to any construction commencement, we recommend that a Structural engineer will need to be engaged to assess existing onsite retaining structures in the first instance. All foundations will require Specific Engineering Design (SED) to account for expansive soils in accordance with AS2870:2011 and the NZ Building Code (NZBC). FILL / other onsite. All excavations will require inspection and testing by Chartered Professional Engineer or their Agent who is familiar with this site and the contents of this suitability report. **Ultimate Bearing Capacity (Natural Soils) = 300 kPa**	
Reinforced Concrete Slab / Raft Type Slab on Engineered Fill	Design in accordance with Sections 7.1.1 and 7.1.2.
Piles in Bored Concrete Footings / Shallow Load-Bearing Footings	Design in accordance with Sections 7.1.1 and 7.1.3.
Retaining Structures	Designed and constructed in as per Sections 7.1.1 and 7.2.

CONSTRUCTION
• All works must be undertaken in accordance with the Health and Safety at Work Act 2015. • Services Present. The Development Designer will need to confirm the locations of all on-site / adjacent services prior to the commencement of design / any construction works, etc. • It is strongly recommended that no construction works are undertaken until the appropriate Consent / Approvals, etc. have been granted. • All earthworks should be undertaken in accordance with both the District and Regional rules. • Site Specific Inspection Requirements (at the time of report writing) are provided in Section 7.4.2. • Site Specific Earthworks Requirements are provided in Section 7.5.2.

ON-SITE STORMWATER MANAGEMENT	See Section 7.6

- Stormwater run-off from the development should be appropriately controlled and managed on-site both in accordance with the New Zealand Building Code and as per Council requirements.
- A summary of the attenuation design undertaken is provided below:

	Orifice diameter	**Orifice invert location**
ARI 5	**25.0 mm**	**912 mm** below overflow invert
ARI 100	**24.0 mm**	**427 mm** below overflow invert
Tank Size	**25,000 litres @ 3.5 m Ø**	
ARI 5	**5,100 litres**	
ARI 100	**9,120 litres**	
Stability	**15,880 litres**	

ON-SITE WASTEWATER MANAGEMENT	See Section 8
Proposed system	AES Secondary treatment system disposing via a proprietary bed
Design Occupancy	5 persons
Water Source	On-site rainwater storage tanks (145 l/p/d)
Design Flow Rate	725 L/day
Site Soil Category	5 – Light Clays (AS/NZS 1547:2012)
Loading Rate	12 mm/day
Required Disposal Field Area	60.4 m^2
Required Reserve Field Area	18.1 m^2 (30% the above)

1. INTRODUCTION

This Site Suitability Report (SSR) has been prepared by TMC Consulting Engineers Ltd. (TMC) for Tania Fox and Grant Stevens (the "Client") in accordance with instructions received from them with regard to the above property, and in accordance with the short form agreement dated 04 April 2023.

The purpose of TMC's work was to evaluate the surface and subsurface conditions at the site by undertaking a geotechnical investigation to determine the suitability of the site for the proposed development including on-site stormwater and wastewater management.

This report presents the results of the geotechnical investigation, describes the existing conditions, details any identifiable geological hazards affecting the site and provides geotechnical recommendations against the requirements of NZS3604:2011 where appropriate.

On-site wastewater recommendations are provided in accordance with; AS/NZS 1547, AS/NZS 1546 and the Regional Rules.

The geotechnical assessment is based on site conditions as observed during the site walkover and site investigation fieldworks carried out by TMC on 11 April 2023.

1.1 CLIENT SUPPLIED & OTHER INFORMATION

In preparing this SSR, we have also reviewed the following documentation:

Document Type	Reference
Draft Scheme Plan	Approximate Location of the proposed dwelling drawn on a printed-out site boundary map received from client on 04/04/2023.

This report must be read in conjunction with the above documentation and is based solely on our fieldwork assessment and the supplied / 3rd party available information to TMC at the time of report writing. TMC cannot warrant the accuracy, validity, etc. of any of the supplied / 3rd party available information.

In addition to the above, we strongly recommend as follows:

i. Should any additional relevant information become available then TMC must be contacted to ensure that this report and the recommendations contained therein are appropriate, and;

ii. Once the final plans for the proposed development is known, that the plans be reviewed by TMC, to;

- Verify that the recommendations contained in this report remain valid, and;
- That with regard to geotechnical and wastewater aspects only, that the proposed foundation and wastewater design both aligns satisfactorily with the recommendations provided in the TMC SSR and is appropriate.

2. DEVELOPMENT PROPOSAL

The Client is proposing to construct an approximate 180 m² two storey, lightweight residential dwelling centrally on the property.

It is proposed to extend the upper storey of the dwelling over the top of an existing approximate 2.5m high retaining wall onsite.

At the time of report writing TMC have not been informed of a proposed foundation type to support the new structure.

Refer; 'Site Plan' attached in the appendices.

3. SITE DESCRIPTION

The property (legally described as Lot 6 DP 45917) is located to the south of Manawaora Road. The property is sized at approximately 2,066 m^2 and is irregular in shape. Parekura Bay is located approximately 140 m to the north of the property.

The property is currently accessed via a shared driveway to the southwest of Manawaora Road.

The property has a general fall to the south-west of between 15-30°, with a relatively flat existing cut and filled platform in the area of the proposed new dwelling.

An existing garage with an attached deck is located centrally on the property. The existing garage is situated on the existing cut and filled platform with the deck extending out to the west. The garage and deck are proposed to be removed and replaced by the proposed new dwelling.

There is an approximately 2.5 m high timber pole retaining wall supporting the cut face on the eastern side of the existing platform, and an approximately 1.5 m high timber pole retaining wall supporting the downslope, western side of the existing platform.

There is an approximately 5.0m wide area above the 2.5m high retaining wall that has also been cut relatively flat with an approximately 1.5m high cut face upslope to the west.

The property is covered in lawn grass around the existing on-site structures and the remainder of the property is covered in native bush and medium sized trees.

There is an existing 25,000L water tank located behind the existing garage.

The assessment of existing site structures has not been included in TMC's investigation brief.

Earthworks on site. As above, a cut and filled platform with timber pole retaining walls has been constructed on the property. The proposed new dwelling is to be constructed on this existing platform.

At the time of report writing, no records of the design, construction and certification of these earthworks and retaining structures has been provided.

Stormwater run-off currently exhibits sheet flow behaviour. It is unknown if there is suitable drainage installed behind the existing retaining walls.

The walkover of the proposed building site undertaken at the time of the site fieldworks provided evidence of recent ground movement within the uncontrolled FILL soils (the presence of which was confirmed by the fieldworks investigation), being on the western side of the existing platform. This movement was in the form of long cracks in the ground above the existing downslope retaining wall (running parallel to the wall).

The downslope retaining wall beneath the existing deck and garage has rotated resulting in ground settlement and damage to the deck piles.

This failed section of retaining wall will need to be strengthened or replaced as the proposed new dwelling will be located directly above, which will increase the surcharge on the existing unsuitable structure.

A Structural engineer will need to be engaged to assess the above and confirm remedial works required, etc. in the first instance.

Services present.

All service locations, depths, etc. will need to be confirmed by the Development Designer prior to both the design of the foundations, etc. and construction works. Design to allow both for any disturbance or surcharge on the services and comply with Asset Owners off-set, etc. requirements. Approval is required from Council / Asset Owners to construct within the minimum required offsets or over Council / other services.

4. GEOLOGY AND NATURAL HAZARDS

4.1 GEOLOGY

Local geology at the property is shown and described on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; Waipapa Group - Greywacke (TJw): Massive to thin bedded, lithic volcaniclastic metasandstone and argillite, with tectonically enclosed basalt, chert and silceous argillite, refer; 'GNS Science Website.'

The soils map of the area indicates that the site is within an area of Marua clay loam (MRH). Sutherland, C. F.; Cox, J. E.; Taylor, N. H.; Wright, A. C. S. 1980: Soil map of Bay of Islands area (sheets Q04/05), North Island, New Zealand. Scale 1:100,000 N.Z. Soil Bureau Map 184.

4.2 NATURAL HAZARDS

At the time of report writing, TMC are unaware of any mapped hazards associated with the property.

5. FIELDWORKS INVESTIGATION SUMMARY

The purpose of the following intrusive fieldworks investigation was to provide information on the general soil profile, the variability, relative density and strength of soils together with any observed groundwater levels within the proposed building site area.

TMC undertook a shallow ground investigation comprising 3 hand auger boreholes (BH) of 50 - 75 mm diameter to depths up to 3.0 m below ground level (bgl).

An additional borehole (BH4) was drilled to a depth of 0.9 m to determine soil and groundwater conditions for the proposed effluent disposal field.

Scala Penetrometer tests (SP) were undertaken commencing from ground level adjacent to the boreholes to depths up to 1.9 m. SP tests were restarted in the base of the boreholes to depths up to 3.9 m to assess the strength and consistency of the strata beyond the depth of the boreholes.

Refer, 'Borehole Logs & Scala Penetrometer Data' attached in the appendices.

Approximate locations of the BH and SP tests are shown on the 'Site Plan' attached.

Where possible, in cohesive materials, in-situ hand undrained shear vane tests were carried out at 0.3 m depth intervals in accordance with the New Zealand Geotechnical Society (NZGS); Guidelines for Hand Held Shear Vane Testing, August 2001, and classified for soil sensitivity in accordance with the NZGS Field Classification Guidelines; Table 2.10, December 2005.

Classification of the recovered soil borehole arisings was carried out in accordance with the "Field Description of Soil and Rock", NZGS, December 2005.

6. FINDINGS AND CONCLUSIONS

6.1 GROUND CONDITIONS

The ground conditions encountered during the shallow ground investigation have been interpreted from the BH logs, shear vane and Scala Penetrometer testing undertaken.

The natural subsurface conditions encountered are considered to be generally consistent with the published geological information.

The investigated site consists of; very stiff Silty CLAY, Clayey SILT and SILT with some clay and fine gravel. In BH1, these insitu natural soils are overlain by approximately 2.7 m of FILL (comprised firm to very stiff Silty CLAY with minor gravel, Silty CLAY, Clayey SILT and Buried TOPSOIL). Up to approximately 0.3m of TOPSOIL overlies the above soils, refer: 'BH Logs' attached.

The natural soil moisture conditions encountered during the TMC investigation were moist. In the Uncontrolled FILL soil moisture conditions encountered ranged from moist to wet.

It should be noted that actual ground conditions may vary across the investigated development site, and in some locations may differ from those described.

6.2 SOIL SHEAR STRENGTHS

Uncontrolled FILL Soils

Shear vane dial readings (corrected) of the soil tested in the Boreholes ranges from 30 kPa (13 kPa remoulded) to in excess of 199 kPa.

Where measurable, the average of peak and remoulded shear strength ratio for the sites uncontrolled FILL soils investigated ranged between 2.3 to 5.0 indicating that these soils are of a range; Moderately Sensitive to Sensitive as per the NZGS Guidelines.

Natural Soils

Shear vane dial readings (corrected) of the soil tested in the Boreholes ranges from 107 kPa (28 kPa remoulded) to in excess of 199 kPa.

Where measurable, the average of peak and remoulded shear strength ratio for the site soils investigated ranged between 2.2 to 6.5 indicating that these soils are of a range; Moderately Sensitive to Sensitive as per the NZGS Guidelines.

The natural soils generally have higher soil shear strengths than the FILL.

6.3 EXPANSIVE SOILS

6.3.1 General

Based on the results of our fieldwork investigation, along with our knowledge and experience with these soils, we classify the investigated site as CLASS M, Moderately Expansive in terms of AS2870:2011.

A Characteristic Surface Movement (y_s) of 40 mm should be used in foundation design. Alternatively, hardfill can be placed beneath the building footprint to reduce y_s, see Section 6.3.3.

Reworking or exposure of these soils during wet weather or winter months can damage these soils resulting in much lower bearing capacities, the potential for seasonal shrinkage / swelling and slab cracking.

These soils do not meet the NZS3604:2011 definition of 'Good Ground'. Foundations / structures will therefore need to be designed accordingly and care must be taken when both planning and undertaking the site earthworks.

Refer, 'Notes' attached in appendix and report Section 7.

6.3.2 Effects of Tree Roots

A wide range of tree and shrub species have high groundwater demands during summer months. The effect of such moisture demands on expansive soils can be substantial and can lead to differential building settlement. Particularly high-water demand species include, but not limited to;

Gum, Willow, Cypress/Radiata Pine, Oak, Poplar, Ficus (Fig trees), Elm, Norfolk Pine.

Planting of trees should be avoided near the foundation of a building on expansive soils as they can cause damage due to drying of the clay at substantial distances. To reduce, but not necessarily eliminate, the possibility of damage, tree planting should be restricted to a minimum distance from the building as follows:

i.) 1.5 x mature height of tree for Class E; Extremely Expansive soil sites.
ii.) 1 x mature height of tree for Class H; Highly Expansive soil sites.
iii.) 0.75 x mature height of tree for Class M; Moderately Expansive soil sites.

Where groups or rows of trees are involved, the planting distance from the building should be increased. Removal of existing trees from the site can also produce similar problems.

The level to which these measures are implemented depends on the expansivity of the site soils. The above planting distances and measures apply mainly to masonry buildings and masonry veneer buildings. For frame buildings clad with timber or sheeting, lesser precautions *may* be appropriate.

Alternatively, the foundation system may be designed for the effect of trees in accordance with Appendix H of AS2870:2011.

Refer, 'Notes' attached in appendix and report Section 7.

6.3.3 Effects of Engineered Hardfill on Soil Expansivity

To aid in mitigating the effects of expansive soils at the building site, compacted hardfill can be placed beneath the building footprint. The non-expansive hardfill is considered to reduce the characteristic surface movement (y_s) across the building footprint and therefore reduce the design forces on the foundation.

The existing cleared ground level should be undercut, extending a minimum of 1m outside the building footprint, and then replaced with engineered compacted and approved hardfill. The following minimum layers of compacted hardfill can provide the following reductions in the characteristic surface movement, y_s;

Depth of Engineered Hardfill	Characteristic Surface Movement (y_s) Reduction
Unmodified site	0 mm
0.25m undercut and replaced with engineered hardfill	18 mm
0.45m undercut and replaced with engineered hardfill	32 mm

Alternatively, Specific Engineering Design (SED) should be used to calculate the specific surface movement reduction for varying depths of engineered hardfill.

6.4 GROUNDWATER

Groundwater was not encountered during the fieldwork investigation.

Groundwater levels may rise during wet winter conditions or following periods of heavy or prolonged rainfall / other events.

Considering both the investigated site topography and ground conditions, along with the proposed development, the use of drainage control measures is generally not anticipated during construction works.

6.5 SCALA PENETROMETER TEST RESULTS

Scala Penetrometer test values in terms of (number of blows /100mm ground penetration) were noted commencing adjacent to, and at the base of BH: 1-3.

This testing was undertaken to provide an indicative allowable bearing capacity of the site soils encountered with depth and to determine any uniformity in ground conditions across the investigated site, refer; 'Scala Penetrometer Resistance Test Results' attached in the report appendices.

- The blow counts: 1 blows being the lowest and 20+ blows being the highest– all after initial equipment seating blows.
- Blow counts within the natural soils were generally higher than the uncontrolled FILL soils.
- Blow counts within the natural soils generally increased with depth.
- Refusal (20+ Blows) was encountered at 1.0 m bgl in BH2 and 3.8 m bgl in BH3.

In general terms of soil bearing capacity, NZS3604:2011 for the Construction of Timber-Framed Buildings defines 'Good Ground' as having an allowable bearing capacity of at least 100 kPa: indicatively 5 blows per 100 mm.

6.6 SEISMIC SETTING AND CONSIDERATIONS

There are no active faults currently mapped within the Northland region (refer; NZS 1170.5:2004 Table 3.3), while the whole Northland peninsula is generally regarded as tectonically stable.

Earthquake risk in Russell is therefore considered to be relatively low.

Considering the:

- Regional seismic risk,
- depth of any groundwater,
- lack of active faults near the property, and
- the soil types encountered,

It is our opinion that there is a low risk of ground rupture and liquefaction-induced settlement at the property.

Proposed structures will need to be designed to account for seismic shaking and ground motions.

Based on the results of our investigation, we consider the site to be **Class C** in accordance with NZS1170.5:2004.

6.7 NATURAL HAZARDS

Site Stability

The property is not currently mapped for stability risk.

Local geology at the property both mapped and as investigated is: Waipapa Group - Greywacke (TJw):

> *"The Waipapa Group usually has a deep weathering profile ranging from unweathered greywacke and argillite at 10 m to 20 m below the surface; through to highly weathered to completely weathered rock close to the surface. The latter materials typically form a soil mass (i.e. a regolith) of very stiff to hard light brown gravelly and clayey silts. Residual soil derived from these materials typically comprises very stiff silty clays and clayey silts, typically containing predominantly non-swelling kaolinitic clays (i.e. not subject to large changes in volume due to changes in moisture content). These soils are generally only present in the top 2 m on low gradient slopes, such as ridgelines and flats, and in the top 1 m on steep slopes.*
>
> *Groundwater is usually deeper than 5 m due to the relatively high fracture permeability of the rockmass, the steepness and relatively high relief of the slopes. Slopes that are underlain by Waipapa Group materials are generally characterised by moderate to steep sided slopes (15° to >30°) with minor shallow seated slippage and gully erosion within the soil mantle generally only within the steepest slopes (i.e. >30°). The slopes can generally stand at moderately steep gradients due to the relatively high strength of the rockmass and overlying soil mass."*

The site soils encountered are also considered to be generally consistent with the published geological information.

Based on our experience and recent soil stability mapping undertaken in the Northland Region with the Waipapa Group - Greywacke (TJw) indicative soil instability potential ranges are as follows:

> Low <18°; Medium 18-45° and High >45°.

The proposed building site slope is on a relatively flat, existing cut and filled platform with timber pole retaining on the upper and lower side of the platform.

A review of historical aerial photography commencing from 1951 provides some evidence of previous instability at the property and surrounding land in the form of terracing, refer; 'Retrolens Historical Image Resource Website.'

Recent ground movement was evident within the uncontrolled FILL soils on the western side of the existing platform. This was in the form of long cracks in the ground above the downslope retaining wall where it is assumed that the ground has settled.

The downslope retaining wall beneath the existing deck and garage has rotated resulting in damage of the deck piles.

No evidence of natural ground movement was provided by the fieldworks and ground investigation testing.

We have therefore provided our foundation recommendations to align with both the soil instability ranges and the above observations.

Please refer also, report Sections: 'Foundations', 'Earthworks', 'Retaining' and 'Stormwater and Drainage'.

Natural Hazards: Summary

No dwelling plans provided.

Once the final arrangement, design, details, etc. of the proposed development have been finalised, an Engineer familiar with both the site and contents of this report should be engaged to review the plans, advise accordingly and thereafter provide comments with regard to the Building Act 2004.

7. RECOMMENDATIONS

7.1 FOUNDATIONS

7.1.1 General

FILL / other onsite. All excavations will require inspection and testing by Chartered Professional Engineer or their Agent who is familiar with this site and the contents of this suitability report. Where unsuitable materials are encountered, they should in general, be undercut and replaced with Engineer approved compacted fill, or as otherwise recommended by the Engineer.

The results of our investigation indicate that the soils onsite do not meet the NZS3604:2011 definition of 'Good Ground'. All foundations will require Specific Engineering Design (SED), and to account for Moderately Expansive soils (CLASS M) in accordance with AS2870:2011 and the NZ Building Code (NZBC).

Prior to any construction commencement, we recommend as follows:

i. A retaining structure be constructed to retain the existing cut face above the existing 2.5m high retaining wall, to the west of the proposed building site. Care must be exercised during both design and construction to avoid increasing the demand on the existing retaining wall below, etc.

ii. That the failing lower retaining wall below the existing garage and deck be removed and replaced with a suitably engineered retaining structure.

iii. A Structural engineer will need to be engaged to assess the above and confirm remedial works required, etc. in the first instance.

Refer also; "Site Plan" attached and Section 7.2 for retaining design parameters, etc.

Any proposed foundations / structures located on or within 5m of a slope at or exceeding 15° should be designed for 1.0m of lateral soil creep.

The final depth of foundations, etc. may be governed by structural loads. This aspect can be addressed during the foundation design process.

From the site soil investigation and assessment, the following soil parameters are considered appropriate for design purposes for the foundation in the natural soils:

Ultimate Bearing Capacity	300 kPa
Dependable Bearing Capacity (F.O.S =2)	150 kPa
Allowable Bearing Capacity (F.O.S =3)	100 kPa
Soil Unit Weight, γ	18 kN/m^3
Internal Soil Friction Angle, ϕ	30º
Soil Cohesion, c'	5 kPa
Undrained Shear Strength, C_u	80 kPa

At the time of report writing TMC have not been informed of a proposed foundation type to support the new structure.

A description of different foundation types follows with design parameters and Engineer Inspection requirements as above.

7.1.2 Reinforced Concrete Slab / Raft Type Slab on Engineered Fill

A Characteristic Surface Movement (y_s) of 40 mm should be used in the design of the raft foundation for CLASS M (Moderately Expansive) soils.

Alternatively, the slab can be placed on Engineer approved compacted hardfill that also extends a minimum of 1.0 m out beyond the building footprint to reduce the value of y_s (see Section 6.3.3). The depth of the above hardfill layer is to be confirmed by the Designer during the detailed design process.

For filling to form a final subgrade for the slab, it is recommended that clean, well graded compacted hardfill is used such as; GAP 20 to GAP 65, or as otherwise approved by the Engineer.

7.1.3 Shallow Load-Bearing Foundations

In addition to the requirements of Section 7.1.1, for any shallow foundations in expansive soils:

- The detailed design of the foundations will determine the final foundation depths, etc. and provide an appropriate embedment depth to minimise ground swelling and shrinkage effects in alignment with the soil expansivity class. A minimum founding depth of 0.6 m below cleared ground levels into Engineer approved competent soils is recommended to mitigate against the shrink-swell effects of CLASS M (Moderately Expansive) soils.

- Where uncontrolled FILL, etc. soils are encountered, the FILL shall either be removed and replaced with Engineer approved compacted FILL, OR piles / footings shall pass through the FILL, etc. layers, and must achieve suitable embedment into the underlying natural soils.

- Embedment into competent materials and as above, etc. will need to be checked and approved by the Inspecting Engineer.

Specifically, on this site, bored pile holes and drilling tailings will need to be inspected by an Engineer familiar with both the contents of this report and the site to ensure that all piles are sufficiently embedded in the appropriate materials.

7.1.4 Foundations Adjacent to or Above Services

Services onsite.

Subsequent to confirmation of all services by Development Designer:

Foundations / structures adjacent to or above any underground services such as Council sanitary sewer, stormwater lines and other assets must be supported on piles to both a design specification and embedment to meet both the Council / Asset owners and Design Engineers requirements.

Foundations within the line of influence from the services should comprise bored piles that both extend to well below the invert level of the pipe and with side clearances to the pipe in accordance with the above requirements.

The bearing capacities provided above are considered appropriate for bridging pile design.

7.2 RETAINING STRUCTURES

7.2.1 General

In addition to the requirements of Section 7.1.1.

Retaining structures exceeding 1.5 m and/or supporting any surcharge loads will need to be designed by a Chartered Professional Engineer and constructed in a safe manner.

Factors of safety and surcharge loadings appropriate to the conditions should be in accordance with “Retaining Wall Design Notes – Ministry of Works Department, NZ, Issue C: July 1973”.

Due consideration to surcharges, retained heights and levels, etc. must be undertaken for each retaining structure throughout the design process. In addition, retaining design will need to be in accordance with Council surcharge requirements by boundaries.

All retaining walls / structures should be constructed with appropriate toe drainage and should be backfilled to within 0.3m of their full height with lightly tamped, free draining granular backfill material. Toe drainage: Proprietary perforated pipe drain / strip drain should be installed at a basal location behind all retaining walls to provide appropriate drainage and avoid the risk of a build-up of hydrostatic pressures / water levels.

All drainage should be connected into an approved stormwater disposal system, or as otherwise appropriate. If required, all waterproofing details should be specified by the building Designer.

Subsequent to construction of retaining structure(s), a programme of regular monitoring must be initiated to assess the continuance of both effective retention and drainage functions. Thereafter, if necessary, any maintenance required can be undertaken to ensure fully effective drainage, function, etc.

7.2.2 Soil and Design Parameters

Soil and design parameters for wall types are provided in the Table below, all being subject to confirmation by Engineering inspection during construction.

Retaining Wall Type	Natural Soil Parameters		Design Parameters and Notes
Timber Pole	Soil cohesion c’ =	5 kPa	Passive resistance in front of the retaining wall poles can be determined using Broms Method generally assuming an undrained shear strength Cu = 80 kPa. Where any ground is sloping >15º in front of the wall, pile embedment is to be designed for 1.0 m of lateral soil creep.
	Internal soil friction angle ϕ =	30°	
	Soil unit weight γ =	18 kN/m^3	
Cantilevered: Free Standing or Propped	As Above		For design, soil pressures may be determined for active pressure conditions using a Ka value of no less than 0.3.
Rigid Retaining	As Above		For the design of retaining walls integrated into the building structure which are relatively rigid and unyielding, soil pressures should be determined for at-rest pressure conditions using an earth pressure coefficient K_0 of no less than 0.5.

Table: Soil and retaining design parameters

7.3 SAFETY IN DESIGN AND CONSTRUCTION RISK MANAGEMENT

7.3.1 Design

In addition to the prevailing Health and Safety legislation, the TMC recommendations provided in this report have also been made with regards to Safety in Design, which should be considered during the design phase.

'Health and Safety by Design' is the process of managing health and safety risks throughout the lifecycle of structures, plant, substance or other products. Designers are in a strong position to make work healthy and safe from the start of the design process. Health and Safety by Design is not a separate concept from good design – they are the same thing.

Aside from statutory Healthy and Safety requirements, TMC recommend that all design should be undertaken in full accordance with the following good practice guidelines (and any successor publications), in particular:

Health and Safety by Design, An Introduction: August 2018.

Refer for download the above Worksafe documentation as below:

https://www.worksafe.govt.nz/topic-and-industry/health-and-safety-by-design/health-and-safety-by-design-gpg/

7.3.2 Construction Risk Management

Any and all works including (but not limited to); design, construction, operations and maintenance must be undertaken in accordance with the Health and Safety at Work Act 2015.

Services present.

The Development Designer will need to confirm the locations of all on-site / adjacent services including for site access prior to the commencement of design / any construction works, etc.

Any open excavations should be fenced off or covered, and/or access restricted as appropriate.

With all excavation and construction work there is a risk of collapse. Whenever ground conditions are suspect, bad weather conditions are forecast or when there is a risk of damage to adjacent property, excavations should all be carried out in a "hit and miss" pattern and / or temporary ground support, cover protection used.

The Contractor is responsible for determining the width of each excavation to suit his plant and construction programme.

Cut faces should not be left unsupported. Similarly, cut faces should not be left uncovered for any length of time, especially during periods of rain.

The Contractor is responsible at all times for ensuring that all necessary precautions are taken to protect all aspects of the works, adjacent structures and services, etc.

7.4 CONSTRUCTION INSPECTIONS

7.4.1 General

It is increasingly common for the Building Consent Authorities' (BCA) to require a Producer Statement; PS4, this is an important document. The purpose of the PS4 is to confirm the Engineers' professional opinion to the BCA that aspects of a building's design comply with the Building Code, or that elements of construction have been completed satisfactorily in accordance with the approved Building Consent (BC).

If you require TMC to issue a PS4 we will need to carry out inspection of the work at the key construction stages as per the BC, any SED, and Council requirements. TMC must have a PDF copy of the BC and the relevant associated documentation provided to us prior to attending any site construction inspection.

Specific designs / SED will likely require an Engineer to inspect that aspect of the work and confirm satisfactory completion.

During construction, site inspections also allow the timely provision of solutions and recommendations should any engineering problems arise.

Prior to works commencement, the Engineer should be contacted to confirm the construction methodologies, inspection, and testing frequency.

Upon satisfactory completion of all the inspected work aspects, TMC would then be in a position to issue the PS4 as required by Council.

We require at least 48 hours' notice for site inspections. An additional call out fee will apply if a requested inspection is undertaken at short notice.

To request a PS4 from TMC: ensure all works have been satisfactorily completed and checked, and all documentation complete. Send an email and a PDF copy of the Building Consent to: office@tmcengineers.co.nz ensuring the subject line has: "PS4 request", followed by the "property address". A minimum fee of $200 + gst for PS4 processing and issue will apply.

7.4.2 Site Specific Inspection Requirements

Structural assessment of existing retaining structures, etc. will be required both in the first instance and before any construction commencement.

Based on our ground investigation and site assessment, together with the information provided to TMC at the time of report writing, we recommend the following Engineer inspections during construction as a minimum (where applicable):

- Site cut and excavations check;
- Compaction – Fill;
- Bored pile holes and drilling tailings;
- Footings;
- Reinforced Concrete Slab / Raft Type Slab (pre-pour).

It should be noted that additional construction inspections will likely be required by the; Structural Engineer, BCA, etc. as part of the Building Consent compliance and other Quality Assurance processes.

7.5 EARTHWORKS

7.5.1 General

All earthworks should be undertaken in accordance with both the District and Regional rules.

In addition, we recommend that all earthworks activities be carried out in full accordance with the following technical publications, in particular:

i. Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region June 2016 Guideline Document 2016/005.

ii. Auckland Council; Building on small sites - Doing it right. BC5850.

Refer for downloads the above Auckland Council documentation as below:

https://ourauckland.aucklandcouncil.govt.nz/articles/news/2017/09/auckland-council-leads-the-way-in-erosion-and-sediment-control/

https://www.aucklandcouncil.govt.nz/building-and-consents/understanding-building-consents-process/starting-building-renovation-work/Documents/bc5850-building-small-sites-brochure.pdf

iii. New Zealand Standard Code of Practice for Earthfill for Residential Development, NZS 4431:2022.

iv. Code of Practice for Urban Land Subdivision – NZS 4404:2010, and

v. Any other relevant publications, including any of the above as superseded.

Some general recommendations are provided below, however where possible site-specific advice should be sought from an appropriately experienced Engineer.

We strongly recommend that earthworks are not undertaken during wet or extreme dry conditions, etc.

7.5.2 Site Specific Earthworks Requirements

On this site: We strongly recommend to the Designer of any site works that involve cutting or filling, that the proposal will need to be discussed with a a Geotechnical Engineer in the first instance.

Preceding any site development works, a Geotechnical Engineer should be contacted to discuss the earthworks methodology, inspection requirements and testing frequency.

All earthworks and foundation excavations should be inspected by a Chartered Professional Engineer or their Agent, who is familiar with this site and the contents of this suitability report to confirm ground conditions encountered are as anticipated or advise otherwise.

Appropriate drainage should be installed as required, above and at the toe of all unretained cuts.

Any fill placement within 3.0 m of the building envelope will be subject to controlled filling operations, with fill placement inspection, testing and approval by the above Engineer.

Measures must be taken to protect the exposed moist soils from drying out. Maintaining the natural moisture content of the subgrade soils may be achieved by fine spraying with water. An

impermeable membrane or similar should be placed immediately above the subgrade after the excavation of the topsoil, etc.

Thereafter, all exposed soils should be re-grassed, planted, covered, or paved as soon as practicable to reduce the risk of erosion, scour, etc.

7.5.3 Site Clearance and Preparation

All deleterious material including any uncontrolled fill, vegetation, topsoil, etc. should be removed from all proposed foundation / construction areas.

Wherever any deposits of soft, or other unsuitable material is encountered at the surface cut / foundation level at the building site, it should in general, be undercut and replaced with Engineer approved compacted fill, or as otherwise recommended by the Engineer.

If cut and / or imported materials are stockpiled on site, stockpiles must be located well clear of the works and formed in an appropriate manner so that land stability and / or existing structures, etc. are not compromised.

7.5.4 Temporary and Permanent Earthworks

Particular care should be taken during the construction phase with respect to excavations to form the benches for building platforms, access driveways, retaining walls, etc.

The building site should be shaped to assist in stormwater run-off. Any excavation left open should be protected and or left in a state as to not pond water. Saturating site soils may result in a reduction of bearing capacities.

Depending on the ground conditions and groundwater levels, etc. at the time of construction, temporary support may be required to stabilise any cuts that are excavated. In addition, all cuts / exposed soils should be adequately protected to prevent inclement moisture changes to the exposed soils.

7.6 STORMWATER AND DRAINAGE

7.6.1 Stormwater and Surface Water Control

Stormwater run-off from the development should be appropriately controlled and managed on-site both in accordance with the New Zealand Building Code and as per Council requirements.

Stormwater flows must not be allowed to run onto or over site slopes, or to saturate the ground so as to adversely affect slope stability or foundation conditions, etc.

As a minimum, runoff from any higher ground should be intercepted by means of shallow surface drains or small bunds to ensure protection of the building platform from both saturation and erosion.

Water collected in interceptor drains should be diverted away from the building site to a disposal point as appropriate.

Concentrated stormwater flows from driveways, tanks, roofed and paved areas, etc. must be collected and carried in sealed pipes or drains and discharged in a controlled manner to a disposal point as appropriate.

Subsequent to drainage construction, a programme of regular monitoring must be initiated to assess the continued effectiveness of drainage function and if necessary, the instigation of any maintenance required to ensure fully effective drainage, etc.

The Development Designer will need to confirm the drainage proposals compliance with all of the above requirements.

7.6.2 Stormwater Assessment Criteria

The outline, design and recommendations contained within this report are in accordance with the following requirements and documentation;

- New Zealand Building Code Clause E1 – Surface water.
- The Regional Rules.

Based on the above criteria, stormwater attenuation will be required for this property development.

7.6.3 Stormwater System Design

The proposed stormwater system is designed to take the increased stormwater runoff generated from the impermeable areas formed in the construction of the currently proposed new development, and to attenuate and manage these flows as below:

- A collection system is to be installed to direct roof runoff from the dwelling to a single 25,000 L ‘Promax’ or equivalent water tank for stormwater attenuation.
- It is recommended that the managed overflow from the attenuation tank be disposed of through controlled dispersal via a suitable level spreader or other energy dissipating device located downslope and away from the building site.

7.6.4 Design Parameters

Based on the plans provided at the time of report writing, we have designed for a proposed dwelling roof area of approximately 200 m^2. We have allowed for an uncaptured driveway / patio area of approximately 80 m^2. Therefore, the total impermeable area for the attenuation design has been assessed as being 280 m^2.

Rainfall intensities have been taken from the HIRDs V4 data where indicated, and an allowance for a 20% increase for the effects of climate change has been included in the system design calculations.

7.6.5 Attenuation Design

Attenuation Tank

A single 25,000 litre attenuation tank is to be utilised receiving flows from the proposed dwelling roof catchment.

Two orifice outlets to the attenuation tank are to be installed to reduce post development flows from the property.

Stormwater overflow from the tank is to be via a 100 mm diameter overflow pipe at the top of the tanks and is to be thereafter piped to a level spreader or other appropriate controlled dispersal device.

The tank should be positioned in such a way to allow sufficient gravity-fall from the tank outlet to the appropriate dispersal device.

Suitable litter filters or leaf slides shall be installed in line between the roof catchments and the attenuation tank. The filters will require regular inspection and cleaning in accordance with the manufacturers recommendations to ensure the effective operation of the system. The frequency of cleaning will also depend on any future plantings around the proposed development, etc.

The proposed system will provide the attenuation requirements for the proposed development and allows approximately 15,880 L of capacity for potential reuse and tank stability.

Tank system dimensions and volumes are shown in the Table below and on the attached calculation sheets.

Parameter	Orifice diameter	Orifice invert location
ARI 5	**25.0 mm**	**912 mm** below overflow invert
ARI 100	**24.0 mm**	**427 mm** below overflow invert
Tank Size	**25,000 litres @ 3.6 m Ø**	
ARI 5	**5,100 litres**	
ARI 100	**9,120 litres**	
Stability	**15,880 litres**	

Table: Attenuation Tank System Dimensions and Volumes

A Typical Attenuation Tank Arrangement is shown in the Figure below.

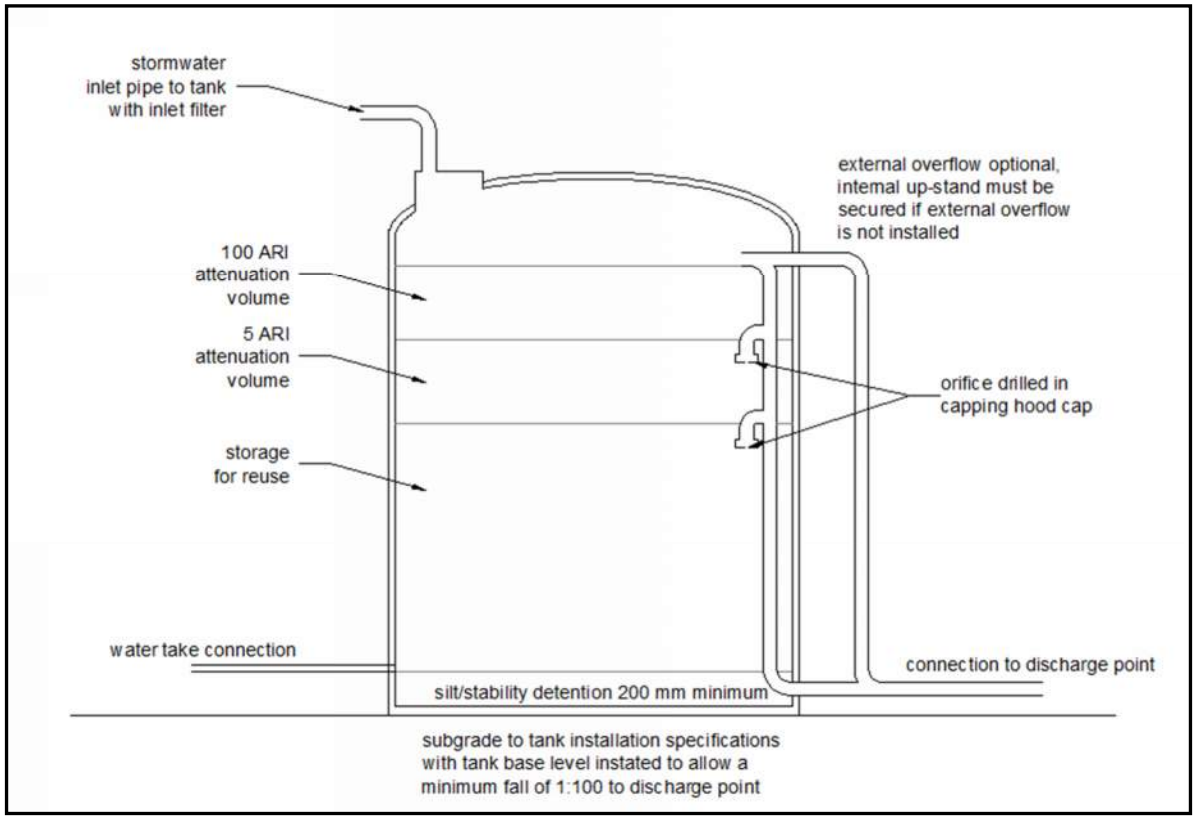


Figure: Typical Attenuation Tank Arrangement (Not to Scale)

7.6.6 Level Spreader Design

Given the natural topography of the site, it is recommended that the captured stormwater runoff is discharged by controlled dispersal via a suitable level spreader or other suitable energy dissipating dispersal device. This device should be located downslope of the building site to the south-east, well away from the proposed building platform and not to compromise any site slope stability, etc. Refer to the Site Plan for indicative location.

A typical design arrangement of a level spreader device is provided in the Report Appendices. The following indicative design is based on the Client information supplied at the time of report writing.

For design, we have used the rational formula to calculate the length of level spreader needed to achieve a rate of dispersed discharge of less than 2 L/sec/m as per FNDC ES Section 4.2.5.

Therefore Q = CIA/360
Where C = Coefficient of discharge = 0.96
I = Rainfall intensity (HIRDS rainfall data, ARI 100 for a 10 min duration) = 140 mm/hr
A = Area of development = 280 m^2 (0.0280 ha)

Q = 0.96 x 140 x 0.0280 / 360 = 0.0105 m^3/s
= 10.5 L/s

To achieve the 2 L/sec/m dispersed discharge requirement and to calculate the length of spreader/drain coil required:

Length = 10.5/2 = 5.3 m

Therefore, a 5.3 m long level spreader is to be placed at the end of the discharge pipe from the tank overflow.

8. ON-SITE WASTEWATER MANAGEMENT

8.1 INTRODUCTION

8.1.1 General

With regard to on-site wastewater management, this section of the report: presents the results of the site assessment; the design of an on-site wastewater disposal system to service the new development; and provides recommendations in accordance with the following documentation:

- The site soil category,
- The site environment and size of the property,
- AES design documentation,
- AS/NZS1547:2012 taking into consideration the above.
- Auckland Council TP58, and
- The Regional Rules.

A statement concerning an assessment of environmental effects is also provided.

The proposed design is based on the information supplied by our Client at time of report writing, refer; Section 1.1 and 'Client Supplied Information' attached.

8.1.2 Property Summary

Other than where already provided elsewhere in this report, additional property details relevant to on-site wastewater management are summarised in the Table below.

Aspect	Description / Comments
District Council	Far North District Council (FNDC)
Council Environment	Coastal Residential
Council Services	Water reticulation - no Stormwater reticulation – no
Potable water supply	To be provided by on-site rainwater tanks

Table: Additional Property Details Summary

8.1.3 Regional Rules Summary

A general summary of the Regional permitted activity rules for wastewater current at the time of report writing is Tabulated as follows:

Feature / Aspect	Primary treated domestic type wastewater	Secondary and tertiary treated domestic type wastewater
Exclusion Areas		
Floodplain	5 percent annual exceedance probability	
Horizontal and vertical setback distances		
Property boundary	1.5 metres	
Buildings	3.0 metres	
Identified stormwater flow path (including a formed road with kerb and channel, and water-table drain) that is down-slope of the disposal area	5 metres	
River, lake, stream, pond, dam or natural wetland	20 metres	15 metres
Any ground water bores	20 metres	
Groundwater table (winter) clearance from the lowest point of the disposal field	1.2 metres (vertical)	0.6 metres (vertical)
Reserve disposal field area		
A reserve disposal field area equivalent to; (%) of the design disposal field area is allowed for and set aside.	100%	30%
Discharge volumes		
Discharge volume does not exceed:	a) three cubic metres per day (3,000L), averaged over the month of greatest discharge, and b) six cubic metres per day over any 24-hour period	

Table: Summary of Regional Permitted Activity Rules for proposed Wastewater Disposal Fields

8.2 SITE ASSESSMENT

8.2.1 Site Assessment Summary

The information contained in the Site Assessment Summary Table below has been provided in accordance with the requirements of both the design Standards and the Regional Rules.

Aspect	Summary
Geology	The local geology and the soils at the property are described in Section 4.1.
Soil and Groundwater Investigation	A soil and groundwater investigation borehole was drilled to a depth of 0.9 m in the location of the proposed wastewater effluent disposal field (Borehole 4). Boreholes 1 - 3 were also used to assess soil profile and any groundwater levels. Borehole locations are shown on the appended site plan and the Borelogs are also attached.
Ground Conditions	The natural subsurface conditions encountered are considered to be generally consistent with the published geological information. The investigated site consists of moist; Silty CLAY, with approximately 0.3 m of TOPSOIL overlying, refer: 'BH Logs' attached. No fill, rocks or boulders were observed in the proposed location of the wastewater effluent field. No recent instability was observed in the area of the proposed disposal field.
Site Soil Classification and Topography	In terms of AS/NZS 1547:2012, site soils are assessed as a Category 5; Light Clays. The land at the recommended location of the proposed wastewater disposal field is generally averaging <5°. We recommend the disposal field be located beneath the existing gravelled driveway.
Groundwater and Surface Water	No groundwater was encountered during the ground investigations. It is unlikely that there will be seasonal variations in soil drainage that will impact negatively on the disposal system. Parekura Bay is located approximately 140 m to the north of the property.
Precipitation	Annual rainfall is in the order of 1400mm. Rainfall intensity is approximately 51.4 mm/hr for a storm with a 10% probability of occurring annually and of one-hour duration.
Permeation Testing	No permeation tests were carried out due to both the site topography and nature of the soils encountered in the boreholes.

Table: Site Assessment Summary

8.3 WASTEWATER MANAGEMENT SYSTEM DESIGN

8.3.1 Proposed System

An Advanced Enviro-Septic (AES) secondary treated wastewater system by Environment Technology (ET) is proposed. This proposed system design that follows is based on:

- The site soil category,
- Information provided by Client at the time of report writing,
- The topography and elevation at the proposed disposal field,
- The site environment and size of the property,
- AES design documentation, and
- AS/NZS1547:2012, and Council rules, taking into consideration the above.

8.3.2 System Design Parameters

Based on the information provided and available at the time of report writing, the wastewater system design parameters for the proposed dwelling are summarised in the Table below.

Summary of Design Parameters	
Client stated number of bedrooms (equivalent)	3 bedrooms
Combined Occupancy Allowance*	5 person maximum occupancy
Daily Occupant Flow Allowance	145 L/person/day
Total Daily Flow Rate	725 L/day
Loading rate for AES pipes (L/m AES p/d)	38.0
Soil category	5
Design Loading Rate (DLR)	12 mm/day
No. of Rows of AES Pipes	2
Min. length of AES pipe rows	9.54 m
No. of 3m AES pipes per row	4 lengths
AES Pipe Bed Dimensions	12.6 m x 1.35 m
AES Bed Extension Dimensions	12.6 m x 3.44 m
AES Bed Dimensions Including Side Extension	12.6 m x 4.79 m
AES Bed Footprint Required	60.4 m^2
Reserve Area (30%)	18.1 m^2
Water supply	Rainwater tanks
Water Reduction reuse / Water conservation fixtures	– Standard water reduction fixtures (including automatic washing machines) and dual flush toilets. – No grey-water reuse recycling proposed. – No garbage grinder unit allowed for in the system design.

Table: Summary of Design Parameters and Disposal Field Areas for Proposed Dwelling

Notes to the Table:

*Occupancy allowance is assessed on the number of identified bedrooms noted on the Client supplied proposal; 3-bedrooms. The design occupancy is derived from Table J1 of AS/NZS 1547:2012.

8.3.3 Wastewater Treatment

It is proposed to install an AES secondary treated wastewater system. This system consists of a conventional septic tank which disposes to a proprietary "bed" system which treats effluent to a secondary standard through an aerobic process within the bed itself.

The proposed system should be installed in full compliance with the AES technical requirements and complying with all the requirements of both the Regional Rules and AS/NZ1547.

In addition to the above, the basic treatment system and performance requirements are summarised as follows:

- Total holding capacity should comprise; a minimum 4,500 L primary treatment septic tank with the outlet tee in septic tank capped to isolate bed venting to the AES bed only,
- Bed to be vented with an 80 mm dia. low and high vent, with the high vent a minimum of 3 m in elevation above the low vent,
- Bed 'System Sand' to meet the specific requirements of the AES system, refer www.et.nz/system-sand-suppliers/ for ET tested AES System Sand suppliers,
- Base of bed to be scarified to 100 mm min,
- All other system installation in accordance with AES requirements, refer 'AES Technical Drawings' attached in appendices, and
- System discharge quality exceeds secondary level requirements. AES has been internationally certified to Advanced Secondary Standards with results of;
    - BOD5: < 2 mg/L,
    - TSS: < 2mg/L,
    - Faecal Coliform: 218CFU/100ml

8.3.4 Treated Wastewater Effluent Disposal System

Advanced Enviro-Septic (AES) Treatment Bed System

The objective of the irrigation systems' wastewater discharge to land at the disposal field(s) is to provide further treatment of the wastewater effluent via assimilation through the site soil matrix.

The areal loading rate is determined according to soil characteristics and environmental constraints, with lower loading rates being adopted as appropriate for sites' having environmental limitations.

For design purposes, based on a visual and tactile inspection of the soils, we have classified the soils as Category 5 in terms of AS/NZS 1547:2012. We have therefore used a loading rate of 12 mm/day for a secondary treated wastewater disposal system. Refer also Table: Summary of Design Parameters for Proposed Dwelling

Surface water from developed areas should be collected by drains or sumps and discharged as per Section 7.6.

For a design flow rate of 725 litres/day, a 12.6 m long x 4.79 m wide (60.4 m^2) AES soakage bed arrangement will be required for soakage. A further area of 18.1 m^2 is to be set aside as the minimum 30% reserve disposal field area as required by the Regional rules. A minimum bed depth of 0.90 m is required (see detail below and Technical Drawings in appendices). The effluent disposal bed should be installed along the natural contours of the ground.

A total area of 78.5 m^2 should be set aside on the site for the AES bed. The total area also includes the reserve area of 18.1 m^2 which is required to be set aside in the event of the disposal system failing or any future house extensions, etc.

It is proposed to construct the disposal bed beneath the driveway area due to the lack of flat space available at the property. The 'AES Bed Traffic Loading Pavement Detail' will need to be followed to ensure that the bed is adequately protected from vehicle traffic (refer 'AES Wastewater Design' attached in the appendices).

With the area available on the subject property and based on the information available to TMC at the time of report writing, it is our current opinion that the AES on-site wastewater management system can be installed that will satisfy the parameters set out in AS/NZS 1547:2012 and the Regional Rules.

A producer statement should be provided by the supplier of the wastewater treatment system (Environment Technology).

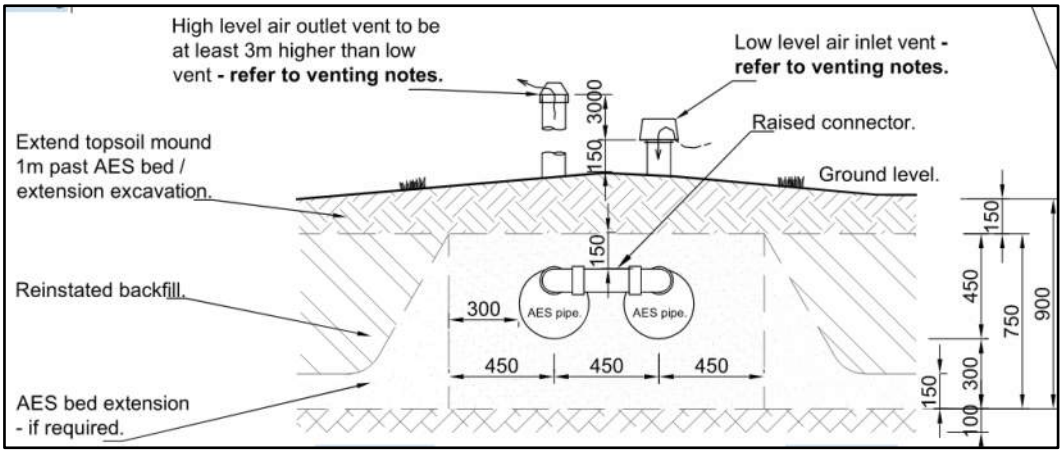


Figure: AES Bed Construction Cross Section *(source; ET)*

8.3.5 Wastewater System Design: Summary

The wastewater system design is summarised in the Table below.

Proposed system	AES Secondary treatment system disposing via a proprietary bed
Design Occupancy	5 persons
Water Source	On-site rainwater storage tanks (145 l/p/d)
Design Flow Rate	725 L/day
Site Soil Category	5 – Light Clays (AS/NZS 1547:2012)
Loading Rate	12 mm/day
Required Disposal Field Area	60.4 m^2
Required Reserve Field Area	18.1 m^2 (30% the above)

Table: Wastewater Management System - Design Summary

8.3.6 Additional Recommendations

To protect against wastewater treatment system failure, the system must provide a contingency (buffer) of at least 24 hours' storage capacity and both a visible and audible alarm to alert the Homeowners to any possible problem(s).

In addition to the above, Homeowners can help by looking out for any advanced warning signs that the system / disposal field area is not functioning properly, in this way any system malfunction can be addressed at an early stage and not left until a more significant failure occurs.

The manufacturers of wastewater treatment systems supply detailed maintenance schedules. On-going regular maintenance and management of the proposed on-site system in accordance with both the Manufacturers' requirements and this report will be required to ensure that the system operates effectively at all times.

Environment Technology provide specific guidance with regards to the maintenance and management of the AES wastewater disposal system. We have attached a copy for the Clients reference, Refer: 'AES Maintenance and Management' and 'AES Owner's Manual' attached in the appendices.

Avoidance of using cleaners and chemicals that destroy bacteria and limiting use of cleaning detergents with high sodium and phosphorus levels can assist to maintain good function within both the wastewater treatment and effluent discharge systems.

8.4 ASSESSMENT OF ENVIRONMENTAL EFFECTS

The site receiving soils have been assessed as Category 5 in terms of AS/NZS 1547:2012. With a daily application rate of 12 mm/day, the soil should be capable of coping well with long-term application of treated wastewater effluent.

Similar wastewater systems operating throughout the Northland region produce no noticeable odour or noise impact on Neighbours or the Homeowners themselves if both installed and maintained properly.

Based on the information currently provided. our site assessment and calculations, we consider that the site is able to provide for the sustainable treatment and land application of treated domestic wastewater effluent generated from the proposed residential dwelling.

As the proposed system discharge flow does not exceed 3,000 litres/day and complies with the groundwater and surface water clearance, etc. requirements as specified in the current Regional Rules, the application falls under Permitted Activities and therefore a Discharge Consent is not required.

Provided that all the recommendations of this report are followed TMC believe on reasonable grounds that on-site treated wastewater effluent disposal on this property will have no adverse effect on the environment.

LIMITATIONS

This report has been prepared solely for the use of our Client (Tania Fox and Grant Stevens) with respect to both; the particular brief and specific purpose provided to TMC Consulting Engineers Ltd. (TMC), and with regard to the specific project described herein only. No liability or any duty of care is acknowledged or accepted for the use of any part of this report in any other context or for any other purpose, or by any other person, other party or entity.

 This report does not address matters relating to the National Environmental Standard for Contaminated Sites.

The opinions, recommendations and comments given in this report are the result from the application of accepted industry methods of site investigation and are limited to technical engineering requirements. No guarantees are either expressed or implied.

Recommendations and opinions in this report are based on factual evidence that has been obtained solely from boreholes, shear vanes and Scala Penetrometer tests which by their nature only provide information about a relatively small volume of subsoils at that exact location. Consequently, there may be special conditions pertaining to this site which have not been disclosed by the investigation and which have not been taken into account in our report.

Inferences are made about the nature and continuity of subsoils away from and beyond the testing locations but cannot be guaranteed. Therefore, it must be appreciated that actual conditions could vary considerably from those assumed in the report model.

The soil descriptions detailed on the exploratory bore logs provided are based on the field descriptions of the soils encountered.

During the processes of site development and construction, an Engineer competent to judge whether the ground conditions encountered are compatible with the assumptions made in this report, should inspect the site. In all circumstances, if any variations in the ground conditions occur which differ from those described or are assumed to exist, then it is essential that the matter be referred to TMC immediately to advise accordingly as any variation may affect the design parameters, etc. recommended in the report.

The soil performance behaviour outlined by this report is dependent on the construction activity and actions of the builder/contractor. Inappropriate actions before or during the construction phase may cause behaviour outside the limits provided in this report.

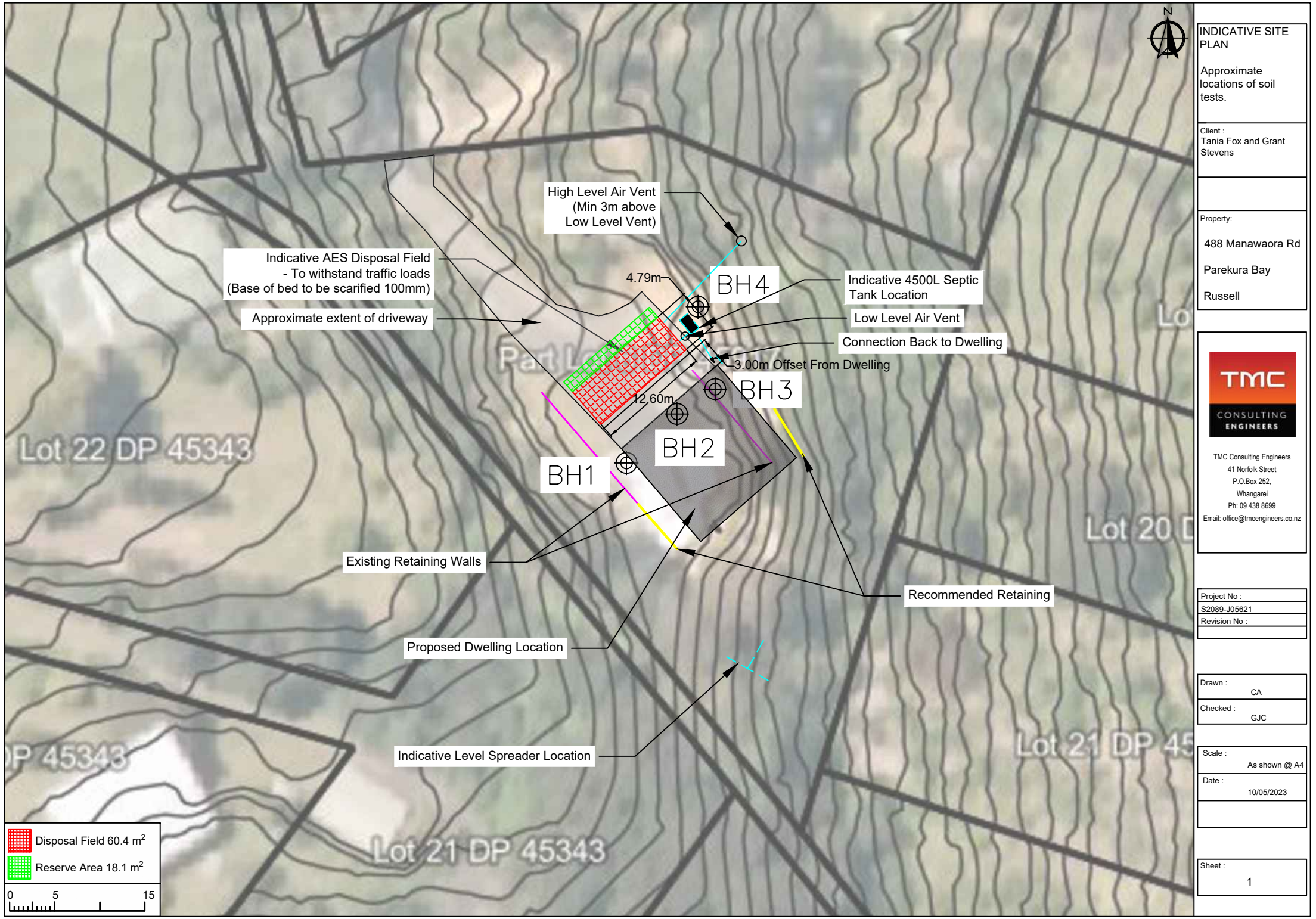
With regard to the design of an on-site wastewater management or stormwater system in this report, all concept drainage design is up to the external connection point for any new building / structures / slabs; Designs for internal plumbing or any other waste / stormwater related work, etc. are excluded.

All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

APPENDICES

Table of Contents

Plans and Mapping:
Site Plan
Field Investigation Data:
Borehole Logs & Scala Penetrometer Data
Calculations:
Stormwater Attenuation AES Wastewater Design
Client Supplied Information:
Client Site Plan
Documents:
Producer Statement – PS1 On-site Wastewater Disposal Site Evaluation Investigation Checklist – TP58
Notes, other Details and Guidance:
Expansive Soils Typical Level Spreader Detail AES Maintenance and Management AES Owner's Manual



INDICATIVE SITE PLAN

Approximate locations of soil tests.

Client :
Tania Fox and Grant Stevens

Property:
488 Manawaora Rd
Parekura Bay
Russell

TMC CONSULTING ENGINEERS

TMC Consulting Engineers
41 Norfolk Street
P.O.Box 252,
Whangarei
Ph: 09 438 8699
Email: office@tmcengineers.co.nz

Project No :
S2089-J05621
Revision No :

Drawn :
CA
Checked :
GJC

Scale :
As shown @ A4
Date :
10/05/2023

Sheet :
1

BOREHOLE LOG 1

Project: 488 Manawaora Rd Russell

Client: Tania Fox and Grant Stevens

Job No: S2089-J05621

Date: 11/04/2023

TMC CONSULTING ENGINEERS

Graphic Symbol

Fill | Rock | Cobbles | Gravel | Sand | Silt | Clay | Organic Soil

In situ shear vane reading

Remoulded shear vane reading

Scala Penetrometer

5 blows/100 mm (Scala)

Depth mm	G.W.L	Geology	Graphic Log	Field Description	Undrained Shear Strength (kPa) Corrected (Per NZGS guideline)	Sensitivity	Scala Penetrometer (blows/ 100 mm)
	No groundwater observed	Waipapa Group (TJw)		100 mm TOPSOIL			
300				FILL (Silty CLAY minor gravel) brown mottled dark brown, moist, low plasticity, firm	30 / 13	2.3	
600				wet	78 / 16	5.0	
900					84 / 28	3.0	
1200				FILL (Silty CLAY), brown, moist, plastic, very stiff	168 / 50	3.4	
1500				FILL (Clayey SILT), dark brown, moist, friable, stiff	171 / 48	3.5	
1800					84 / 23	3.7	
2100					>199		
2400				FILL (Silty CLAY), orangey brown, moist, friable, very stiff	124 / 36	3.5	
2700				Buried TOPSOIL, dark brown, moist, friable, very stiff	142 / 43	3.3	
3000				Silty CLAY, light brown, moist, low plasticity to friable, very stiff	>199		
3300				Auger terminated at 3.0 m, Target Depth			
3600							
3900							
4200							
4500							
4800							
5100							

Drill Method	50 - 75 mm hand auger	
Location	Refer to site plan	NOTES 1) The subsurface data described above has been determined at this specific borehole location. The data will not identify any variations away from this location.
Inspector	JBS	
Shear Vane No	2465	2) UTP - Unable to penetrate

BOREHOLE LOG 2

Project: 488 Manawaora Rd Russell

Client: Tania Fox and Grant Stevens

Job No: S2089-J05621

Date: 11/04/2023

TMC CONSULTING ENGINEERS

Graphic Symbol

Fill | Rock | Cobbles | Gravel | Sand | Silt | Clay | Organic Soil

In situ shear vane reading

Remoulded shear vane reading

Scala Penetrometer

5 blows/100 mm (Scala)

Depth mm	G.W.L	Geology	Graphic Log	Field Description	Undrained Shear Strength (kPa) Corrected (Per NZGS guideline)	Sensitivity	Scala Penetrometer (blows/ 100 mm)
300	No groundwater observed	Waipapa Group (TJw)		Clayey SILT, light brown mottled light grey, moist, friable, very stiff	>199		
600				low core recovery	UTP		
900				Auger terminated at 0.6 m, Too Stiff to Drill			
1200							
1500							
1800							
2100							
2400							
2700							
3000							
3300							
3600							
3900							
4200							
4500							
4800							
5100							

Drill Method	50 - 75 mm hand auger	
Location	Refer to site plan	NOTES 1) The subsurface data described above has been determined at this specific borehole location. The data will not identify any variations away from this location.
Inspector	JBS	
Shear Vane No	2465	2) UTP - Unable to penetrate

BOREHOLE LOG 3

Project: 488 Manawaora Rd Russell

Client: Tania Fox and Grant Stevens

Job No: S2089-J05621

Date: 11/04/2023

TMC CONSULTING ENGINEERS

Graphic Symbol

Fill | Rock | Cobbles | Gravel | Sand | Silt | Clay | Organic Soil

In situ shear vane reading

Remoulded shear vane reading

Scala Penetrometer

5 blows/100 mm (Scala)

Depth mm	G.W.L	Geology	Graphic Log	Field Description	Undrained Shear Strength (kPa) Corrected (Per NZGS guideline)	Sensitivity	Scala Penetrometer (blows/ 100 mm)
300	No groundwater observed	Waipapa Group (TJw)		300 mm TOPSOIL			
600				Silty CLAY, orangey brown, moist, low plasticity, very stiff	107 / 28	3.8	
900					125 / 57	2.2	
1200					174 / 73	2.4	
1500				Clayey SILT, light orangey brown, moist, friable, very stiff	178 / 57	3.1	
1800					>199		
2100				SILT with some clay and fine gravel, light brown, moist, friable, very stiff	178 / 28	6.3	
2400					185 / 28	6.5	
2700					150 / 36	4.2	
3000					>199		
3300				Auger terminated at 3.0 m, Target Depth	>199		
3600							
3900							
4200							
4500							
4800							
5100							

Drill Method	50 - 75 mm hand auger	
Location	Refer to site plan	NOTES 1) The subsurface data described above has been determined at this specific borehole location. The data will not identify any variations away from this location.
Inspector	JBS	
Shear Vane No	2465	2) UTP - Unable to penetrate

SOIL & GROUNDWATER LOG 4

Project: 488 Manawaora Rd Russell

Client: Tania Fox and Grant Stevens

Job No: S2089-J05621

Date: 11/04/2023

TMC CONSULTING ENGINEERS

Graphic Symbol


Fill


Rock


Cobbles


Gravel


Sand


Silt


Clay


Organic Soil

In situ shear vane reading

Remoulded shear vane reading

Scala Penetrometer

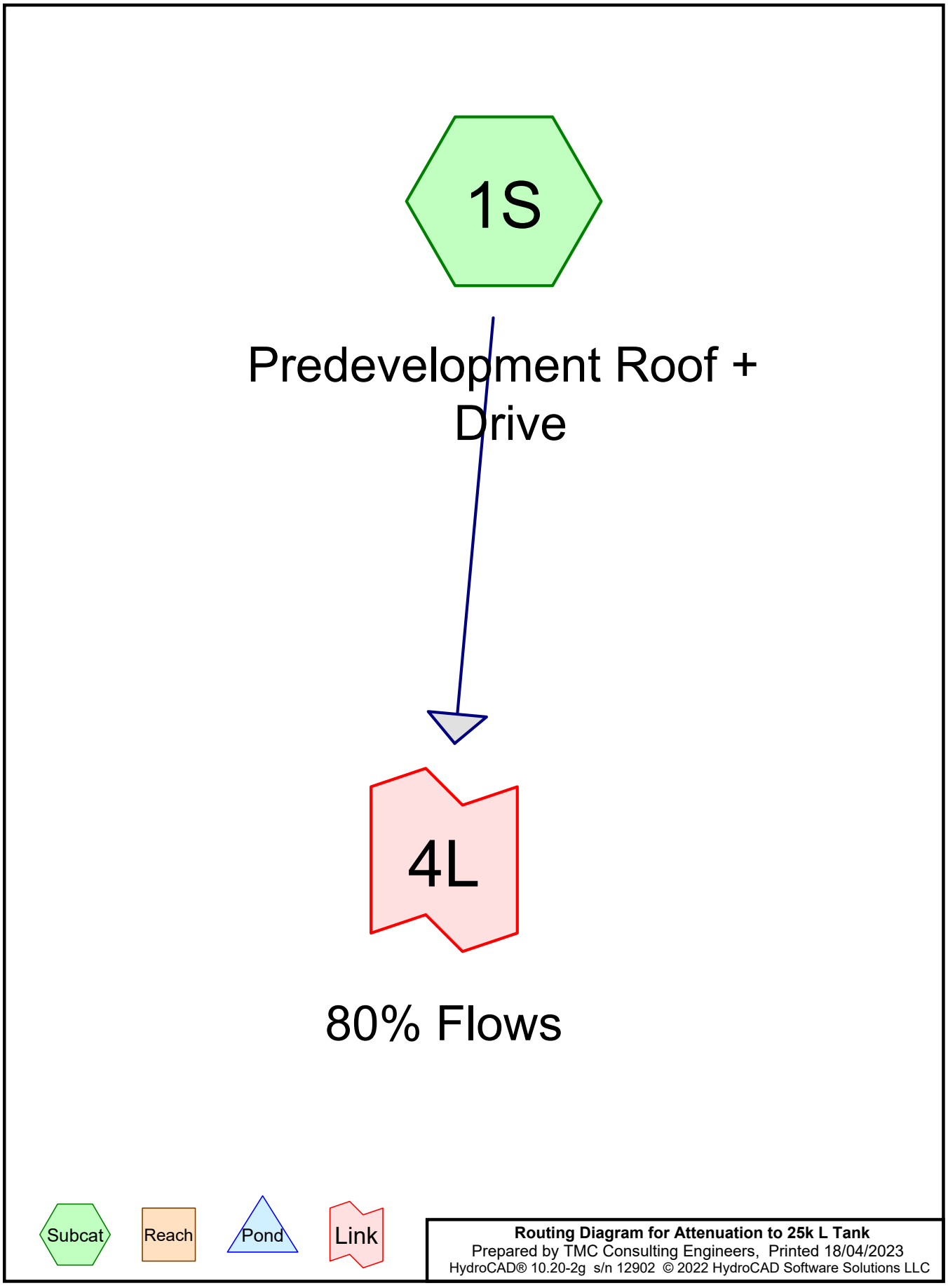
5 blows/100 mm (Scala)

Depth mm	G.W.L	Geology	Graphic Log	Field Description	Undrained Shear Strength (kPa) Corrected (Per NZGS guideline)	Sensitivity	Scala Penetrometer (blows/ 100 mm)
300	No groundwater observed	Waipapa Group (TJw)		300 mm TOPSOIL			
600				Silty CLAY, orangey brown, moist, low plasticity			
900				Auger terminated at 0.9 m, Target Depth			
1200							
1500							
1800							
2100							
2400							
2700							
3000							
3300							
3600							
3900							
4200							
4500							
4800							
5100							

Drill Method	50 - 75 mm hand auger
Location	Refer to site plan
Inspector	JBS
Shear Vane No	2465

NOTES 1) The subsurface data described above has been determined at this specific borehole location. The data will not identify any variations away from this location.

2) UTP - Unable to penetrate



Routing Diagram for Attenuation to 25k L Tank
Prepared by TMC Consulting Engineers, Printed 18/04/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (mm)	AMC
1	1% AEP	Type IA 24-hr		Default	24.00	1	258	2
2	20% AEP	Type IA 24-hr		Default	24.00	1	144	2

Area Listing (selected nodes)

Area (sq-meters)	CN	Description (subcatchment-numbers)
280.0	86	<50% Grass cover, Poor, HSG C (1S)
280.0	**86**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-meters)	Soil Group	Subcatchment Numbers
0.0	HSG A	
0.0	HSG B	
280.0	HSG C	1S
0.0	HSG D	
0.0	Other	
280.0		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-meters)	HSG-B (sq-meters)	HSG-C (sq-meters)	HSG-D (sq-meters)	Other (sq-meters)	Total (sq-meters)	Ground Cover
0.0	0.0	280.0	0.0	0.0	280.0	<50% Grass cover, Poor
0.0	**0.0**	**280.0**	**0.0**	**0.0**	**280.0**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: PredevelopmentRoof Runoff Area=280.0 m² 0.00% Impervious Runoff Depth>219 mm
Tc=10.0 min CN=86 Runoff=4.33 l/s 61.4 m³

Link 4L: 80% Flows x 0.80 Inflow=4.33 l/s 61.4 m³
Primary=3.46 l/s 49.1 m³ Secondary=0.87 l/s 12.3 m³

Total Runoff Area = 280.0 m² Runoff Volume = 61.4 m³ Average Runoff Depth = 219 mm
100.00% Pervious = 280.0 m² 0.00% Impervious = 0.0 m²

Summary for Subcatchment 1S: Predevelopment Roof + Drive

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

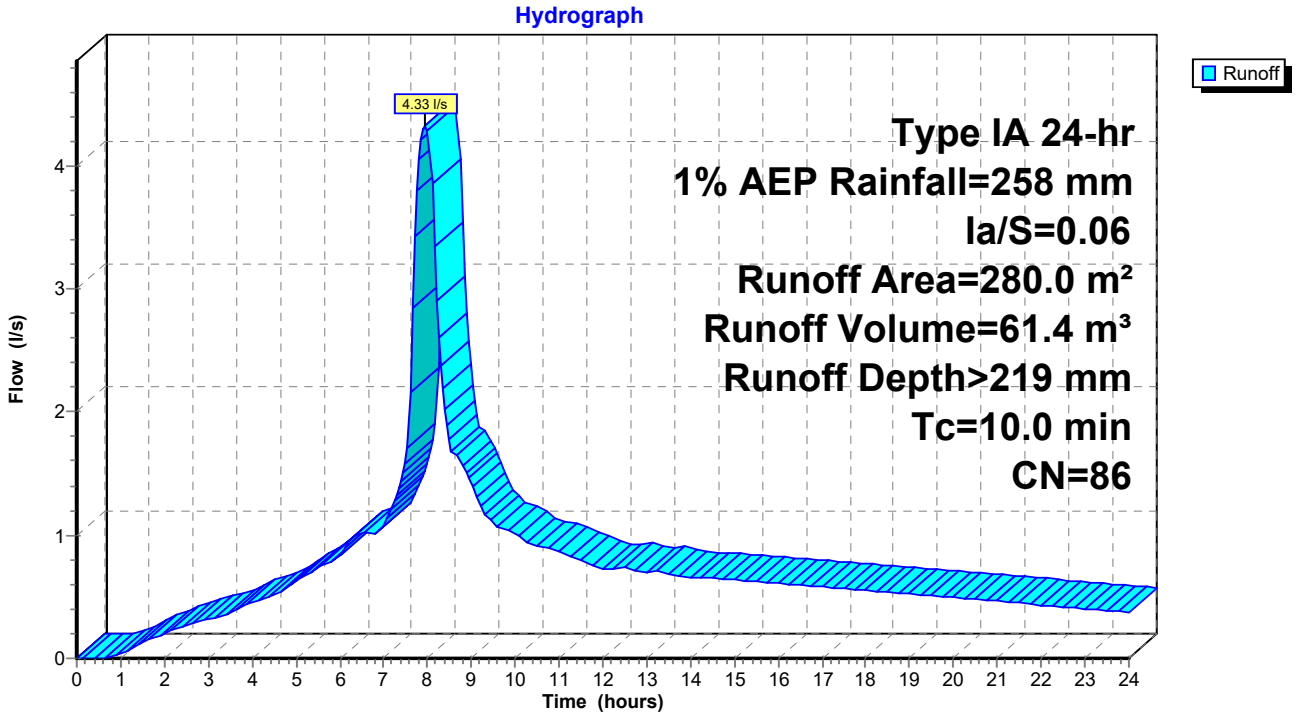
Runoff = 4.33 l/s @ 7.95 hrs, Volume= 61.4 m³, Depth> 219 mm
Routed to Link 4L : 80% Flows

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 1% AEP Rainfall=258 mm, Ia/S=0.06

Area (m²)	CN	Description
280.0	86	<50% Grass cover, Poor, HSG C
280.0		100.00% Pervious Area

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

Subcatchment 1S: Predevelopment Roof + Drive

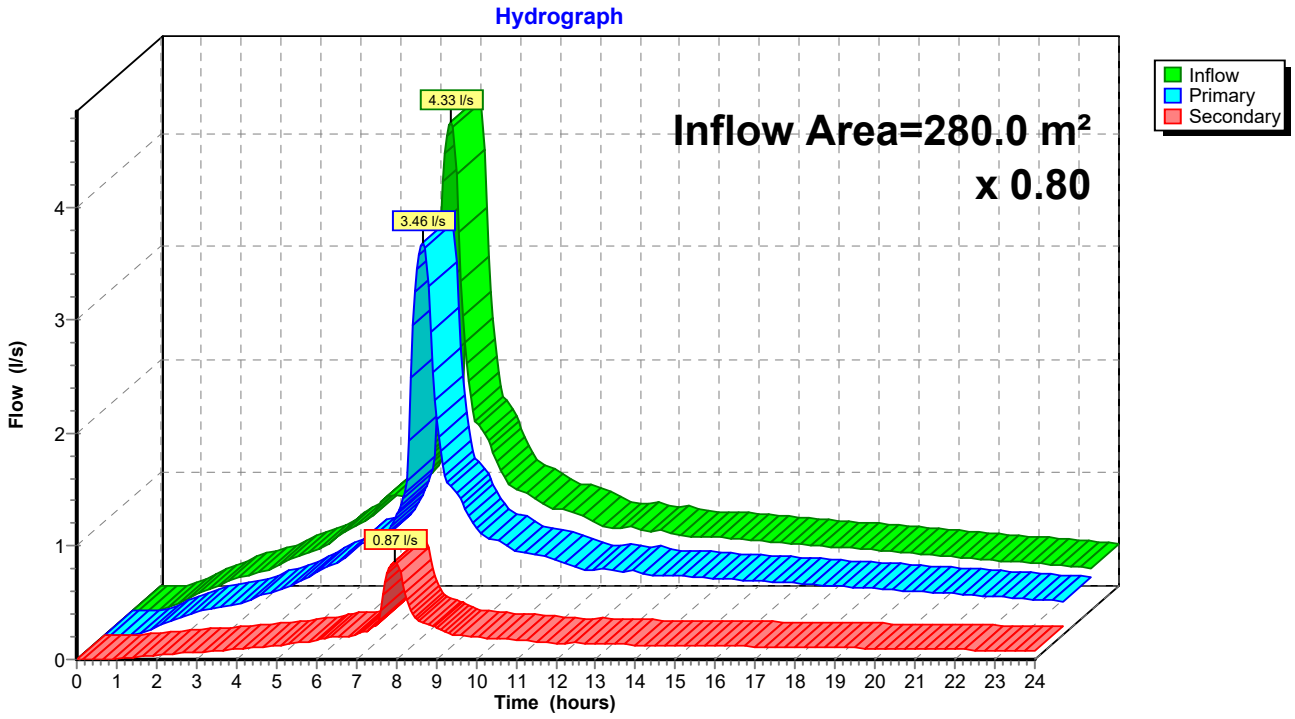


Summary for Link 4L: 80% Flows

Inflow Area = 280.0 m², 0.00% Impervious, Inflow Depth > 219 mm for 1% AEP event
Inflow = 4.33 l/s @ 7.95 hrs, Volume= 61.4 m³
Primary = 3.46 l/s @ 7.95 hrs, Volume= 49.1 m³, Atten= 20%, Lag= 0.0 min
Secondary = 0.87 l/s @ 7.95 hrs, Volume= 12.3 m³

Primary outflow = Inflow x 0.80, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: 80% Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: PredevelopmentRoof Runoff Area=280.0 m² 0.00% Impervious Runoff Depth>109 mm
Tc=10.0 min CN=86 Runoff=2.14 l/s 30.6 m³

Link 4L: 80% Flows x 0.80 Inflow=2.14 l/s 30.6 m³
Primary=1.71 l/s 24.5 m³ Secondary=0.43 l/s 6.1 m³

Total Runoff Area = 280.0 m² Runoff Volume = 30.6 m³ Average Runoff Depth = 109 mm
100.00% Pervious = 280.0 m² 0.00% Impervious = 0.0 m²

Summary for Subcatchment 1S: Predevelopment Roof + Drive

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

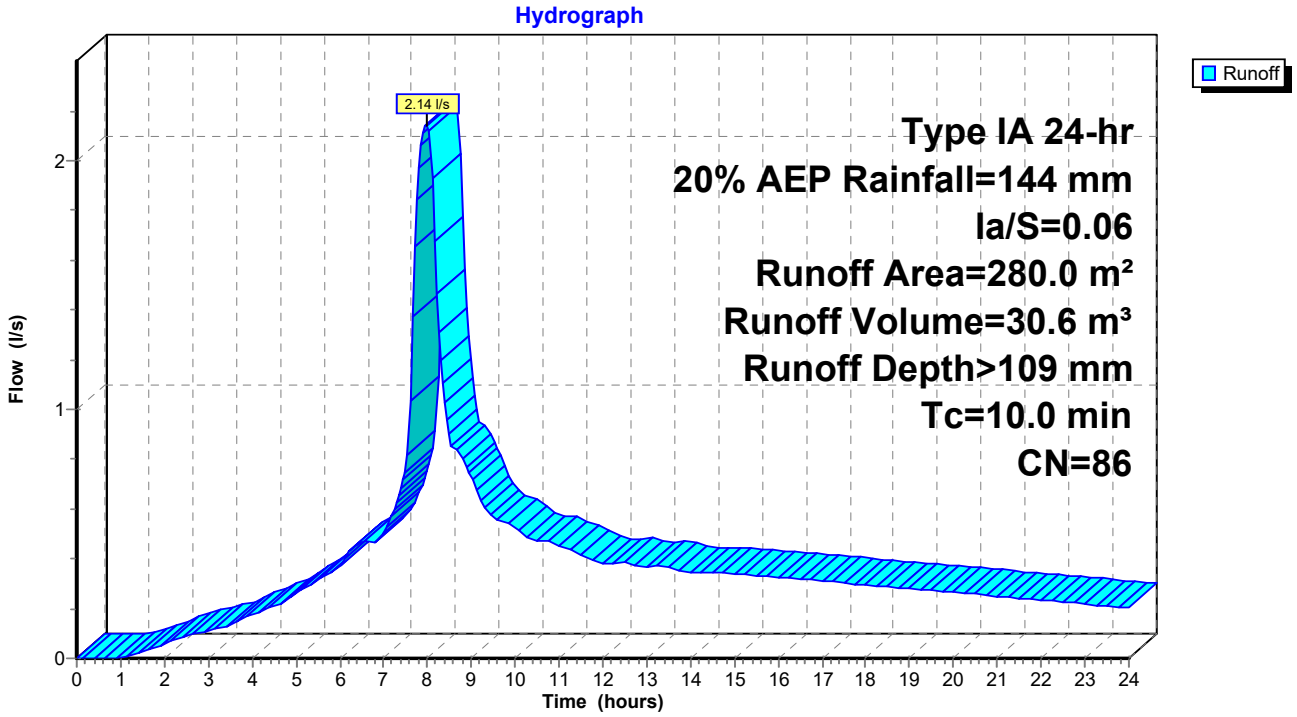
Runoff = 2.14 l/s @ 7.97 hrs, Volume= 30.6 m³, Depth> 109 mm
Routed to Link 4L : 80% Flows

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP Rainfall=144 mm, Ia/S=0.06

Area (m²)	CN	Description
280.0	86	<50% Grass cover, Poor, HSG C
280.0		100.00% Pervious Area

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

Subcatchment 1S: Predevelopment Roof + Drive

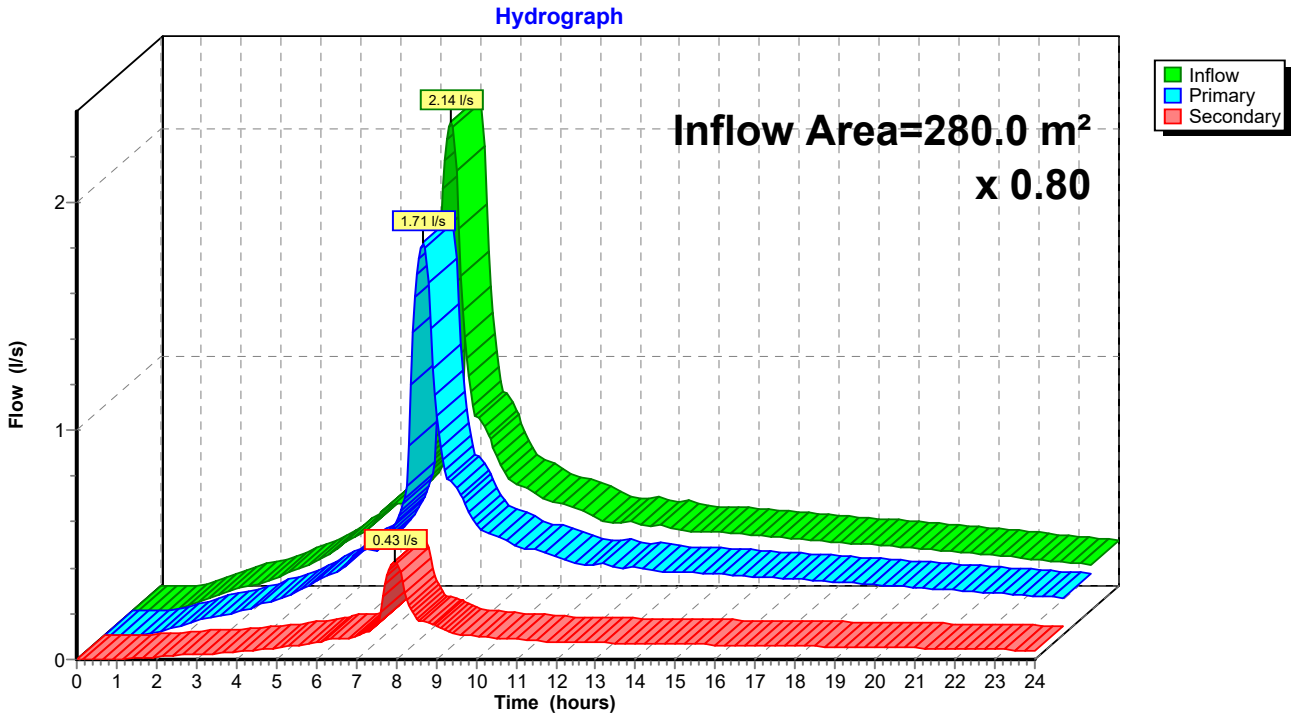


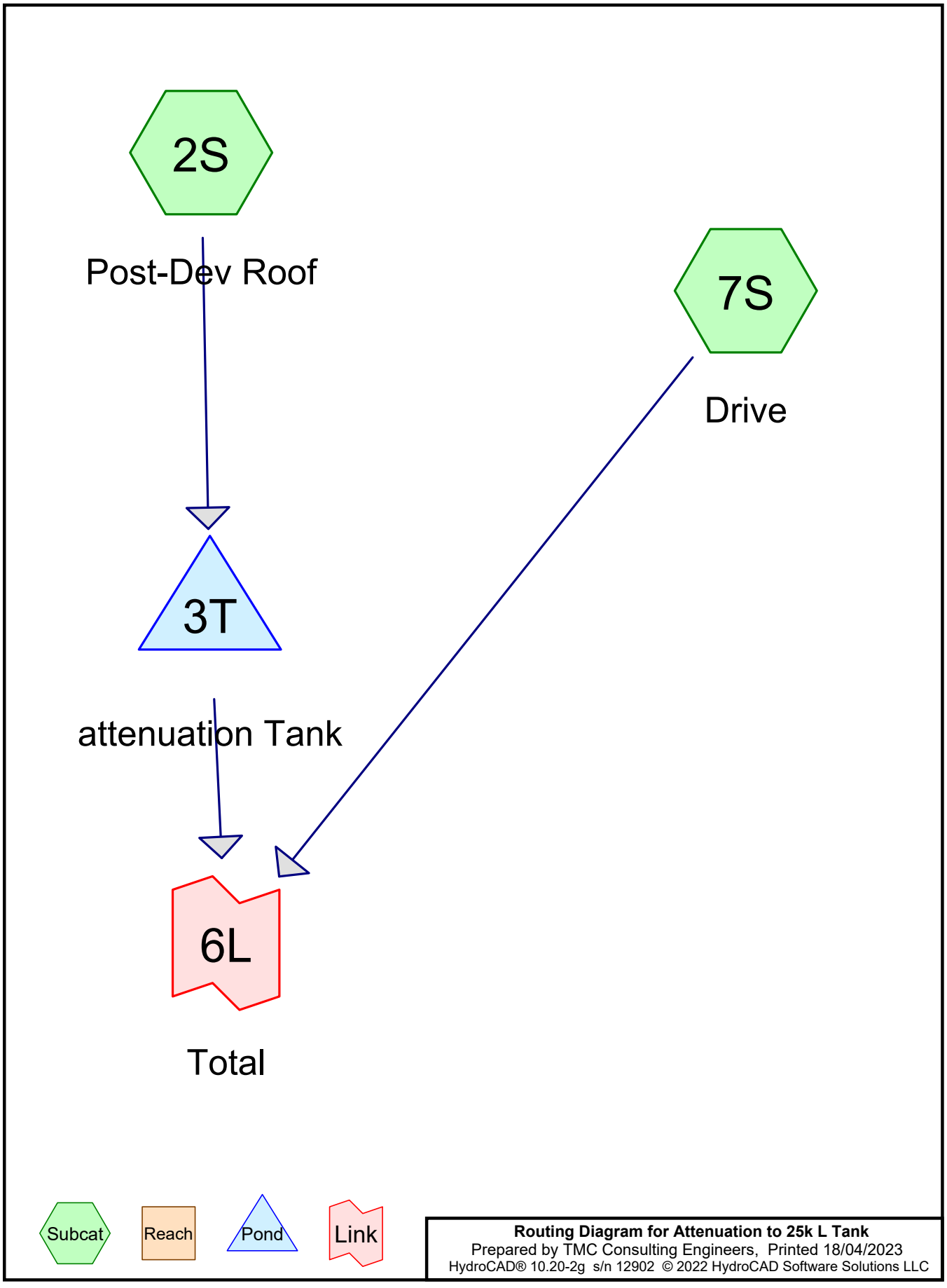
Summary for Link 4L: 80% Flows

Inflow Area = 280.0 m², 0.00% Impervious, Inflow Depth > 109 mm for 20% AEP event
Inflow = 2.14 l/s @ 7.97 hrs, Volume= 30.6 m³
Primary = 1.71 l/s @ 7.97 hrs, Volume= 24.5 m³, Atten= 20%, Lag= 0.0 min
Secondary = 0.43 l/s @ 7.97 hrs, Volume= 6.1 m³

Primary outflow = Inflow x 0.80, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: 80% Flows





Routing Diagram for Attenuation to 25k L Tank
Prepared by TMC Consulting Engineers, Printed 18/04/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (mm)	AMC
1	1% AEP+20%	Type IA 24-hr		Default	24.00	1	310	2
2	20% AEP +20%	Type IA 24-hr		Default	24.00	1	173	2

Area Listing (selected nodes)

Area (sq-meters)	CN	Description (subcatchment-numbers)
80.0	98	Paved parking, HSG C (7S)
200.0	98	Roofs, HSG C (2S)
280.0	**98**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-meters)	Soil Group	Subcatchment Numbers
0.0	HSG A	
0.0	HSG B	
280.0	HSG C	2S, 7S
0.0	HSG D	
0.0	Other	
280.0		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-meters)	HSG-B (sq-meters)	HSG-C (sq-meters)	HSG-D (sq-meters)	Other (sq-meters)	Total (sq-meters)	Ground Cover	Subcatchr Numbers
0.0	0.0	80.0	0.0	0.0	80.0	Paved parking	
0.0	0.0	200.0	0.0	0.0	200.0	Roofs	
0.0	**0.0**	**280.0**	**0.0**	**0.0**	**280.0**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment2S: Post-Dev Roof Runoff Area=200.0 m² 100.00% Impervious Runoff Depth>304 mm
Tc=10.0 min CN=98 Runoff=4.09 l/s 60.8 m³

Subcatchment7S: Drive Runoff Area=80.0 m² 100.00% Impervious Runoff Depth>304 mm
Tc=10.0 min CN=98 Runoff=1.64 l/s 24.3 m³

Pond 3T: attenuation Tank Peak Elev=0.912 m Storage=9.6 m³ Inflow=4.09 l/s 60.8 m³
Outflow=2.01 l/s 59.8 m³

Link 6L: Total Inflow=3.44 l/s 84.1 m³
Primary=3.44 l/s 84.1 m³

Total Runoff Area = 280.0 m² Runoff Volume = 85.1 m³ Average Runoff Depth = 304 mm
0.00% Pervious = 0.0 m² 100.00% Impervious = 280.0 m²

Summary for Subcatchment 2S: Post-Dev Roof

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

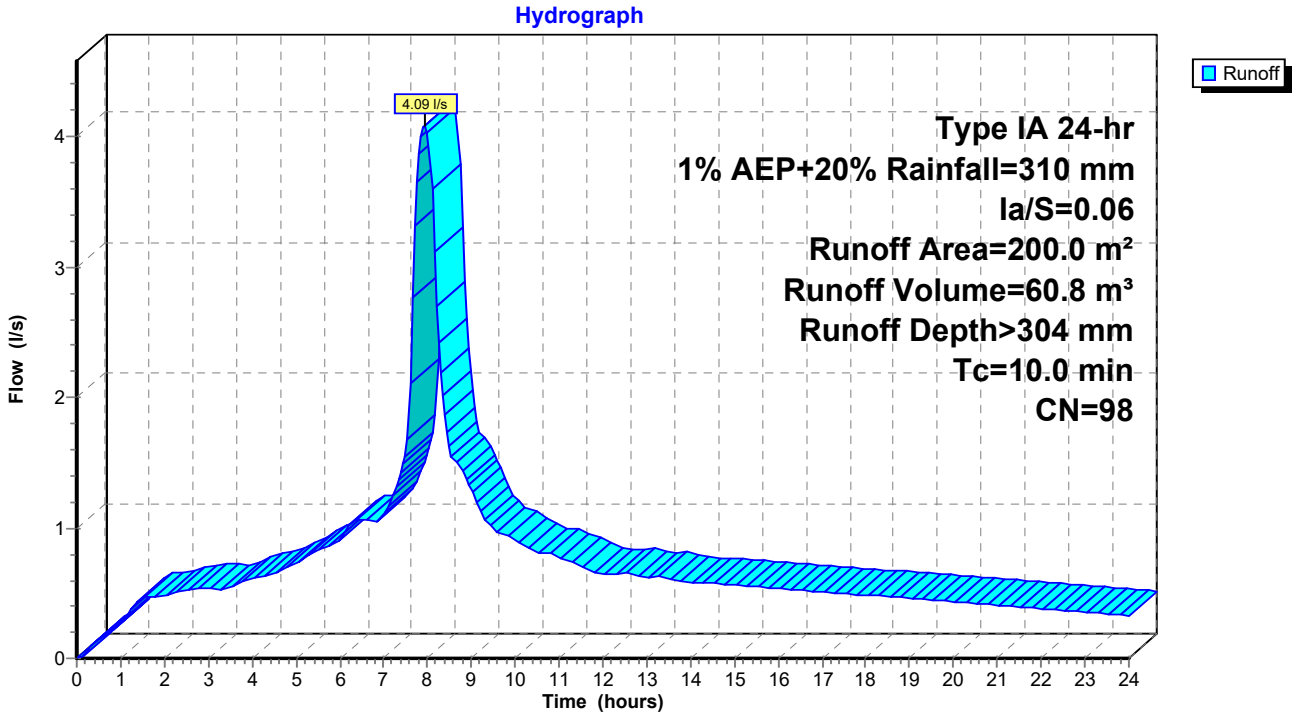
Runoff = 4.09 l/s @ 7.94 hrs, Volume= 60.8 m³, Depth> 304 mm
Routed to Pond 3T : attenuation Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 1% AEP+20% Rainfall=310 mm, Ia/S=0.06

Area (m²)	CN	Description
200.0	98	Roofs, HSG C
200.0		100.00% Impervious Area

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

Subcatchment 2S: Post-Dev Roof



Summary for Subcatchment 7S: Drive

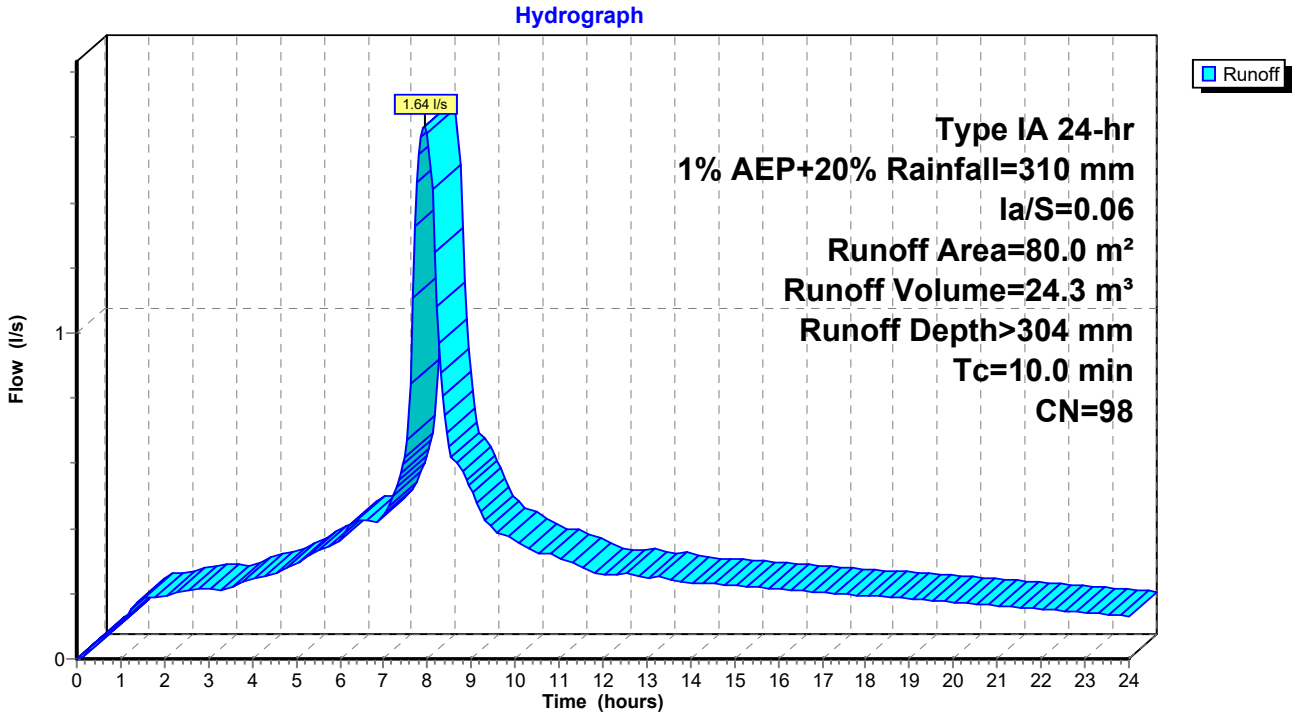
Runoff = 1.64 l/s @ 7.94 hrs, Volume= 24.3 m³, Depth> 304 mm
Routed to Link 6L : Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 1% AEP+20% Rainfall=310 mm, Ia/S=0.06

Area (m²)	CN	Description
80.0	98	Paved parking, HSG C
80.0		100.00% Impervious Area

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

Subcatchment 7S: Drive



Summary for Pond 3T: attenuation Tank

Inflow Area = 200.0 m²,100.00% Impervious, Inflow Depth > 304 mm for 1% AEP+20% event
Inflow = 4.09 l/s @ 7.94 hrs, Volume= 60.8 m³
Outflow = 2.01 l/s @ 8.35 hrs, Volume= 59.8 m³, Atten= 51%, Lag= 25.0 min
Primary = 2.01 l/s @ 8.35 hrs, Volume= 59.8 m³
Routed to Link 6L : Total

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 0.912 m @ 8.35 hrs Surf.Area= 10.5 m² Storage= 9.6 m³

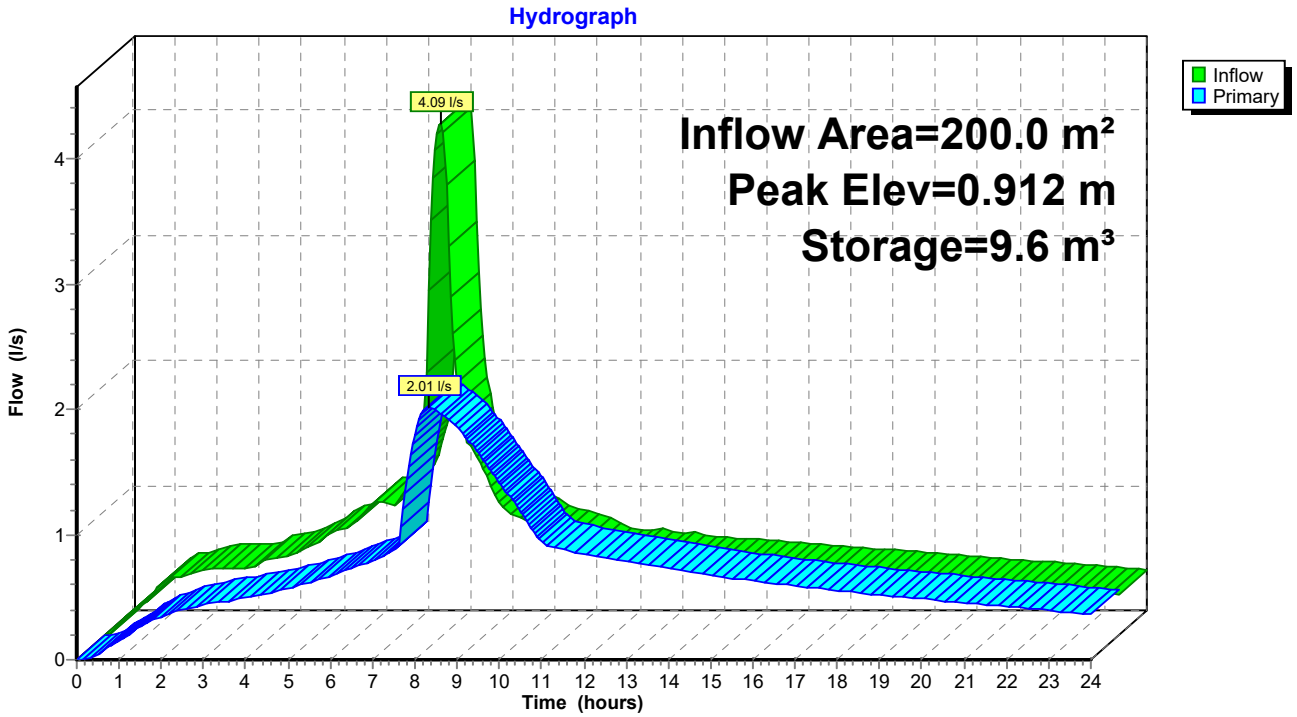
Plug-Flow detention time= 70.6 min calculated for 59.7 m³ (98% of inflow)
Center-of-Mass det. time= 58.2 min (700.7 - 642.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	24.2 m³	**3.66 mD x 2.30 mH Vertical Cone/Cylinder**

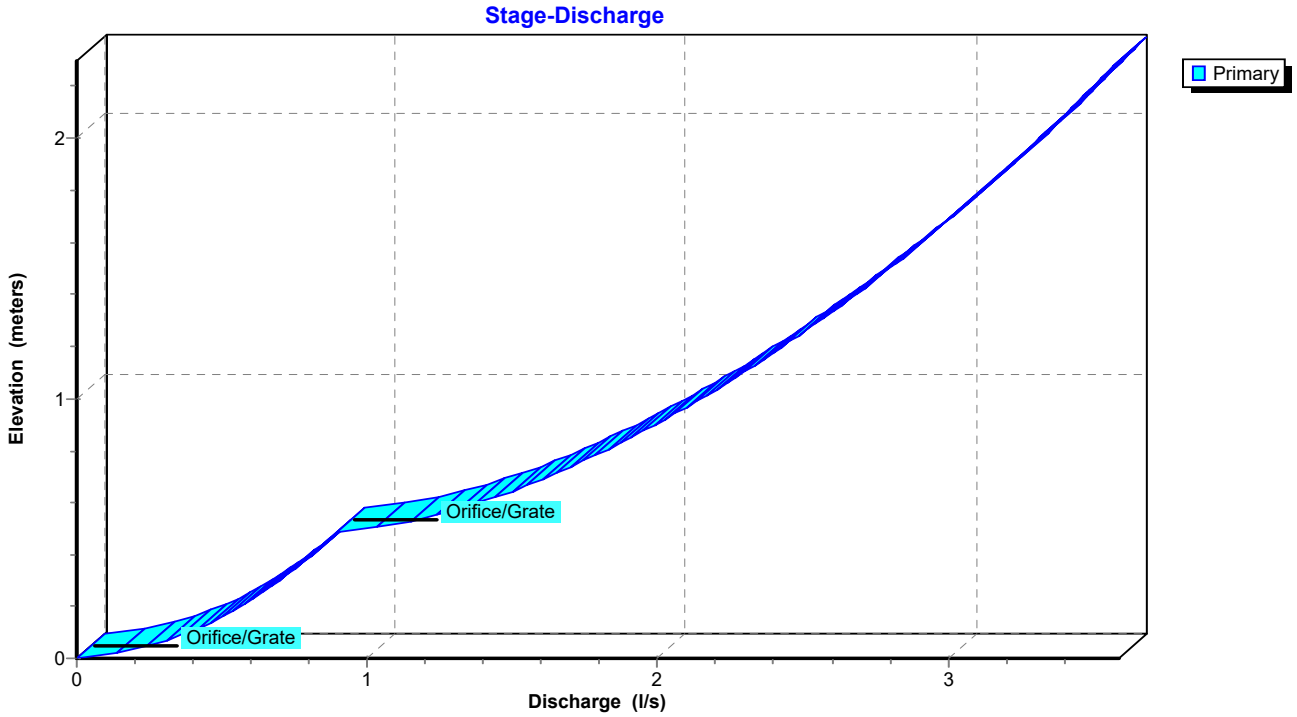
Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**25 mm Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	0.485 m	**24 mm Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.01 l/s @ 8.35 hrs HW=0.912 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.24 l/s @ 2.52 m/s)
└**2=Orifice/Grate** (Orifice Controls 0.77 l/s @ 1.71 m/s)

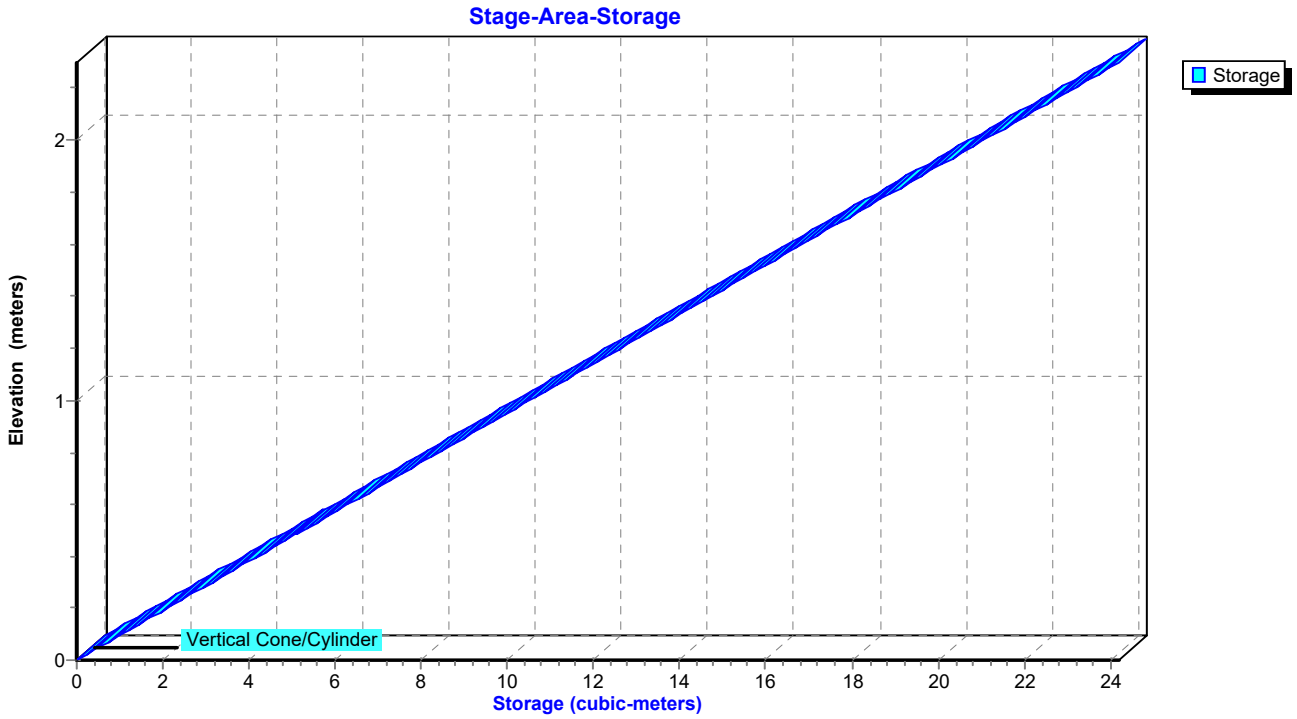
Pond 3T: attenuation Tank



Pond 3T: attenuation Tank



Pond 3T: attenuation Tank

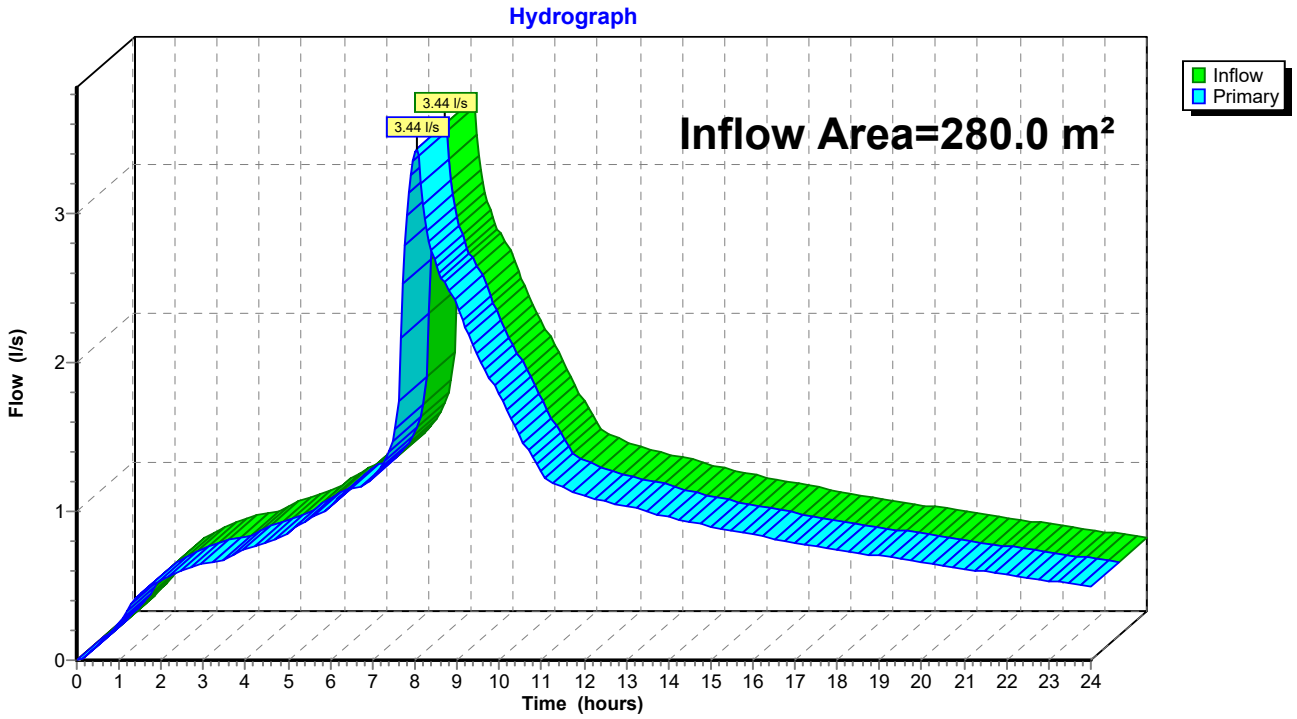


Summary for Link 6L: Total

Inflow Area = 280.0 m²,100.00% Impervious, Inflow Depth > 300 mm for 1% AEP+20% event
Inflow = 3.44 l/s @ 8.04 hrs, Volume= 84.1 m³
Primary = 3.44 l/s @ 8.04 hrs, Volume= 84.1 m³, Atten= 0%, Lag= 0.0 min

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

Link 6L: Total



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment2S: Post-Dev Roof Runoff Area=200.0 m² 100.00% Impervious Runoff Depth>167 mm
Tc=10.0 min CN=98 Runoff=2.27 l/s 33.4 m³

Subcatchment7S: Drive Runoff Area=80.0 m² 100.00% Impervious Runoff Depth>167 mm
Tc=10.0 min CN=98 Runoff=0.91 l/s 13.4 m³

Pond 3T: attenuation Tank Peak Elev=0.485 m Storage=5.1 m³ Inflow=2.27 l/s 33.4 m³
Outflow=0.90 l/s 33.1 m³

Link 6L: Total Inflow=1.70 l/s 46.5 m³
Primary=1.70 l/s 46.5 m³

Total Runoff Area = 280.0 m² Runoff Volume = 46.8 m³ Average Runoff Depth = 167 mm
0.00% Pervious = 0.0 m² 100.00% Impervious = 280.0 m²

Summary for Subcatchment 2S: Post-Dev Roof

This subcatchment reproduces the runoff calculation from Sample Job #1 in the TR-20 manual.

Since TR-20 has no CN or Tc calculation procedures, these values have been entered directly, rather than using HydroCAD's built-in CN lookup table and Tc calculation procedures.

The resulting peak flow of 2176cfs is approximately 4% higher than the published TR-20 value of 2097cfs. This difference occurs at small Tc values due to the additional detail provided by the polynomial-based rainfall distributions used in HydroCAD.

If a more exact TR-20 match is desired, an optional "Type II 24-hr Tabular" rainfall definition is available, which produces a peak runoff of 2099cfs, just 0.1% higher than TR-20.

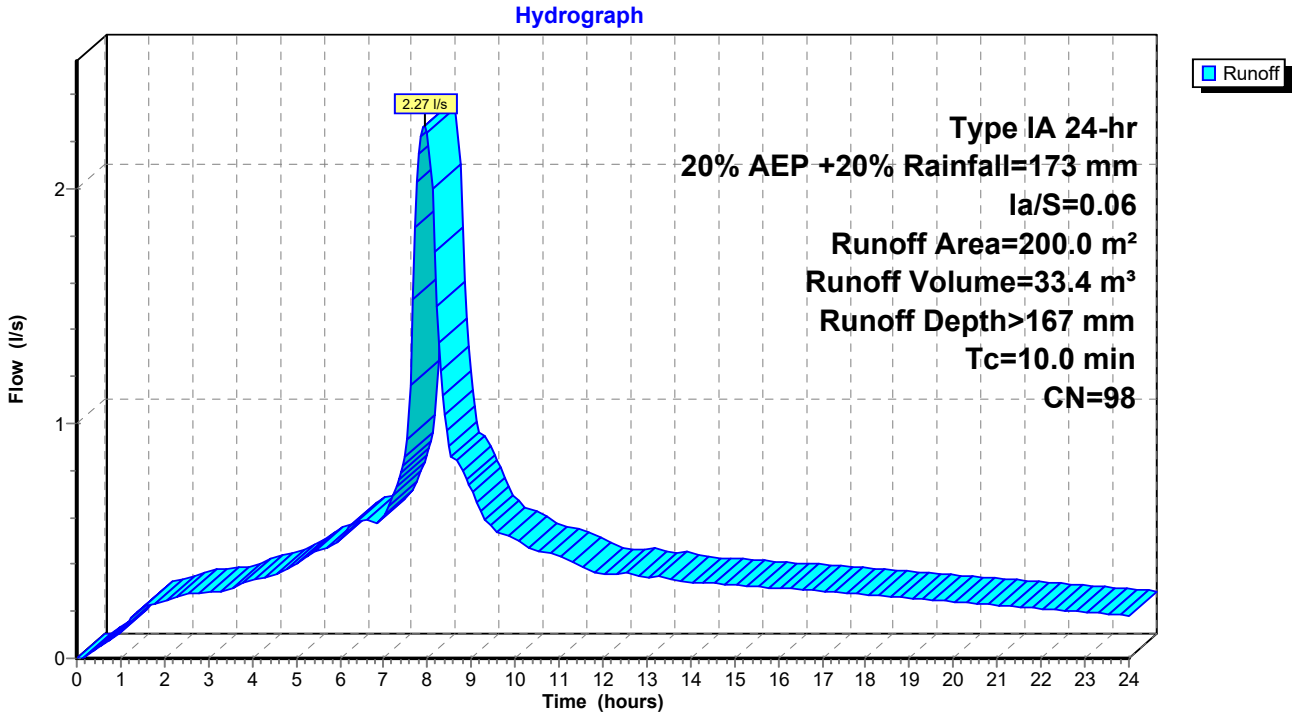
Runoff = 2.27 l/s @ 7.94 hrs, Volume= 33.4 m³, Depth> 167 mm
Routed to Pond 3T : attenuation Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP +20% Rainfall=173 mm, Ia/S=0.06

Area (m²)	CN	Description
200.0	98	Roofs, HSG C
200.0		100.00% Impervious Area

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

Subcatchment 2S: Post-Dev Roof



Summary for Subcatchment 7S: Drive

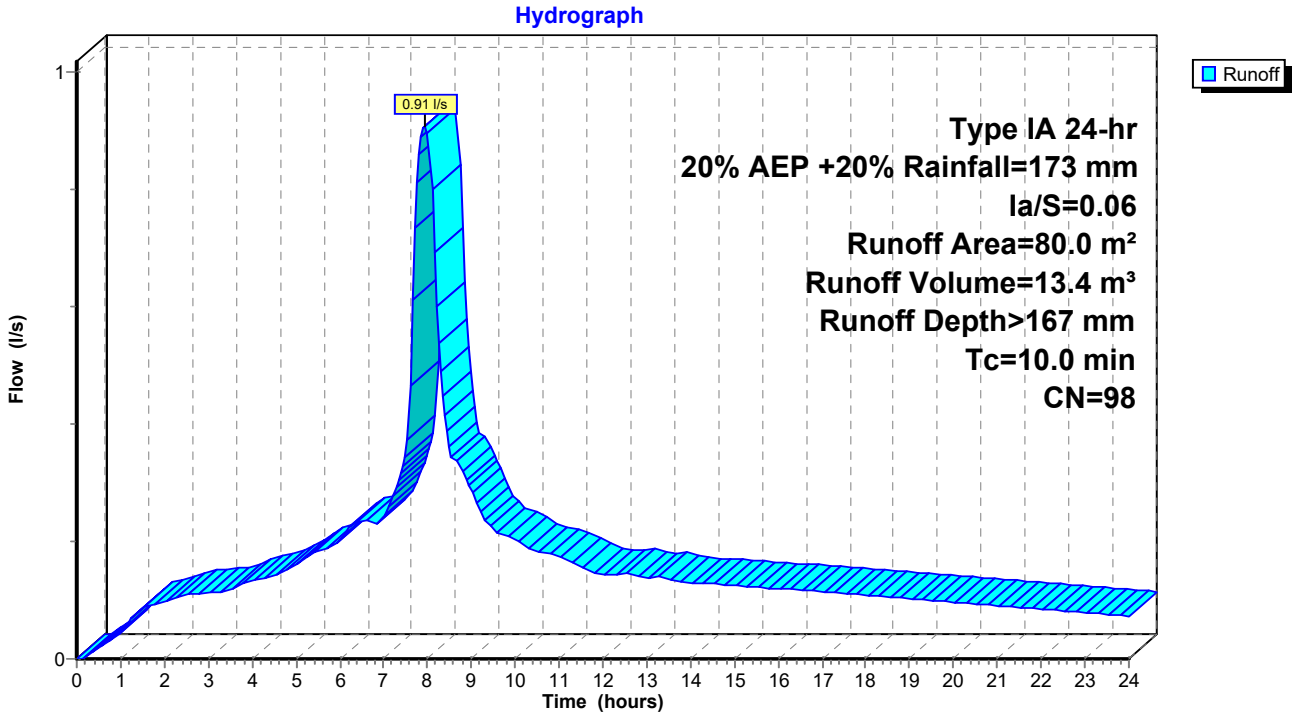
Runoff = 0.91 l/s @ 7.94 hrs, Volume= 13.4 m³, Depth> 167 mm
Routed to Link 6L : Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP +20% Rainfall=173 mm, Ia/S=0.06

Area (m²)	CN	Description
80.0	98	Paved parking, HSG C
80.0		100.00% Impervious Area

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

Subcatchment 7S: Drive



Summary for Pond 3T: attenuation Tank

Inflow Area = 200.0 m²,100.00% Impervious, Inflow Depth > 167 mm for 20% AEP +20% event
Inflow = 2.27 l/s @ 7.94 hrs, Volume= 33.4 m³
Outflow = 0.90 l/s @ 8.51 hrs, Volume= 33.1 m³, Atten= 61%, Lag= 34.4 min
Primary = 0.90 l/s @ 8.51 hrs, Volume= 33.1 m³
Routed to Link 6L : Total

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 0.485 m @ 8.51 hrs Surf.Area= 10.5 m² Storage= 5.1 m³

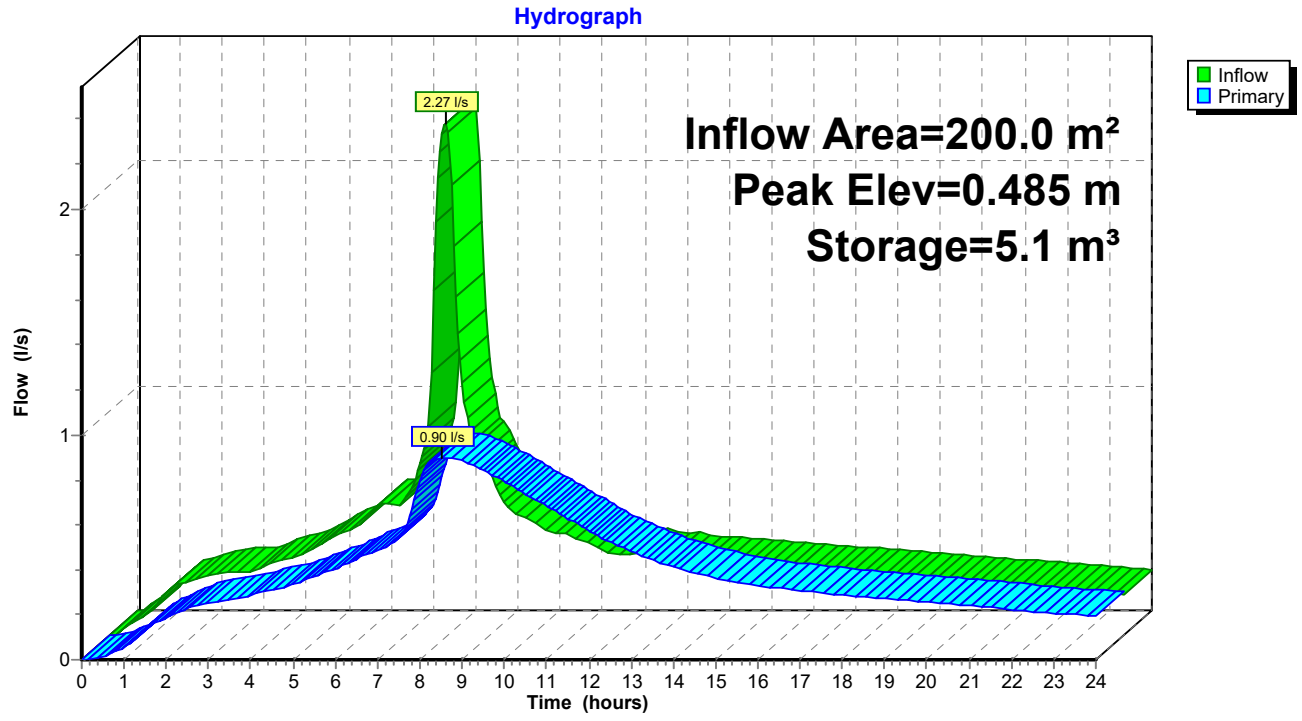
Plug-Flow detention time= 57.4 min calculated for 33.1 m³ (99% of inflow)
Center-of-Mass det. time= 48.6 min (697.3 - 648.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	24.2 m³	**3.66 mD x 2.30 mH Vertical Cone/Cylinder**

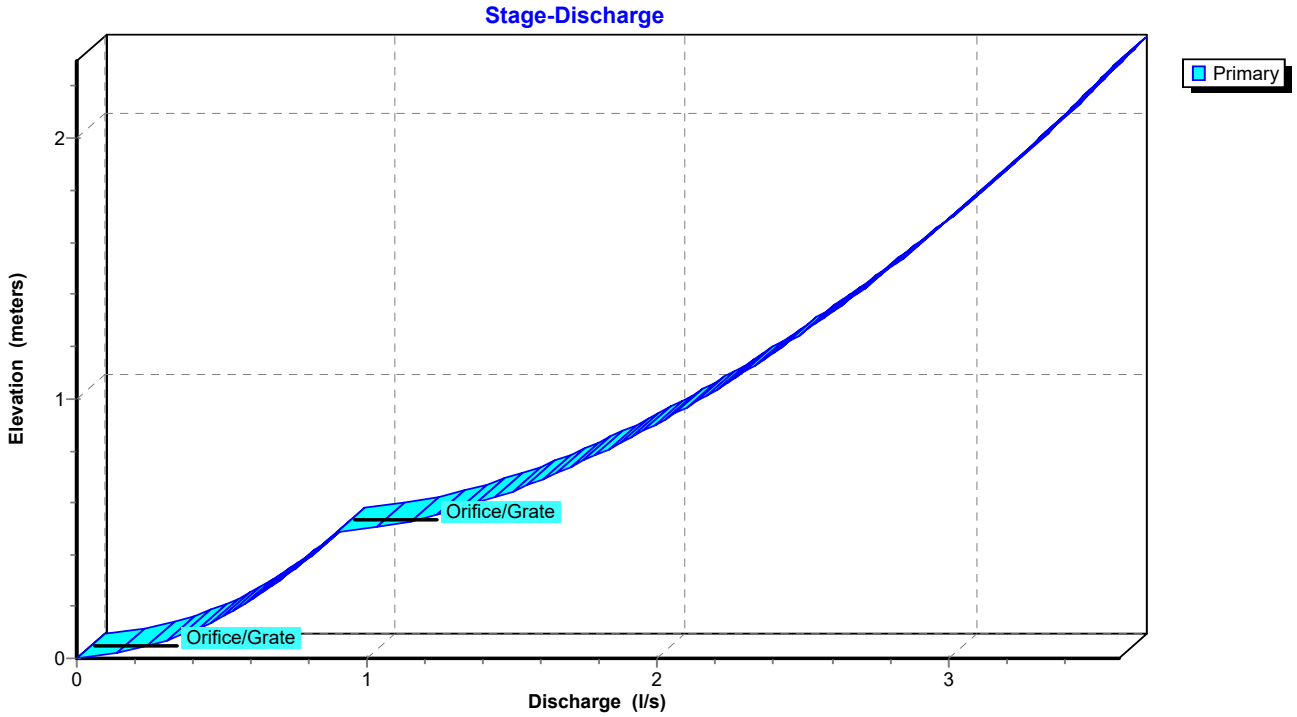
Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**25 mm Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	0.485 m	**24 mm Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.90 l/s @ 8.51 hrs HW=0.485 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.90 l/s @ 1.83 m/s)
└**2=Orifice/Grate** (Controls 0.00 l/s)

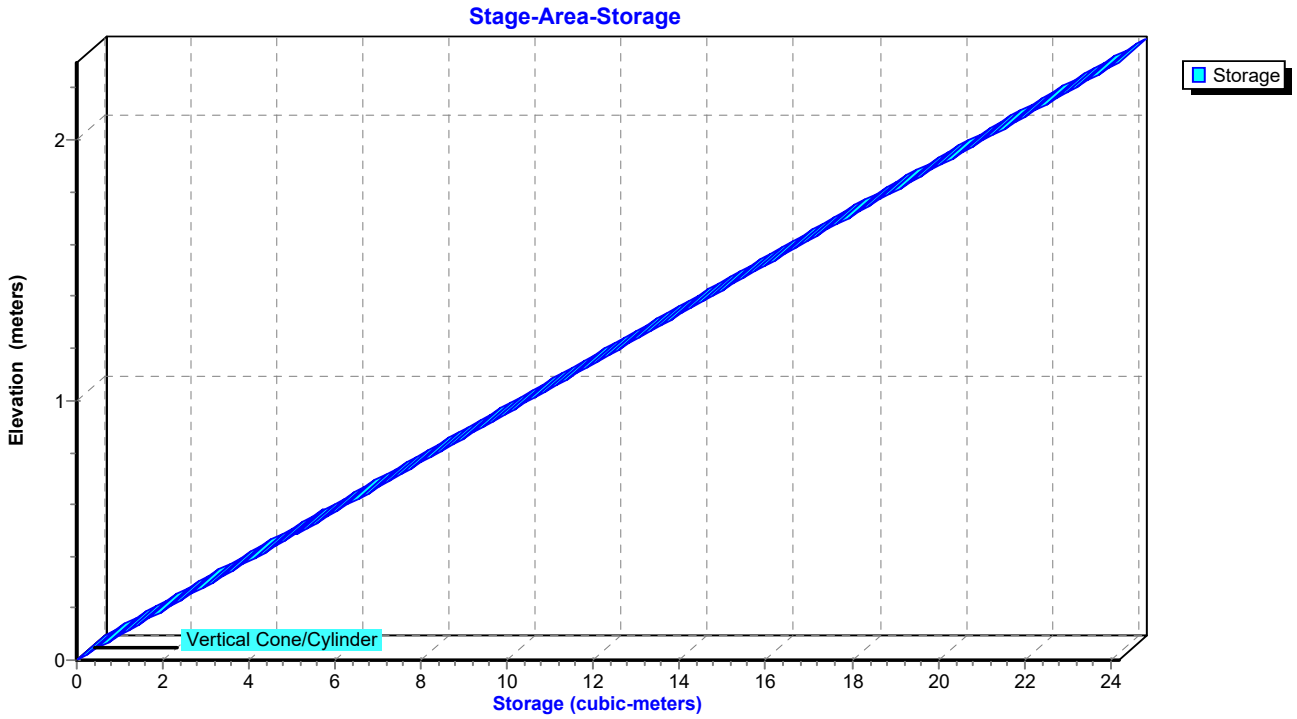
Pond 3T: attenuation Tank



Pond 3T: attenuation Tank



Pond 3T: attenuation Tank

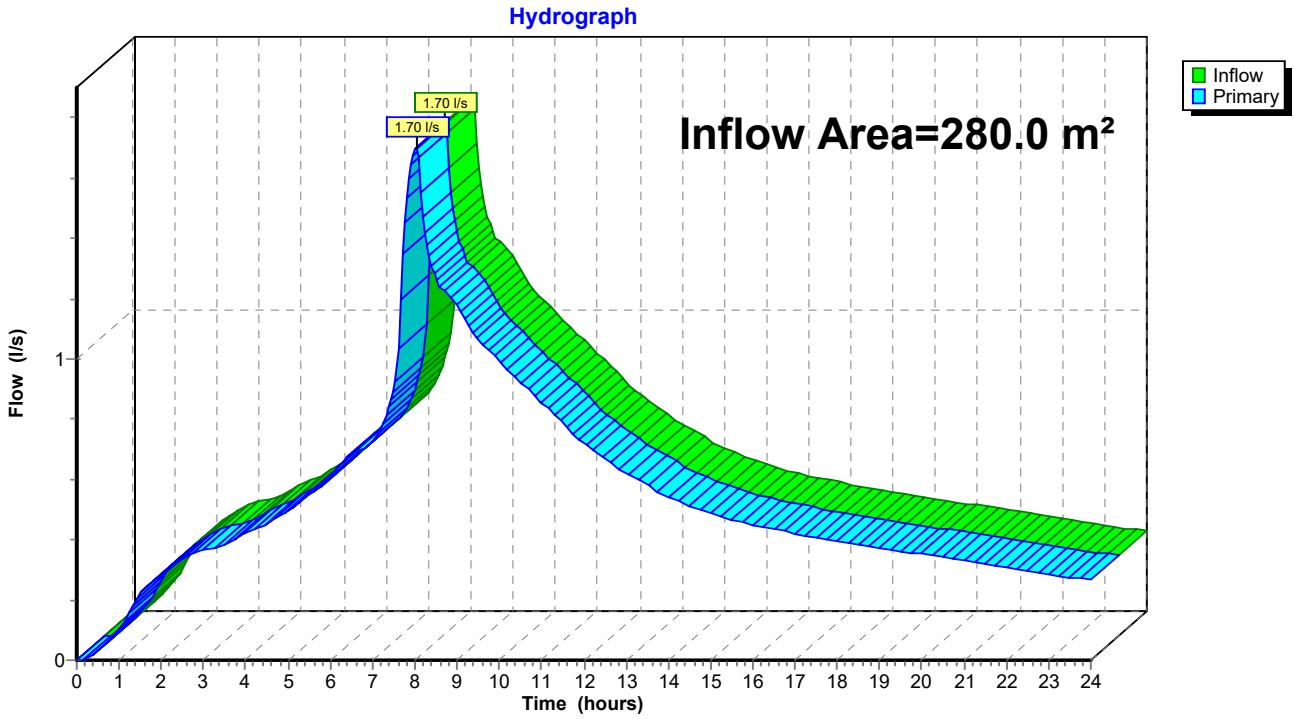


Summary for Link 6L: Total

Inflow Area = 280.0 m²,100.00% Impervious, Inflow Depth > 166 mm for 20% AEP +20% event
Inflow = 1.70 l/s @ 8.02 hrs, Volume= 46.5 m³
Primary = 1.70 l/s @ 8.02 hrs, Volume= 46.5 m³, Atten= 0%, Lag= 0.0 min

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

Link 6L: Total



Environmenttechnology wastewater treatment

Environment Technology (Et) Ph: 03 970 7979
Email: info@et.nz www.et.nz

Et Nelson warehouse: 105 Pascoe St, Annesbrook, Nelson 7011

PS2

AES Design Calculator - Residential* Schedule of Materials

AES

For use by wastewater system designers for sizing of AES wastewater treatment systems receiving residential strength wastewater. To be supplied to ET with Design / Construction drawings for peer review, then for a digital signature by ET and your submission to Consenting Authorities for construction consent.

Supply of AES components is based on an ET reviewed and digitally signed Calculator and construction drawings. Any changes to the design during the consent process must be reviewed by ET.

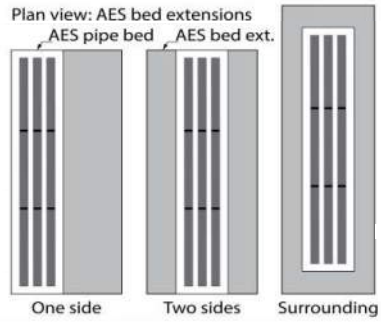
Site Address	488 Manawaora Road, Parekura Bay				
Client Name	Tania Fox and Grant Stevens	Client Email	Added to ET Database		
Designed By	Cole Anderson - TMC Engineers	Designer Phone #	021912604	Designer AES Cert. #	NZ00755
Installer		Installer Phone #		Installer AES Cert. #	
Council Area	Far North District Council	Drainlayer Licence #		Date	01.05.2023

Receiving soil category, surface waters, depth to water tables & all other site constraints are addressed by the Designer in the accompanying information.

from the System designer's site and soil data. Enter data in light blue fields.		NOTES
Number of bedrooms	3	>> Enter "NA" if this design is for a campground, office, cafe etc without bedrooms.
Number of people	5	>> Enter "1" here if entering total daily design flow below and not a per person amount.
Daily wastewater design flow allowance per person (L/d)	145	
Loading rate for AES pipes (L/m AES pipe/d)	38.0	>> Standard rate is 38 L/m AES pipe/d per OSET-NTP testing . Please justify if not using standard rate in Designers notes below
Do you want to use cut AES pipes - eg, 3.5 AES pipes per row? Y or N	N	
AES bed - No. of rows of AES pipes	2	>> Longer AES beds increase contact area with surrounding soil.
Soil Category (per AS/NZS 1547) from site & soil evaluation	5	>> Contact ET for information regarding customising AES bed layouts to clay soils and sloping sites.
Design Loading Rate (DLR) based on soil category (mm/day)	12	>> Soil conditioning may be necessary. Ref AS/NZS 1547/ TP58/ GD06 & Notes below.
Sand depth beneath AES pipes (mm)	300	>> Standard 300mm achieves 3.5Log reduction for FC**; increase sand depth to further reduce FC. Total expected FC reduction through AES system in this design: 3.5Log***
Is there a pump between the septic tank and the AES bed? Y or N	N	>> Ensure there is 50mm min. fall between septic tank and AES pipes, and pipework laid at 1:100 min.
Is this property/ disposal site sloping? Y or N	Y	>> Ensure subsurface & surface water is diverted away from AES bed.
Is this design vented to the building terminal vent (TV)? Y or N	N	
Diameter of high vent (mm)	80	>> 65mm, 80mm or 100mm, to be supplied with AES components.
Is sampling of the treated effluent required? Y or N	N	
Distribution Box required Y or N	N	Number of ports required, including inlet port, and port for air vent if so designed.

Designers notes (Editable)	Disposal location slope is < 5 deg

- Scarification of receiving surface is required in soil with elevated clay contents in Cat 4,5,6. In addition refer to AS/NZS 1547.2012, TP58 and GD06 (draft) Always excavate and scarify parallel to the site slope and the rows of AES pipe.
- Specialist soils advice and special design techniques will be required for clay dominated soil having dispersive or shrink/swell behaviour. Refer AS/NZS 1547
- All sloping sites require special consideration regarding design of AES bed, sand extensions, surface water and construction methods as per AS/NZS 1547.
- Drainlayers ensure good construction techniques ref. AS/NZS 1547 are especially important in these soil types. Ref AS/NZS1547 & AES installation Instructions.



AES Bed Design Calculator Outcomes	
Daily design flow (Q)	725.00 L/d
Min. length of AES pipe rows	9.54 m
No. of 3m AES pipes per row	4.00 lths
Total volume of AES pipes/ total potential buffer capacity	1696.00 L

AES Bed dimensions	AES Pipe Bed	AES Bed Extension
Length (m)	12.60	12.60
Width (m)	1.35	3.44
Sand Depth (m)	0.75	0.15
Area (m^2)	17.01	43.41

For 'Surrounding' extension or to increase bed length/ decrease width, enter "Y", otherwise leave blank.		If 'Y' enter required width (m) of AES bed, otherwise leave blank. Bed length will calculate automatically.	
	Length (m)	Width (m)	Minimum AES footprint required 60.5m2
The dimensions of this AES bed with side extension/s are:	12.6 x	4.79 =	60.4 m2 total
Total expected FC reduction through AES system in this design: 3.5Log***			

AES Bed Schedule of Materials		
AES 3m length pipes required	8	lengths
AES couplings required	6	ea
AES offset adaptors	4	ea
100mm vent cap with mesh	1	ea
Vent cowl for high vent	1	ea - 80mm diam.
TV inspection not required		
Sample port not required		
Distribution box not required		
Total AES System Sand **Solid Measure** (guide only)	17.6	m^3

ET Signature box - ET Use Only

Producer Statement PS-2 Design Review - approved by ET.
NOTE: - This design review does not include review of the Site and Soil assessment by the Designer

Reviewed by:	RM & DB	16/05/2023 13:24
Data entry by:	CA	Job: J2600

To be used as a guide only. This AES Design Calculator is an aid to calculate the AES components and their configuration. (Some single AES row layouts may be over-estimated by one coupling. Et will advise if this has occurred when doing the Design Review. Site and Soil conditions as specified in NZS1547:2012 are calibrated by a **Qualified Designer**. Environment Technology accepts no responsibility for this soil evaluation and the subsequent loading calculations or the DLR entered by the designer in this calculator.

AES pipes can be cut to length on site. AES pipes are supplied in 3 metre lengths only.

Open PDF in Adobe Acrobat; hover over signature

Follow link below to download Signature Verficiation macro

www.securedsigning.com/products/signature-verification-service

Click on signature in PDF to view signature validation

* Residential Effluent is classed as having less than 300mg/L BOD5 plus 350mg/L TSS, a combined total of 650mg/L prior to entering the septic tank, or a combined total of BOD + TSS of < 350mg/L prior to entering the AES bed and not including Industrial Effluent. Contact Et for assistance with high strength , abnormal ph or other parameter influent.

** AES-38 single pass system achieved 3.5 log reduction for Fecal Colliform (FC) in OSET-NTP Trial 12, 2016-17 benchmarking period.

*** Microbial removal rates through medium sand - Pang (2009). *Microbial Removal Rates in Subsurface Media Estimated From Published Studies of Field Experiments and Large Intact Soil Cores*

For Design Review: -Email this Design Calculator along with a complete construction drawings to: - **design@et.nz**

AES Components Order- Email a signed AES Design Calculator **and** a copy of the Council Consented Construction plans to: - **info@et.nz**

INDICATIVE SITE PLAN

Approximate locations of soil tests.

Client :
Tania Fox and Grant Stevens

Property:
488 Manawaora Rd
Parekura Bay
Russell

TMC CONSULTING ENGINEERS

TMC Consulting Engineers
41 Norfolk Street
P.O.Box 252,
Whangarei
Ph: 09 438 8699
Email: office@tmcengineers.co.nz

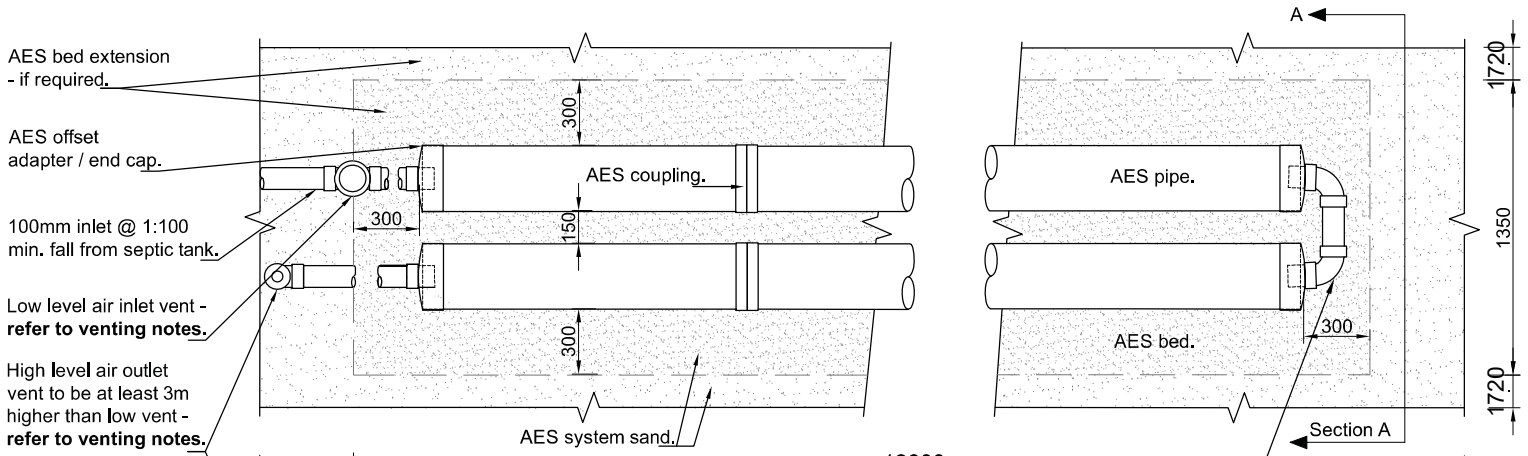
Project No :
S2089-J05621
Revision No :

Drawn :
CA
Checked :
GJC

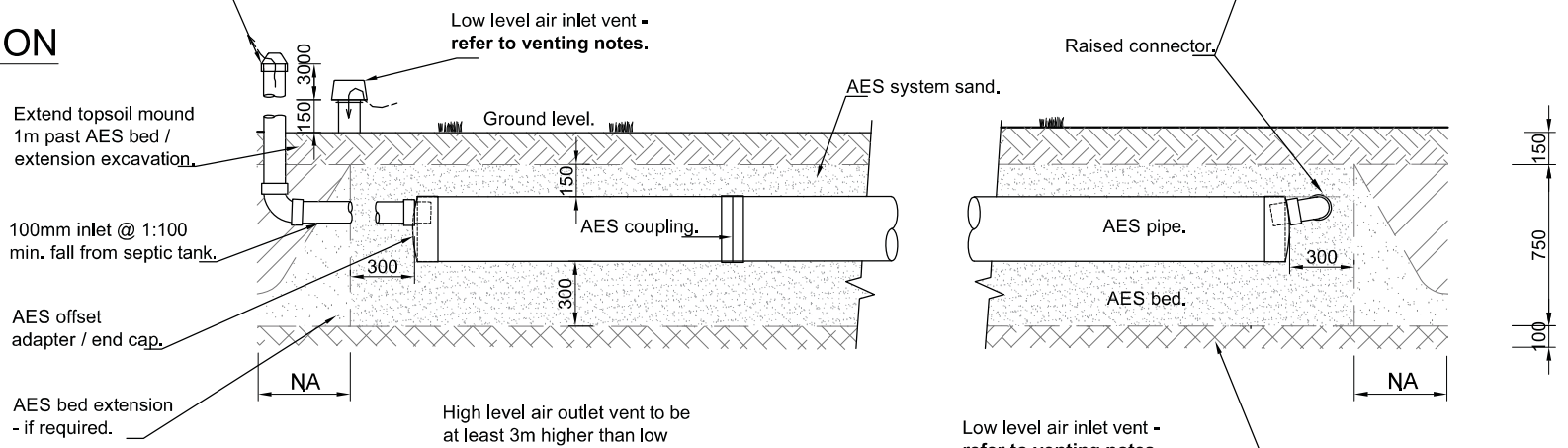
Scale :
As shown @ A4
Date :
10/05/2023

Sheet :
1

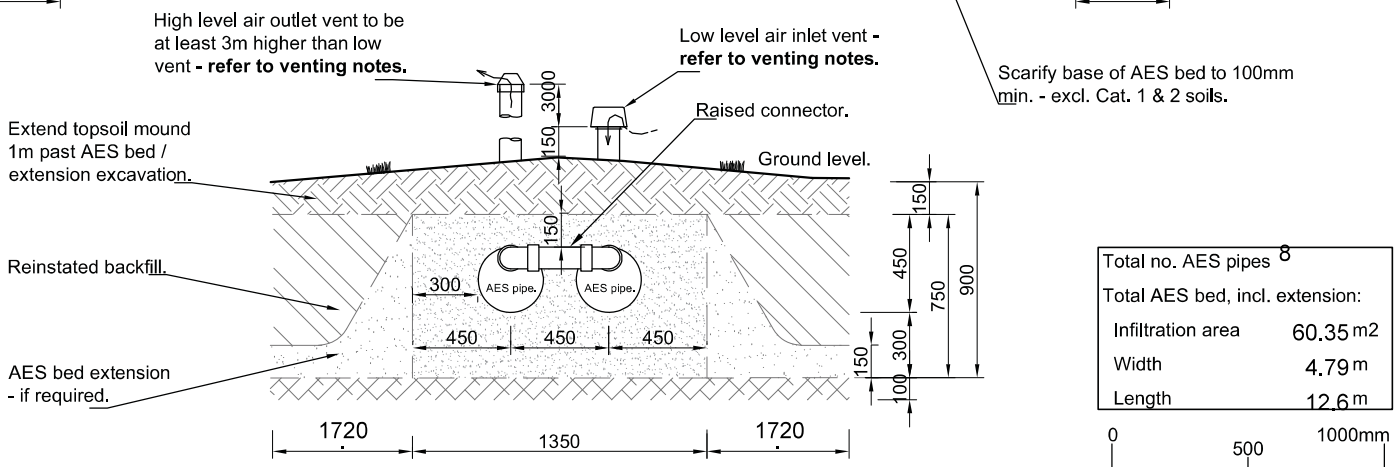
PLAN



LONG SECTION



CROSS SECTION A:A



Scarify base of AES bed to 100mm min. - excl. Cat. 1 & 2 soils.

Total no. AES pipes	8	
Total AES bed, incl. extension:		
Infiltration area	60.35	m2
Width	4.79	m
Length	12.6	m

0 500 1000mm

NOTES

General

· Advanced Enviro-Septic (AES) pipes, fittings and bed to be constructed/installed in accordance with the AES Installation Manual.
· AES pipes and fittings are supplied by Environment Technology Ltd, Et.
· All associated pipework to comply with NZ Building Code G13, Foul Water, Acceptable Solutions, relevant standards and local/regional council requirements.
· Unless otherwise stated all dimensions are in millimetres and all dimensions are minimums except pipe diameters and fittings.

Venting of AES Pipework to Maintain Aerobic Internal Conditions

· The high level air outlet vent to be 100, 80, or 65mm diameter DWV pipe, suitably supported on an adjacent building or post, to be 3m vertically elevated above the low level air inlet vent. 2 x 50mm DWV pipe can be used in internal building framing. Support to be provided to 1 meter below the top of the DWV vent pipe.
· The low level air inlet vent to be 100mm DWV, positioned as close as practical to the AES bed and isolated with respect to air passage wherever practical from upstream influent pipework. Refer to the specific design of each project.
· The location of air inlet and outlet vents can be remote from the AES bed with additional pipework to suit topography, building structures or landscaping. The high level air outlet vent should be positioned considering potential downdrafts or adjacent disturbed air flows.

AES Bed Construction

· An areal extension to the AES bed may be required to suit the permeability of the receiving soil in passive installations. These extensions may be on any or all sides of the bed. Refer to the AES bed dimensions noted on the specific design. N/A or not applicable denotes an extension is not required in this design.
· A minimum of 50mm of fall is required between the septic tank outlet invert and the invert of the inlet to the AES bed or distribution box.
· Trees/large shrubs cannot be planted on the AES bed.
· AES bed 'System Sand' specification is usually met with within the local concrete sand specification. Refer ET website www.et.nz/system-sand-suppliers/ for Et tested AES System Sand suppliers. Et offers cost free sand sieve analysis upon receipt of a two cupful size sample.

DESIGNED BY	PROJECT	DRAWING TITLE	No.	Revision	Date	Name	Scale @A3 1:25
Cole Anderson TMC Consulting Engineers	488 Manawaora Rd Parekura Bay	Standard AES Bed - Two Row	2	Notes altered, inlet/outlet vent pipework detached, and drawing reduced from 1:20 to 1:25	26/08/20	HO	Scale @A4 1:50
							Dwg: AES SB02

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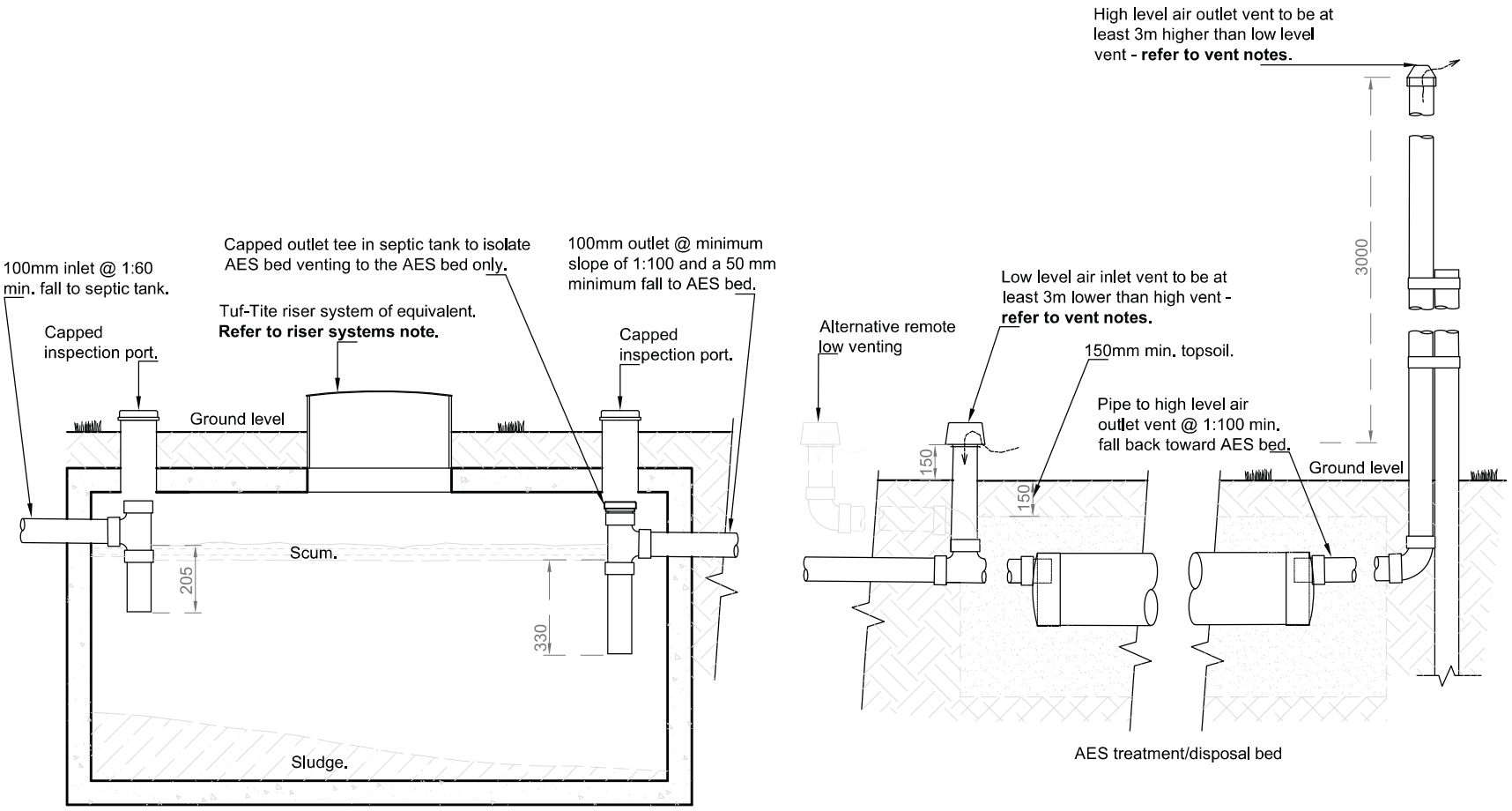

LONG SECTION

0 500 1000mm

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Riser Systems

· Riser systems come in varying shapes and sizes and can be sourced from a range of manufacturers. Environment Technology stock and recommend Tuf-Tite riser systems.

DESIGNED BY	PROJECT	DRAWING TITLE	No.	Revision	Date	Name		
Cole Anderson TMC Consulting Engineers	488 Manawaora Rd Parekura Bay	AES Bed and Septic Tank Air Venting Detail	2	Additional notes added.	03/04/20	HO	Scale @A3 1:20 Scale @A4 1:40 Dwg: AES VC	

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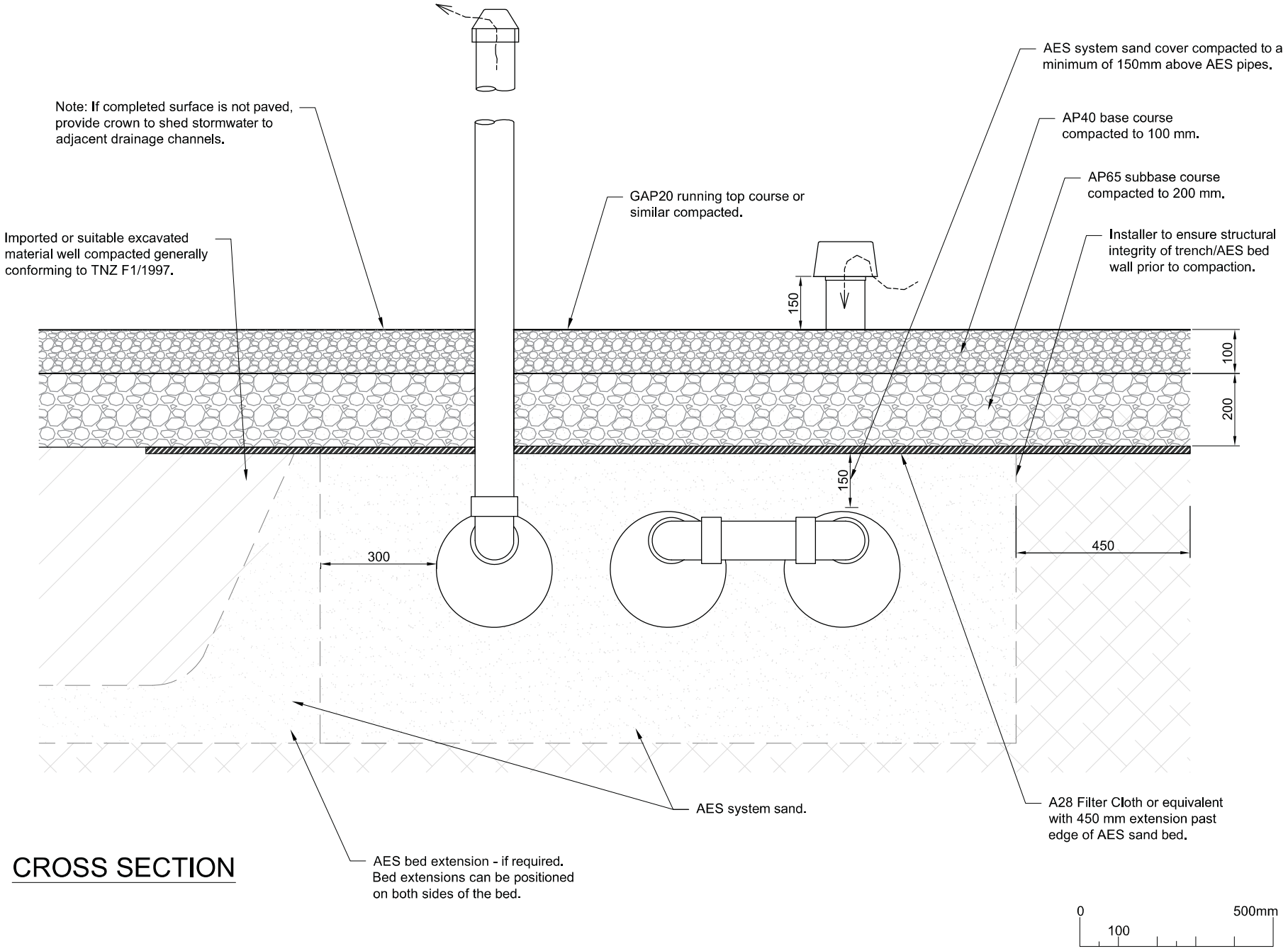
info@et.nz - www.et.nz



CROSS SECTION

NOTES

General

· Advanced Enviro-Septic (AES) pipes, fittings and bed to be constructed/installed in accordance with the AES Installation Manual.
· AES pipes and fittings are supplied by Environment Technology Ltd, Et.
· All associated pipework to comply with NZ Building Code G13, Foul Water, Acceptable Solutions, relevant standards and local/regional council requirements.
· Unless otherwise stated all dimensions are in millimetres and all dimensions are minimums except pipe diameters and fittings.

Venting of AES Pipework to Maintain Aerobic Internal Conditions

· The high level air outlet vent to be 100, 80, or 65mm diameter DWV pipe, suitably supported on an adjacent building or post, to be 3m vertically elevated above the low level air inlet vent. 2 x 50mm DWV pipe can be used in internal building framing. Support to be provided to 1 meter below the top of the DWV vent pipe.
· The low level air inlet vent to be 100mm DWV, positioned as close as practical to the AES bed and isolated with respect to air passage wherever practical from upstream influent pipework. Refer to the specific design of each project.
· The location of air inlet and outlet vents can be remote from the AES bed with additional pipework to suit topography, building structures or landscaping. The high level air outlet vent should be positioned considering potential downdrafts or adjacent disturbed air flows.

AES Bed Construction

· An areal extension to the AES bed may be required to suit the permeability of the receiving soil in passive installations. These extensions may be on any or all sides of the bed. Refer to the AES bed dimensions noted on the specific design. N/A or not applicable denotes an extension is not required in this design.
· A minimum of 50mm of fall is required between the septic tank outlet invert and the invert of the inlet to the AES bed or distribution box.
· Trees/large shrubs cannot be planted on the AES bed.
· AES bed 'System Sand' specification is usually met with within the local concrete sand specification. Refer ET website www.et.nz/system-sand-suppliers/ for Et tested AES System Sand suppliers. Et offers cost free sand sieve analysis upon receipt of a two cupful size sample.

Traffic Loading Guidelines

· AP40 base course compacted to 100mm over AP65 subbase course compacted to 200mm over AES system sand cover compacted to a unifrom, dense, stable condition to a minimum of 150mm above AES pipes prior to application of base course. Structural material to extend to a minimum of 450mm beyond AES bed excavation (including bed extension, if required) to provide 'bridging'.
· Surface cover GAP20 or similar acceptable top course or local material free of organics, large stones and building debris.
· All base course and top course to be specified and applied as per Transit NZ TNZ B/02:2005 Specification for Construction of Unbound Granular Pavement Layers.

DESIGNED BY	PROJECT	DRAWING TITLE
Cole Anderson TMC Consulting Engineers	488 Manawaora Rd Parekura Bay	AES Bed Traffic Loading Pavement Detail

No.	Revision	Date	Name
2	Filter cloth + single side bed added.	29/01/20	HO
3	Notes fixed and right side taken out.	20/04/20	HO

Scale @A3	1:10
Scale @A4	1:20
Dwg: AES TL03	

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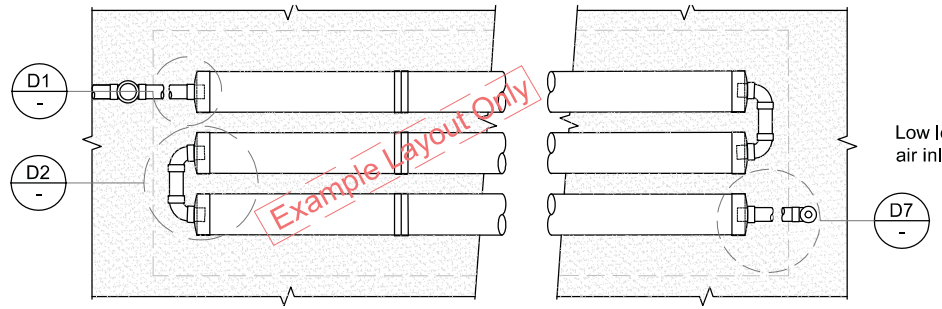
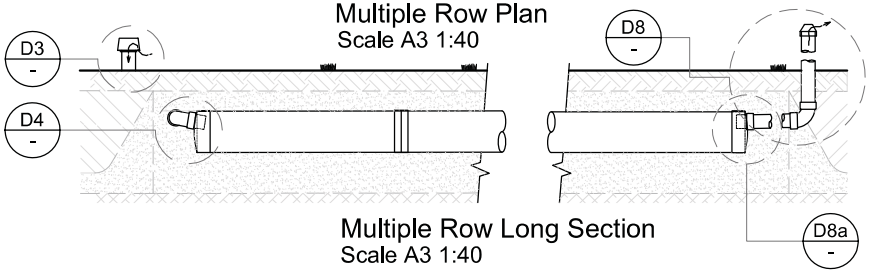
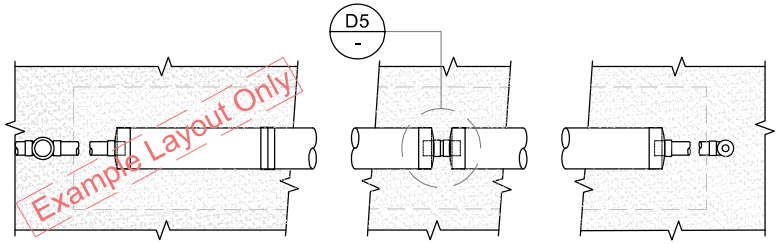


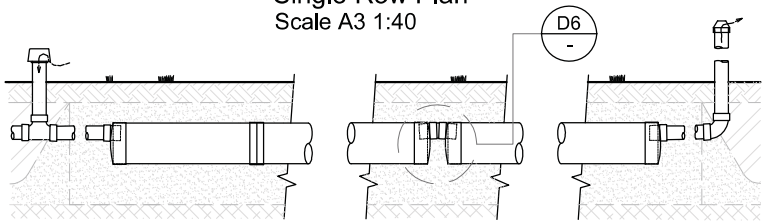
Multiple Row Plan
Scale A3 1:40



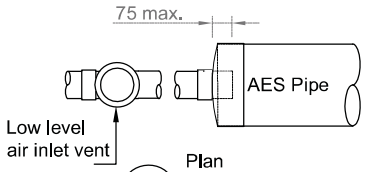
Multiple Row Long Section
Scale A3 1:40



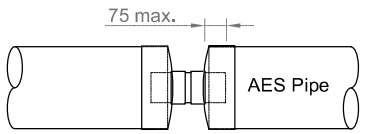
Single Row Plan
Scale A3 1:40



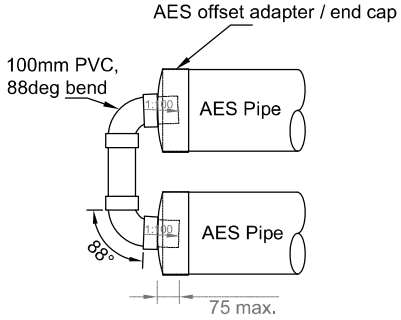
Single Row Long Section
Scale A3 1:40



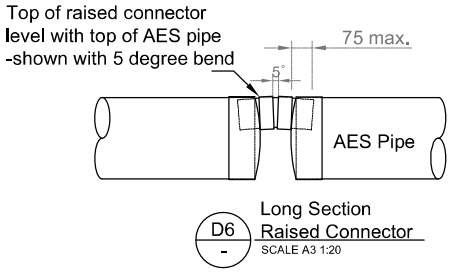
D1 - Plan Low Vent
SCALE A3 1:20



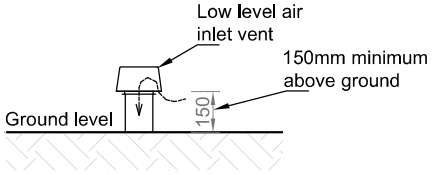
D5 - Plan Raised Connector
SCALE A3 1:20



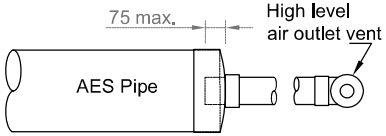
D2 - Plan Raised Connector
SCALE A3 1:20



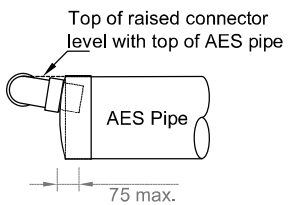
D6 - Long Section Raised Connector
SCALE A3 1:20



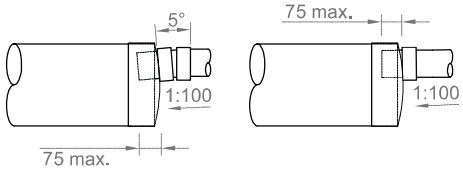
D3 - Section Low Vent
SCALE A3 1:20



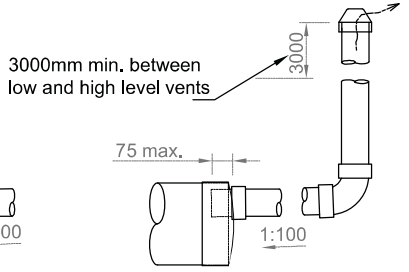
D7 - Plan High Vent
SCALE A3 1:20



D4 - Section Raised Connector
SCALE A3 1:20



D8a - Section Alternate Outlet Options
SCALE A3 1:20



D8 - Section High Vent
SCALE A3 1:20

0 100 500mm

NOTES

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DESIGNED BY	PROJECT	DRAWING TITLE	No.	Revision	Date	Name		
Cole Anderson TMC Consulting Engineers	488 Manawaora Rd Parekura Bay	AES System Details Sheet	2	Changed technical format.	31/03/20	HO	Scale @A3	1:40 & 1:20
							Scale @A4	1:20 & 1:10
							Dwg:	AES DET01

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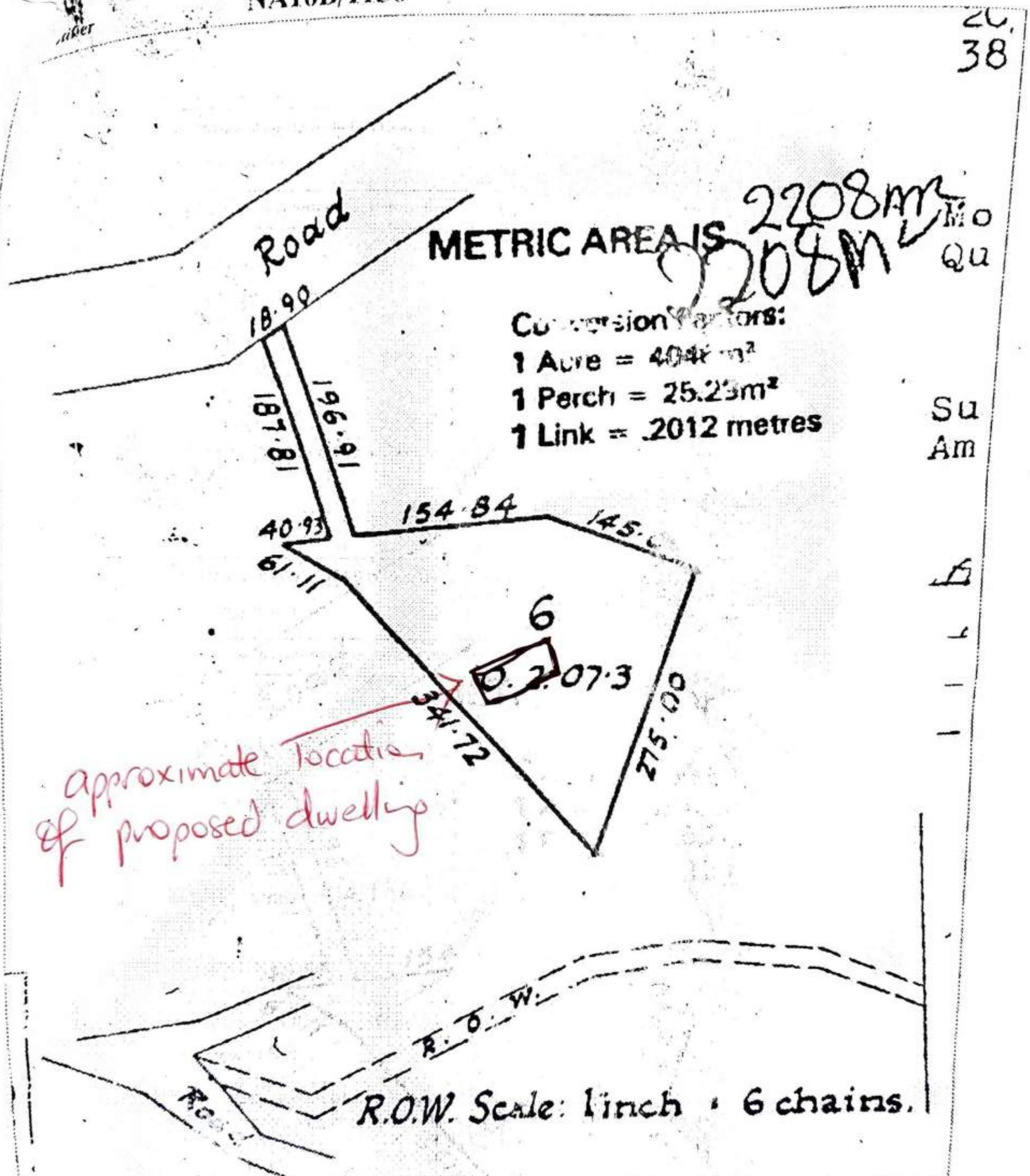
NA16B/1156


Road
METRIC AREA IS
2208m²
Conversion Factors:
1 Acre = 4046 m²
1 Perch = 25.29m²
1 Link = .2012 metres
18·99
187·81
196·91
40·93
61·11
154·84
145·
6
0. 2. 07·3
341·72
275·00
approximate location of proposed dwelling
R.O.W.
R.O.W. Scale: 1inch = 6 chains.
Su
Am
Mo
Qu
38

Building Code Clause(s) G13/VM4

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: TMC Consulting Engineers Limited
(Design Firm)

TO: Tania Fox and Grant Stevens
(Owner/Developer)

TO BE SUPPLIED TO: Far North District Council
(Building Consent Authority)

IN RESPECT OF: On-site Residential Wastewater Disposal System design.
(Description of Building Work)

AT: 488 Manawaora Road
(Address)

Town/City: Russell (Address) **LOT** 6 **DP** 45917 **SO**

We have been engaged by the owner/developer referred to above to provide:

On-site Residential Wastewater System design.

(Extent of Engagement)

services in respect of the requirements of Clause(s) G13/VM4 of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

■ Compliance Documents issued by the Ministry of Business, Innovation & Employment G13/VM4 (verification method/acceptable solution) or

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

TMC Consulting Engineers Ltd Report and numbered S2089-J05621;
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:
(i) Site verification of the following design assumptions
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ■ as per agreement with owner/developer (Architectural)

I, Gareth Cottrell (Name of Design Professional) am: ■ CPEng 1022740 # ☐ Reg Arch #

I am a member of: ■ Engineering New Zealand ☐ NZIA and hold the following qualifications: MCGI CMEngNZ CPEng IntPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY Gareth Cottrell (Name of Design Professional) (Signature)

ON BEHALF OF TMC Consulting Engineers Limited (Design Firm) Date 16/05/2023

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

FAR NORTH DISTRICT COUNCIL

Appendix E

TP58

On-site Wastewater Disposal Site Evaluation Investigation Checklist

Part A –Owners Details

1. Applicant Details:

Applicant Name	Tania Fox and Grant Stevens.	
Company Name		
	First Name(s)	Surname
Property Owner Name(s)	Tania	Fox

Nature of Applicant*	Owner

*(*i.e. Owner, Lease, Prospective Purchaser, Developer)*

2. Consultant / Site Evaluator Details:

Consultant/Agent Name	TMC Consulting Engineers Ltd			
Site Evaluator Name	Joel Scheepens			
Postal Address	PO BOX 252			
	WHANGAREI 0140			
Phone Number	Business	(09) 438 8699	Private	N/A
	Mobile	021 287 7675	Fax	N/A
Name of Contact Person	Joel Scheepens			
E-mail Address	j.scheepens@tmcengineers.co.nz			

3. Are there any previous existing discharge consents relating to this proposal or other waste discharge on this site?

Yes		No	✓	(Please tick)

4. List any other consent in relation to this proposal site and indicate whether or not they have been applied for or granted

If so, specify Application Details and Consent No.

(eg. LandUse, Water Take, Subdivision, Earthworks Stormwater Consent)

Part B- Property Details

1. Property for which this application relates:

Physical Address of Property	488 Manawaora Road, Pakekura Bay,
	Russell
Territorial Local Authority	FAR NORTH DISTRICT COUNCIL
Regional Council	NORTHLAND REGIONAL COUNCIL
Legal Status of Activity	Permitted: ✓ Controlled: Discretionary:
Relevant Regional Rule(s) (Note 1)	
Total Property Area (m²)	2,066 m^2
Map Grid Reference of Property If Known	

2. Legal description of land (as shown on Certificate of Title)

Lot No.	6	DP No.	45917	CT No.	
Other (specify)					

Please ensure copy of Certificate of Title is attached

PART C: Site Assessment - Surface Evaluation

(Refer TP58 - Sn 5.1 General Purpose of Site Evaluation and Sn 5.2.2(a) Site Surface Evaluation)

Note: Underlined terms defined in Table 1, attached

Has a relevant property history study been conducted?

Yes		No	✓	(Please tick one)

If yes, please specify the findings of the history study, and if not please specify why this was not considered necessary.

Undeveloped in area of proposed wastewater field.

1. Has a Slope Stability Assessment been carried out on the property?

Yes		No	✓	Please tick

If No, why not?

Site considered to be stable therefore slope stability assessment not required.

If Yes, please give details of report (and if possible, please attach report):

Author	
Company/Agency	
Date of Report	
Brief Description of Report Findings:	

2. Site Characteristics (See Table 1 attached):

Provide descriptive details below:
Performance of Adjacent Systems:
No problems observed
Estimated Rainfall and Seasonal Variation:
51.4 mm/hr for a storm with a 10% probability of occurring annually and of one-hour duration.
Vegetation / Tree Cover:
Native bush
Slope Shape: (Please provide diagrams)
Linear planar
Slope Angle:
generally <5° in proposed disposal area
Surface Water Drainage Characteristics:
Proposed disposal area to be located beneath hardstanding driveway surface
Flooding Potential: YES/NO
No
Surface Water Separation:
No surface water onsite
Site Characteristics: or any other limitation influencing factors
None

3. Site Geology **Check Rock Maps**

Waipapa Group - Greywacke (TJw)
Marua clay loam (MRH)

Geological Map Reference Number: Soil Bureau Map 184	GNS Science New Zealand Geology Web Map, refer; 'GNS Science Website'.

4. What Aspect(s) does the proposed disposal system face? (please tick)

North		**West**	✓
North-West		**South-West**	
North-East		**South-East**	
East		**South**	

5. Site clearances, (Indicate on site plan where relevant)

Separation Distance from	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries	1.5 m minimum	1.5 m minimum
Surface water, rivers Creeks etc	15 m secondary/20 m primary	15 m secondary/20 m primary
Drains, flow paths etc.	5 m minimum	5 m minimum
Groundwater	600 mm secondary/1200 mm primary	600 mm secondary/1200 mm primary
Stands of Trees/Shrubs		
Wells, water bores	20 m minimum	20 m minimum
Embankments/retaining walls	3 m minimum	3 m minimum
Buildings	3 m minimum	3 m minimum
Other (specify): Coastline	30 m minimum	30 m minimum

PART D: Site Assessment - Subsoil Investigation

(Refer TP58 - Sn 5.1 General Purpose of Site Evaluation, and Sn 5.2.2(a) Site Surface Evaluation and Sn 5.3 Subsurface Investigations)

Note: Underlined terms defined in Table 2, attached

1. Please identify the soil profile determination method:

Test Pit			No of Test Pits	
Bore Hole	✓	900 mm bore logs attached	No of Bore Holes	1
Other (specify):				

Soil Report attached?

Yes	✓	No		Please tick

2. Was fill material intercepted during the subsoil investigation?

Yes	✓	No		Please tick

If yes, please specify the effect of the fill on wastewater disposal

No FILL in area of proposed disposal field.

3. Percolation testing (mandatory and site specific for trenches in soil type 4 to 7)

Please specify the method:					
Test Report Attached?	Yes		No	✓	Please tick

4. Are surface water interception/diversion drains required?

Yes		No	✓	Please tick

If yes, please show on site plan

4a Are subsurface drains required

No

5. Please state the depth of the seasonal water table:

Winter	>0.9	m	Measured	✓	Estimated	
Summer	>0.9	m	Measured		Estimated	✓

6. Are there any potential storm water short circuit paths?

Yes		No	✓	Please tick

If the answer is yes, please explain how these have been addressed

7. Based on results of subsoil investigation above, please indicate the disposal field soil category *(Refer TP58 Table 5.1)*

Is Topsoil Present?	YES	If so, Topsoil Depth?	0.3 (m)

Soil Category	Description	Drainage	Tick One
1	Gravel, coarse sand	Rapid draining	
2	Coarse to medium sand	Free draining	
3	Medium-fine & loamy sand	Good drainage	
4	Sandy loam, loam & silt loam	Moderate drainage	
5	Sandy clay-loam, clay loam & silty clay-loam	Moderate to slow drainage	✓
6	Sandy clay, non-swelling clay & silty clay	Slow draining	
7	Swelling clay, grey clay, hardpan	Poorly or non-draining	

Reasons for placing in stated category

Geotechnical investigation indicates Silty CLAY, moderate to slow drainage
(AS/NZS:1547 Category 5 soils)

PART E: Discharge Details

1. Water supply source for the property (please tick):

Rainwater (roof collection)	✓
Bore/well	
Public supply	

2. Calculate the maximum daily volume of wastewater to be discharged, unless accurate water meter readings are available

(Refer TP58 Table 6.1 and 6.2)

Number of Bedrooms	3 bedrooms			
Design Occupancy	5			(Number of People)
Per capita Wastewater Production	140	165	180	(tick) (Litres per person per day)
Other - specify	200	220	145 ✓	
Total Daily Wastewater Production	725 L			(litres per day)

3. Do any special conditions apply regarding water saving devices

a) Full Water Conservation Devices?	Yes		No	✓	(Please tick)
b) Water Recycling - what %?	0%				(Please tick)

If you have answered yes, please state what conditions apply and include the estimated reduction in water usage

Doesn't allow for garbage grinders.

4. Is Daily Wastewater Discharge Volume more than 3000 litres:

Yes		(Please tick)
No	✓	(Please tick)

Note if answer to the above is yes, an N.R.C wastewater discharge permit may be required

5. Is a Northland Regional Council Discharge Consent Required?

Yes		No	✓	(Please tick)

PART F: Primary Treatment *(Refer TP58 Section 7.2)*

1. Please indicate below the no. and capacity (litres) of all septic tanks including type (single/dual chamber grease traps) to be installed or currently existing: If not 4500 litre, duel chamber explain why not

Number of Tanks	Type of Tank	Capacity of Tank (Litres)
	Total Capacity	

2. Type of Septic Tank Outlet Filter to be installed?

PART G: Secondary and Tertiary Treatment

(Refer TP58 Section 7.3, 7.4, 7.5 and 7.6)

1. Please indicate the type of additional treatment, if any, proposed to be installed in the system: (please tick)

Secondary Treatment	✓		
Home aeration plant			
Commercial aeration plant			
Intermediate sand filter			
Recirculating sand filter			
Recirculating textile filter			
Clarification tank			
Tertiary Treatment			
Ultraviolet disinfection			
Chlorination			
Other	✓	Specify	AES Disposal Bed

PART H: Land Disposal Method

(Refer TP58 Section 8)

1. Please indicate the proposed loading method: (please tick)

Gravity	✓
Dosing Siphon	
Pump	

2.High water level alarm to be installed in pump chambers

Yes	No ✓

If secondary system is installed

3. If a pump is being used, please provide the following information:

Total Design Head		(m)
Pump Chamber Volume		(Litres)
Emergency Storage Volume		(Litres)

4. Please identify the type(s) of land disposal method proposed for this site: (please tick)
(Refer TP58 Sections 9 and 10)

Surface Dripper Irrigation			
Sub-surface Dripper irrigation			
Standard Trench			
Deep Trench			
Mound			
Evapo-transpiration Beds			
Other	✓	Specify	AES Disposal bed

5. Please identify the loading rate you propose for the option selected in Part H, Section 4 above, stating the reasons for selecting this loading rate:

Secondary - DIR	12 mm/day		**Primary -** DLR	
Disposal Area	Design	60.4 m^2	Disposal Area	
30 % Reserve	Reserve	18.1 m^2		

Explanation *(Refer TP58 Sections 9 and 10)*

Secondary - DIR = 12 mm per day for AES disposal bed in AS/NZS:1547 Category 5 soils

6. What is the available reserve wastewater disposal area *(Refer TP58 Table 5.3)*

Reserve Disposal Area (m²)	18.1 Secondary
Percentage of Primary Disposal Area (%)	30% Secondary

7. Please provide a detailed description of the design and dimensions of the disposal field and attach a detailed plan of the field relative to the property site:

Description and Dimensions of Disposal Field:

See attached report (Section 8) and site plan					
Plan Attached?	Yes	✓	No		(Please tick)

If not, explain why not

PART I: Maintenance & Management

(Refer TP58 Section 12.2)

1. Has a maintenance agreement been made with the treatment and disposal system suppliers?

Yes		No	✓	(Please tick)

Name of Suppliers

PART J: Assessment of Environmental Effects

1. Is an assessment of environmental effects (AEE) included with application?

(Refer TP58 section 5. Ensure all issues concerning potential effects addressed)

Yes	✓	No		(Please tick)

If Yes, list and explain possible effects

Refer to attached report (Section 8.4).

PART K: Is Your Application Complete?

1. In order to provide a complete application you have remembered to:

Fully Complete this Assessment Form	✓
Include a *Location Plan* and *Site Plan* (with Scale Bars)	✓
Attach an Assessment of Environmental Effects (AEE)	✓

1. Declaration

I hereby certify that, to the best of knowledge and belief, the information given in this application is true and complete.

Name: Joel Scheepens	Signature	
Position: Geotechnical Engineer	Date	16/05/2023

Note
Any alteration to the site plan or design after approval will result in non compliance.

APPENDIX F: DESIGN SIZE DISPOSAL AREA REQUIREMENTS

	Design Size (level or slightly sloping Sites -Most Conservative Design Loading)		
Disposal Systems and Site Conditions	3-Bedroom 5-persons 700 litres/day	2-Bedroom 4-Persons 450 litres/day (full water saving devices	Design Area Requirements
1.0 TRENCHES Soil category / Loading Rate 1 35mm/day 2 20mm/day 3 15 mm/day 4 10mm/day	 20 m² 35 m² 47 m² 70 m²	 13 m² 23 m² 30 m² 45 m²	(a) 20 m² gives 3 trenches 450 mm wide and 15 m length, 2.0 m centres, overall enclosing area 102 m² (with reserve area 102m², total is 204 m²). (b) 70 m² gives 5 trenches 450mm wide and (2x15) m length. 2.0m centres, overall enclosing area 340m² (width reserve area m², total is 680m²).
2.0 BEDS Soil category / Loading Rate 2 20 mm/day 3 12.5mm/day 4 10 mm/day	 35 m² 56 m² 70 m²	 23 m² 36 m² 45 m²	(a) 35m² gives 2 beds 1500mm wide and 12m length at 3m centres, overall enclosing area 90m² (with reserve area 90m² total is 180m²) (b) 70m² gives 4 beds 1500mm wide and 12m length at 3m centres, overall enclosing area 180m² (with reserve area 180m², total is 360m²
3.0 INFILTRATIVE SYSTEMS Loading rate 200mm/day (Soil Categories 1 & 2 with no site constraints)	3.5m²	2.25m²	(a) 3.5m² gives 3 of 1200 mm dia. Soakage holes (3.0m clearance between each) overall enclosing area 53m² (with reserve area 53m², total is 106m²). (b) 3.5m² gives one rectangular pit, 1200mm by 3000mm, overall enclosing area 25m² (with reserve area 25m² totals is 50m²).

APPENDIX F: DESIGN SIZE AND DISPOSAL AREA REQUIREMENTS

Disposal System and Site Conditions	Design size (Level or Slightly Sloping Sites -Most Conservative Design Loading)		Design Area Requirements
4.0 ETS (EVAPO-TRANSPIRATION SEEPAGE) AND ASB (AEROBIC SEEPAGE BED) Loading rate 10mm/day (soil categories 5 and 6	70 m²	45 m²	a) Pre-treatment via two septic tanks in series (2700 litres plus 1800 litres) or "Ecotank". Pumped dose loading. a) Bed width 1500 mm with crowned and grassed (or ET planted) surface, plus surface water and groundwater controls. b) 70m² gives beds 1500mm wide and 12m length at 3m centres, overall enclosing area 180m² (with reserve area 180m². total is 360m²).
5.0 TET (TOTAL EVAPO-TRANSPIRATION OVERFLOW) Loading rate 7mm/day (Soil Categories 1 & 2 and which have potential for significant groundwa impacts).	100 m²	65 m²	a) Pre-treatment via two septic tanks in series (2700 litres plus 1800 litres) or "Ecotank". b) Bed width 3.0m with crowned surface planted in cannas lilies or other high transpiration plantings; bed fully sealed with plastic liners. c) 100m² gives 2 beds each 16.7m length, spacing 2m between each, overall enclosing area (including overflow trench) 225m² (with 50% reserve bed area at 20m², total is 375m². d) Overflow trench length, 15m.

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Far North District Council

April 2006

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And Any Chartered Professional Engineer

Any person wishing to apply to Council for the approval of TP 58 writing are welcome to contact the Building Office in Kaikohe by phoning 0800 920029

If you would like to contact us regarding approval of TP58 writing, please contact the building office using our normal contact details:

Private Bag 752, Memorial Ave, Kaikohe 0400, New Zealand, Freephone: 0800 920 029,
Phone: (09) 405 2750, Fax: (09) 401 2137, Email: ask.us@fndc.govt.nz, Website: www.fndc.govt.nz

NOTES:

Expansive Soils

Expansive soils are soils which experience volume changes upon wetting and drying. Expansion and swelling appears to be the dominant factor under certain conditions with fine grained soil containing considerable amounts of clay. Expansion and swelling may cause distress which is often experienced in light buildings.

In many parts of New Zealand there is a significant hazard to foundations for light buildings including homes with concrete slab floors. The volumetric expansion and contraction can cause houses and other structures to heave or settle resulting in damage that is sometimes severe. Soil movement can occur in both directions (vertical and horizontal) at different rates which results in distress and subsequent damage to the structure.

The extent of the damage varies from relatively minor brick veneer cracking and internal cracking on wall corners with attendant door and windows jamming, through to extensive and severe cracking including cracking of driveways, sidewalks, etc.

Expansive soils such as clay, claystone, mudstone, argillaceous rocks and shale all contain clay minerals. These minerals are very sensitive to changes in humidity. When expansive clayey soils get wet, these minerals absorb water molecules and consequently expand. When dry they shrink, leaving large voids in the soil which result in a reduction in bearing capacity of the soil.

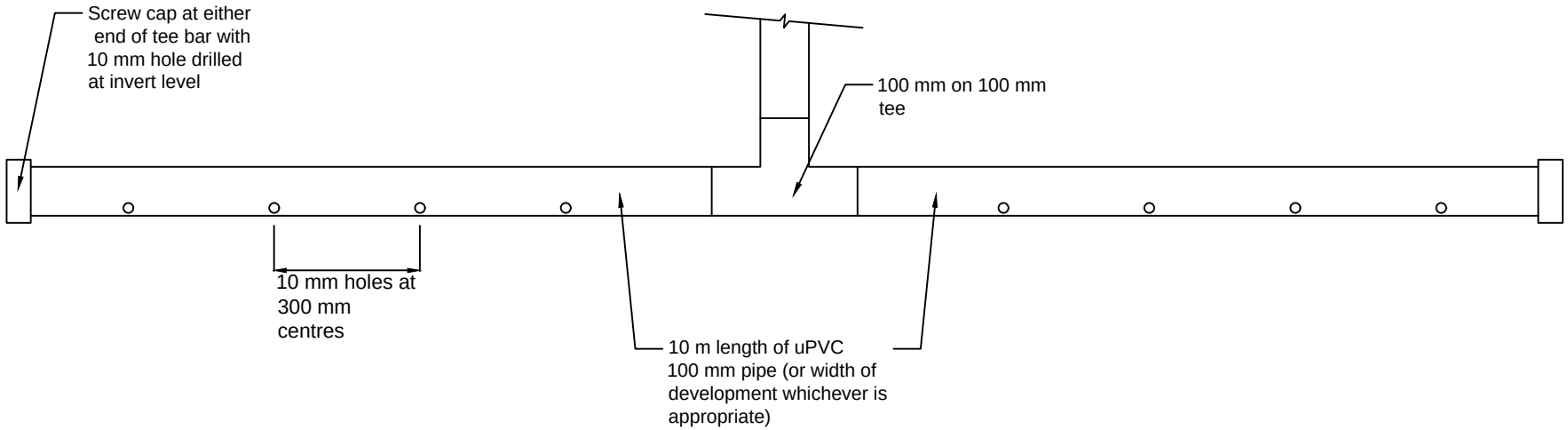
Apart from seasonal moisture changes (wet winters/ dry summer), other factors can influence soil moisture such as:

- Irrigation of garden close to the dwelling foundation.
- Site drainage close to the structure.
- Plantation of large trees close to building foundations on expansive soils. A wide range of tree and shrub species have high groundwater demands during summer months. The effects of such demands on expansive soils can be substantial and can lead to differential building settlements. Accordingly, it is good housekeeping measure to ensure that high water demand species (such as gum, willow, cypress, etc.) are not planted close to buildings.
- Plumbing leaks.
- Prevalent or initial moisture conditions at construction time.

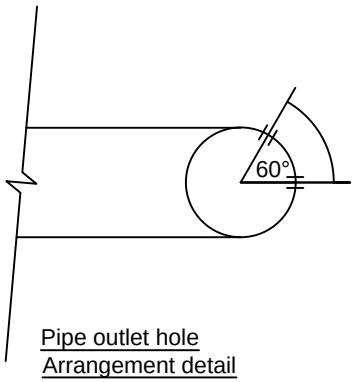
It should be also noted that the shear strength of expansive soil also changes with variations in humidity, and a stability problem may arise.

Expansive soils cause major damage to light foundations and associated structures. Heavy foundations and structures can resist the swelling uplift pressure.

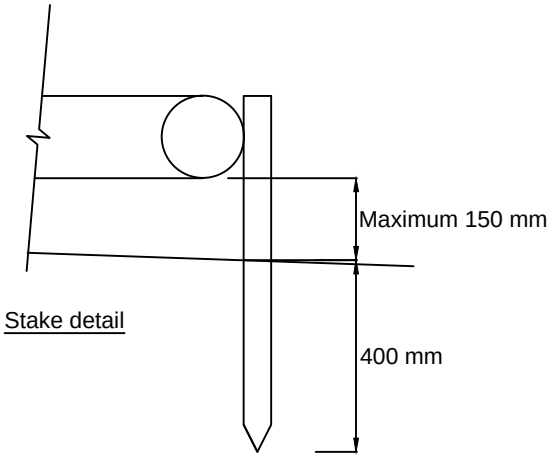
Damage is dependent on the amount of movement experienced by the foundation, the non-uniformity in movement, which are all related to percentage of clay in the expansive soil, variation in moisture content, type of foundation, building construction and materials, etc.



Plan



Pipe outlet hole Arrangement detail



Stake detail

Notes

1. Pin pipe and tee bar using 50x50 mm H4 treated stakes at 1200 mm centres. Level pipe and fix to stakes using down pipe clips.

2. Stakes to be driven 400 mm into ground. Tee bar to be no more than 150 mm above ground level at any point and to be constructed dead level across length of tee bar.

Typical Level Spreader Detail

Client :

Property:

TMC Consulting Engineers
41 Norfolk Street
P.O.Box 252,
Whangarei
Ph: 09 3930337
Email: office@tmcengineers.co.nz

Project No :

Revision No :

Drawn : TK

Checked :

Scale : Not to Scale

Sheet : 1

Environmenttechnology
www.et.nz

AES
"Always The First Option"
ADVANCED ENVIRO-SEPTIC

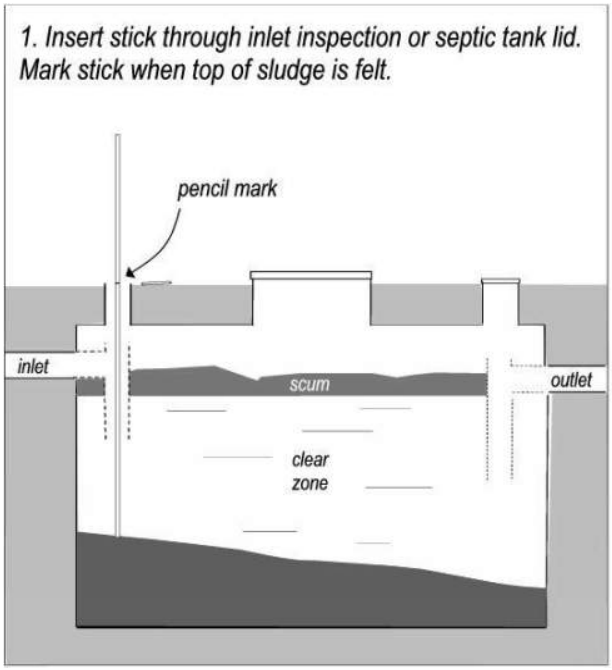
Management & Maintenance of your Septic Tank & AES System

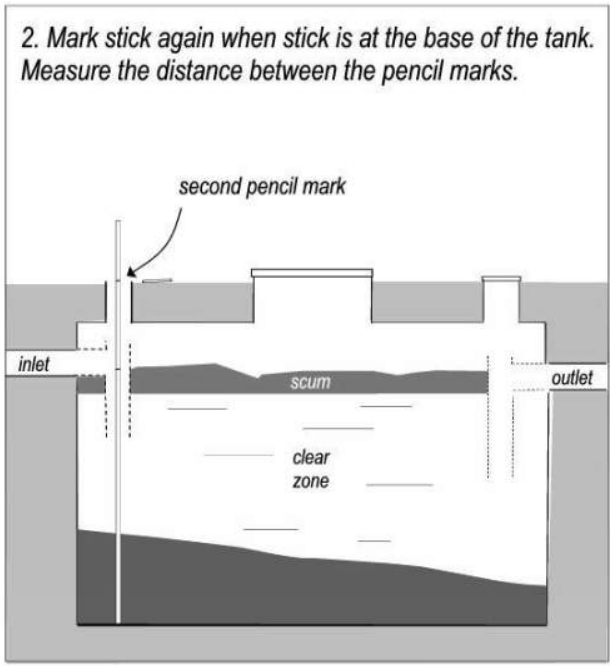
1. **Ensure lids of the wastewater treatment system are readily accessible at all times;**

2. **Visually inspect the proprietary effluent filter if fitted**;
   Clean, repair or replace as required

3. **Check you septic tank sludge level;**

   This can be achieved by inserting a suitable stick into the inlet vent and measuring the level at which resistance is felt as the probe enters the bottom sludge, and again when it stops on the tank base.





4. **Pumping out the septic tank;**

   If solids and scum layers combined are greater than one half the depth of the wastewater treatment tank. Pump-outs should be undertaken only when necessary as they disrupt the efficient working of the bacteria in the tank.

   *As the outlet usually draws from halfway down the tank we recommend the more conservative ½ the tank volume; some literature recommends pumping out when sludge occupies 2/3 the volume of the tank

5. **Air Vent (Low Vent) at AES bed;**

   It is the owner's responsibility to keep vegetation away from the low vent in order to maintain a free flow of air into the vent. Check low level air inlet vent at the AES bed is clear of vegetation and the insect screen inside the vent is clear. Check also that the high level vent at the dwelling is clear.

Water reduction fixtures

The daily wastewater flow has been calculated based on the following water reduction features remaining in place in the house. If any of these features are removed a new wastewater design may need to be completed.

- Dual flush (11/5.5 litre maximum flush volume) toilet/s
- Aerator taps
- Any shower head with a WELS 2 star rating or greater, or any combination of shower head and flow
- Restrictor that produces a flow of 12L/minute or less.
- Water conserving automatic washing mashine.

Indicators of system failure

In the unlikely event that the AES pipes become anaerobic due to a lack of oxygen, a system Rejuvenation will be required to return the system's bacteria to an aerobic state. Contact your AES Certified servicer if you detect the following: A foul odour, or pooling of water at ground level, or if System Sand around the pipes turns a darker colour.

Care of your Septic Tank Wastewater Disposal System

Maintenance of a septic tank system is important. The quantity of sludge in the base of the tank must not exceed 2/3 of the tank working volume. With care in not flushing insoluble material into the wastewater system this level of sludge may take some years to develop. Annual inspection of the level of sludge in the tank is recommended. This can be achieved by inserting a suitable stick into the inlet inspection/ access and measuring the level at which resistance is felt as the probe enters the bottom sludge.

Your wastewater disposal system depends for its satisfactory operation on providing a suitable environment for 2 types of bacteria to live and thrive – anaerobic (without oxygen) bacteria in the primary treatment aspect/ septic tank of your system and aerobic (with air or oxygen) in the secondary treatment aspect/ discharge to land of your system. You **must** consider the effects on this bacterial life when you are choosing cleaning and disinfecting products as all these products will kill the bacteria in your system.

Potential indicators of performance problems are odour, overflow and wet patches on the disposal field.

Below is a table of how to best operate a septic tank and things to avoid:

DO ✓	AVOID / DON'T ✗	NOTE
Minimise Water Use • Install water saving fixtures • Use showers instead of baths • Spread laundry activities across the week • Fix any leaking taps/running toilets immediately	• High organic loading wastewater production fixtures such as garbage grinders • Spa baths and multi-head showers • Ingress of groundwater into septic tank through cracks in the tank or fittings	Surges of wastewater should be avoided as they can stir up settled solids within the septic tank, reduce the quality of treated wastewater flowing to the disposal field and lead to the overloading of the disposal field – which can result in wastewater breakout at the ground surface and increased potential for adverse health and environmental effects.
Use bio-degradable soaps and cleaners • Minimise use of strong toilet cleaners and bleach • Use phosphate free/ low phosphorous based laundry detergents • Use liquid based organic washing liquids in preference to sodium based washing powder	• Pouring toxic/strong chemicals down any drains e.g. paint, oil, grease, pesticides and bleach • Tipping chlorine or disinfectant products into wastewater system • Discarding pharmaceuticals down sink or toilet • Avoid washing powder with significant sodium content	Some soaps and cleaners contain chemicals that can kill the bacteria within the septic tank, greatly impairing treatment quality. Detergents with high sodium content can destroy the effectiveness of your disposal field by altering the composition of clays in the soil
Reduce Fats/Grease Inputs Scrape all plates and dishes to remove as much fat and grease as possible.	• Discharging oils/fats down the kitchen sink	Excess fats and grease in the septic tank can lead to filter blockages or impairment of the disposal field function.
Avoid discharging unnecessary solids to the septic tank • Compost any food scraps for use on the garden	Flushing any products down the toilet except toilet paper • Putting coffee grinds down the sink – they add to the solids level and may affect the bacterial colonies living in the septic tank	The addition of unnecessary solids to the septic tank will result in the faster build up of sludge levels and the need for more frequent pumping out.

Environmenttechnology
wastewater treatment

AES (Advanced Enviro-Septic™)
Owners Manual

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"Always The First Option"
ADVANCED ENVIRO-SEPTIC™

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Technical support

Environment Technology provides technical support to all individuals and companies using AES and other Presby Environmental products. For questions about products or information in this manual please contact us at 03 9707 979, info@et.nz

Important Safety Information

- Please ensure that the cover/s of the septic tank, the pumping station and sampling device if installed, are always in place and that they remain accessible at all times for periodic inspections and interventions when necessary.
- Ensure you receive an accurate As-Built plan of your system from your installer. Pipes are buried near your septic installation. Please speak to your installer or consult the as-built plan prior to digging or excavating near your septic system.
- It can be dangerous even potentially deadly to open a septic tank, pumping station or any enclosed space that is part of a wastewater treatment system. The action of the bacteria on the organic matter present in the wastewater produces gases such as carbon dioxide (CO_2), methane (CH_4) and hydrogen sulphide (H_2S). The H_2S present in the septic tank or a pumping station can cause the death of an individual in a matter of minutes. A well-maintained ventilation system will reduce the risk of toxic gases build up, however work in this area must be carried out by competent personnel.

Introduction

Thank you for choosing the AES system for your septic installation. This system was developed to efficiently treat domestic wastewater. Instructions must be followed in order to maintain its treatment performance so that you can make use of it for many years. Carefully read through this entire document and retain it in your files for future reference.

The purpose of this document

This user guide explains the proper use, procedures and inspections required in order to ensure the proper operation of your AES system for residential wastewater treatment.

It is the owner's responsibility to ensure that the system is used properly and according to its treatment capacity. It is also their responsibility to respect the rules and regulations in effect regarding associated council and government regulations.

Designation of the AES System

Name: AES Wastewater System

Application Domain: Residential Wastewater (sewage).

Class and treatment type: The AES system meets all the performance criteria requirements of both the Australian/ New Zealand Standard AS/NZS 1546.3: 2008, and the Queensland Plumbing and Wastewater Code: 2011 (for both Secondary and Advanced Secondary treatment). In 2017 AES completed Trial 12 of the Onsite Effluent Treatment System (OSET) National Testing Facility in Rotorua which certified secondary treatment quality.

The system cannot be used to treat wastewater to make it consumable. It is made to treat residential wastewater, and some commercial wastewater to an acceptable level for it to be reintroduced into the environment.

Definition of the AES System

The AES system is composed primarily of two inseparable components: the rows of AES pipe and a layer of system sand.

The AES system must be preceded by a septic tank or equivalent primary treatment system. The treated water is generally drained directly into the soil beneath the treatment system through a soil absorption system.

What to do if a problem occurs?

If in the course of normal use of your septic system you notice any of the following problems:

- Abnormally wet soil, presence of persistent puddles or odours in the area of the septic tank or the AES system,
- Slow flushing toilets or other plumbing in the home,
- Presence of abnormally abundant vegetation on the surface or around the septic tank or the AES system installation,
- Flooding in the area where the AES system is installed,
- Erosion of the land fill on or around the AES system,
- Alarm from the pumping station if such a device is part of your installation.

Please contact your AES certified contractor or Environment Technology. There are often simple remedies.

Customer Service and Technical Support information

Please do not hesitate to contact us if you need further information.
Environment Technology can be contacted at:
Telephone: 03 970 7979
Email: info@et.nz
Website: www.et.nz
Address: 14 Onekaka Iron Works Rd, Takaka 7182

Certified Contractor

The AES System must be installed by a licensed drainlayer with AES certification. Certification is obtained by successfully completing the online AES Certification Course. This course can be accessed at www.et.nz

Environment Technology can provide the name of drainlayers having the proper certification to install AES systems. This information is also available on our website http://www.et.nz/installers/

AES System Capacity

The capacity of the AES System depends on two elements:

- The number of AES Pipes
- The capacity of the underlying soil to evacuate the treated water

The total volume of wastewater fed to the system must not be more than what is shown in the design. The design flow is generally a weekly average.

The system may also be limited by the capacity of the underlying soil to permit the infiltration and evacuation of wastewater. This value is evaluated by the designer who created the plans and estimate for your septic installation. The design should take into account whether the capacity of the soil is a potential limiting factor.

Warranty certificate

AES comes with a 20 year manufacturer's limited warranty. The warranty details are presented in Appendix A (page 16)

Functioning of the AES System

The AES system is a passive technology which facilitates the proliferation of the aerobic bacteria responsible for wastewater treatment. It is comprised mainly of two inseparable components: the rows of AES pipes and a layer of system sand.

The AES system must be preceded by a septic tank or equivalent primary treatment system.

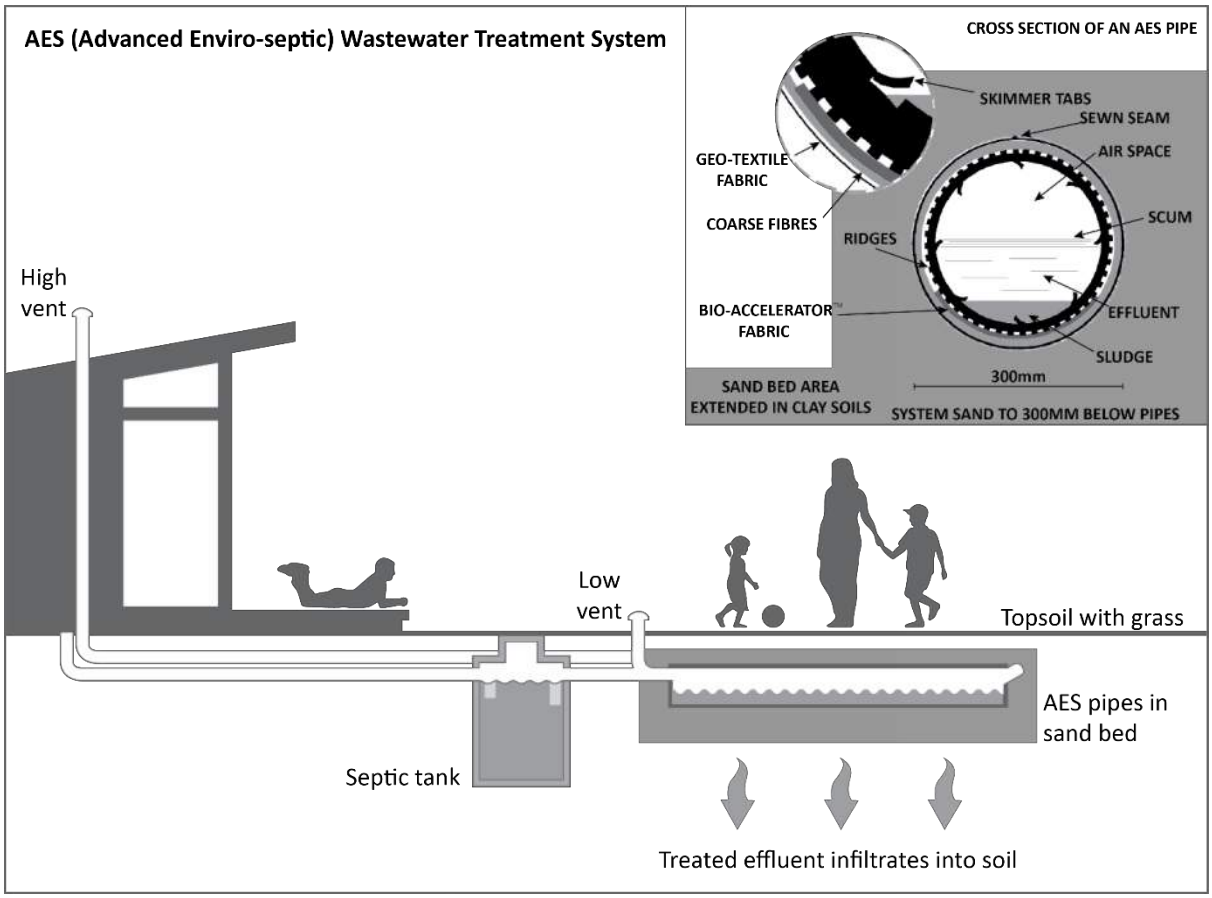
Treatment process of AES

The rows of AES pipes and system sand permit the treatment and distribution of wastewater on the surface of the receiving soil.

The pipes support, first of all, the separation of particles through flotation and decantation. The water is then evacuated through perforations situated around the pipes and through the pores of the two layers of synthetic media covering the pipes. These membranes facilitate the fixation of the microbial cultures which support wastewater treatment, as well as longitudinal distribution of the effluent.

The layer of sand continues the treatment process and helps to disperse the water before it infiltrates into the natural soil.

Diagram of the AES system



AES system components

Your septic installation includes several components. All of these components are parts of the chain of

treatment of your installation. The following table presents a list of these elements. However, it should be noted that some of these are only used when site conditions require them. The table also presents a summary of inspections required for each component. More detailed information on this subject is presented in the sections that follow.

Table: AES System Components

Component of the septic system	Function	Follow-up needed	Frequency	Responsible for follow-up
Septic tank	Primary wastewater treatment	Periodic emptying	According to standards and regulations in effect	Owner is responsible to have work done by qualified person
Septic Tank Effluent Filter*	Retention of solids in low pressure pumped applications.	According to manufacturer's instructions.		
Distribution systems if required for larger dual bed systems. 3 options A) Gravity Distribution box and flow equalizers B) Pressure distribution (pump) system C) Automatic distributing valve	Distributes the septic tank effluent to the rows of AES	A) According to the water level in the inspection port	A) As needed	A) Owner
		B) According to the manufacturer's directions. →		
		C) According to the manufacturer's directions. →		
Rows of AES pipes	Treat and distribute effluent			
Sampling device	To verify the treatment performance of the AES System	Ensure that there is access to this device	Optional	Qualified person
Vent	To allow the circulation of air in the AES System	Ensure that the opening is not blocked	As needed	Owner
System sand	To complete the water treatment process and to improve the drainage	No		
Pumping station (optional)	Lift septic tank effluent to the AES System	According to supplier's specifications		

*The effluent filter is necessary whenever the septic tank is followed by a pump distribution system.

Operating the AES System

Initial Use

At the time of installation the septic tank should be filled with clear water.

If a pumping station is used, the contractor will verify that it is functioning properly at the time of installation. The home owner must make sure that there is adequate electricity to safely operate the equipment as well as the alarm component.

The AES system is now ready for use.

Intermittent Use or Prolonged Absences

The AES system is a passive wastewater treatment system. When properly installed, it requires no particular attention even if you are away for periods of time.

AES System Operating Instructions

The use and maintenance of AES Systems are relatively simple. In general, respecting the following rules will allow you use of your system without problems for years to come.

Wastewater Volume

Excessive quantities of water that leave the house and enter the AES System in a short period of time could have a negative impact on the effectiveness of the treatment and the infiltration of wastewater causing agitation in the septic tank. A quantity of sludge or scum is likely to be put into suspension and be brought towards the system and the infiltration bed.

After the installation, if changes are made to the residence (eg. addition of a bedroom), please contact the designer of the AES System. Make sure that the septic system is inspected by a qualified person to determine that it has the necessary capacity to treat and infiltrate the new daily design flow of wastewater being generated.

In the bathroom

Do:

- Immediately repair any leaking tap or toilet,
- Use a reasonable quantity of toilet paper.
- Minimise or avoid bleach, antiseptic disinfectants, and ammonia acids in the system

Do not :

- Use disinfectant in tablet (puck) form, whether it is placed in the basin or the tank,
- Throw cigarettes, cigarette butts or medication in the toilet,
- Throw paper towels, paper napkins or other personal hygiene products in the toilet.

In the kitchen

Do:

- Repair any leaking tap,
- Use dish soap or dishwasher soap that is low in phosphate (0-5%),
- Use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than suggested by the manufacturer.
- Use biodegradable soap, low-phosphorus or phosphorus free detergents.

Do not :

- Use a food waste disposal unit in your sink that is connected to your septic installation. If you do have a waste disposal unit, your septic tank may require more frequent pump out to remove sludge build up.
- Dispose of vegetables, meats, fat, oil, coffee beans, citrus products or other products into the septic system.

For the laundry

Do:

- Use phosphate free detergent, preferably in liquid form. If it is not possible, use biodegradable powder detergent,
- Use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than that suggested by the manufacturer,
- Minimize the volume of water used for the laundry according to the quantity of clothing to wash,
- If possible spread your loads of laundry throughout the week
- Prevent harsh chemicals entering the system (e.g. paint, nappies)

Elsewhere in and around the house

Do:

- Divert drainage and rain water away from the surface of the AES system.
- Roof and surface water should be redirected away from absorption trenches.

Do not :

- Discharge water softener backwash into your septic system,
- Discharge any water from swimming pool filters, spas or other appliances that discharge chlorinated water into your septic system.
- Let water from sump pumps, gutters and drainage pipes discharge into the septic system,
- Dispose of solvents, paints, antifreeze, engine oil or other chemicals in the septic installation. This includes water used to wash brushes or rollers that were used with latex paint (latex paint contains elements that are harmful to septic system),
- Dispose of animal litter in the septic installation.

Chemicals for septic installation

Your AES system does not require any starting chemical, cleaning or other additives. The bacteria that carry out the treatment are naturally present in raw domestic sewage. Any chemicals or additives added to the AES System could possibly kill these bacteria.

Ventilation

It is very important to ensure that good ventilation occurs so that the septic system functions correctly. The vent(s) installed at the ends of the septic system encourage this air circulation. It is important to make sure that the opening is not blocked and that air can circulate freely at all times. Air enters through the low vent, circulates through the rows of pipes and exits through the high vent.

The owner must be sure to have a roof vent and to keep it clear at all times. When a pumping station is used, a bypass pipe or an extra vent must be used to ensure proper ventilation of the system.

Heavy machinery & motorized vehicle traffic

No vehicles or heavy machinery must be driven over a septic tank. Heavy machinery or motorized vehicle traffic on the soil around the AES bed closes the natural pores of the soil which reduces its permeability and allows for ponding and the accumulation of water.

Vegetation

The surface of the AES system must be planted with grass or other vegetation that forms a thick turf. This will encourage surface water runoff from the bed surface. The vegetation must be cut regularly in order to encourage growth without the use of fertilisers. Vegetation cover contributes to the elimination of nitrogen and phosphorus.

It is important ***not*** to plant trees or other plants with invasive roots such as figs, willows, blackwood and many others within 3 metres of the AES system installation footprint.

AES System Maintenance

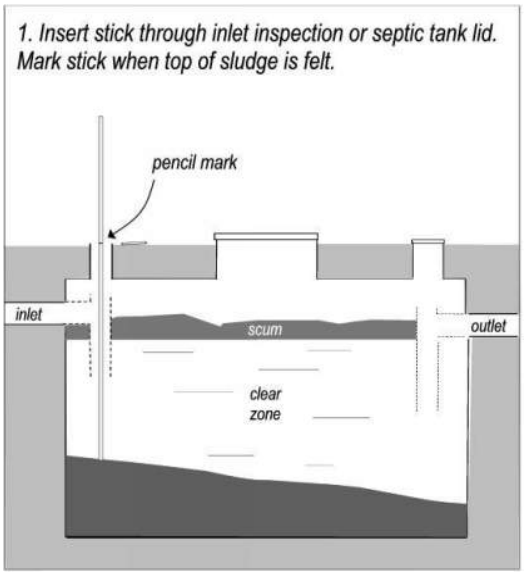
Septic Tank Maintenance

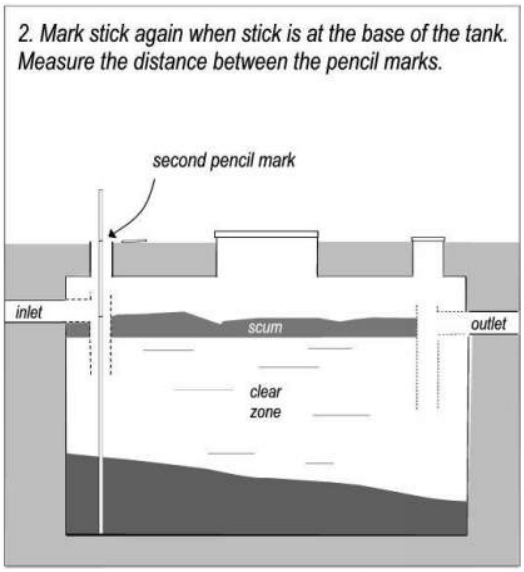
The septic tank preceding the AES System must be pumped out regularly (every 3-5 years for normal residential use or when sludge exceeds 1/3 of the tank volume).

If the septic tank is not emptied regularly, an increasing amount of solids and grease in suspension will leave the septic tank and end up in the treatment system and in time the performance of the AES System may be affected.

The owner must ensure their septic tank is pumped out according to council regulations, if any. This work should always be done by a qualified person.

Note: It is the home owner's responsibility to make sure that at all times the septic tank lids are in their proper position and securely fastened.





Septic tank outlet (effluent filter)

An outlet filter is not necessary at the exit of the septic tank in a gravity system. However it must be installed before a pump, for example when pumped effluent is between the septic tank and the AES pipes.

If installed the effluent filter must be cleaned according to the maintenance and inspection procedures provided by the manufacturer.

AES Pipe Rows

Under normal use, the rows of AES pipe do not require maintenance. It is normal to find fluctuation of the water level in the pipes. In many installations water level in the pipes can be measured by removing the low vent.

Vent	The owner must ensure that nothing prevents the circulation of air. There must also be a difference of at least 3 metres, at all times, between the entry vent situated at the extremity of the AES system and the high vent.
System Sand	There is no maintenance to be done on the system sand during normal use of the AES System.
Pumping station or low pressure distribution system	In certain cases, the site constraints require the use of a pumping station or a low-pressure distribution system to evenly dispose of the treated effluent. The owner is then responsible to comply with the manufacturer's scheduled maintenance requirements of this equipment.
Embankment surface above the AES System	The surface located above the AES system must be covered with herbaceous vegetation. A slight slope must be given to the surface in order to help the drainage of rainwater towards the outside of the system. The grass must also be cut regularly. Finally, any depression that could be created with time must be filled in order to avoid any accumulation of water above the system and to prevent erosion.

Owner's Responsibilities

Owner's Responsibilities

The owner is responsible for:

- Using the AES System according to the instructions presented in this user guide
- Pumping out the septic tank according to the regulations in effect
- Maintaining the effluent filter (if present), the pumping station, the pressure distribution system or the automatic wastewater distributing valve according to manufacturer's specifications and recording the information if this equipment is part of the system
- Ensuring that the vent openings are clear of any obstacle
- Adhering to the requirements of the applicable rules and regulations

Qualified Person

Any maintenance of an AES System must be undertaken by a person trained to carry out the inspections of the system, perform adjustments to the equalizers and/or carry out a rejuvenating procedure.

To obtain the name of a qualified person in your area, contact:

Environment Technology
14 Onekaka Iron Works Rd, Takaka 7182
info@et.nz
03 970 7979

Information on installers is also available on our website
http://www.et.nz/installers/

For maintenance of the pumping station and the low pressure distribution system, if installed, the owner must refer to the user guide specified by the manufacturer of these systems.

The pumping out of the septic tank must be performed by a company specializing in that field.

Maintenance Sheet

AES On-site Wastewater Treatment – Passive system

Address:_____Date:_____

Name of AES qualified servicer:_____Consent No:_____

Septic Tank

Ensure lids of the wastewater treatment system are readily accessible at all times
Measure depth of scum and solids in the septic tank:

Depth of scum: _____

Depth of solids: _____

Depth of tank: _____

Pumping out the septic tank is necessary if solids and scum layers combined are greater than one half the depth of the septic tank.

AES Bed Venting

Ensure low vent and high vent are free of vegetation/ restrictions. Yes No

Notes

_____

_____

_____

Overall condition of wastewater system, including disposal field:

_____

_____

This report shall be kept by the consent holder. In addition, the consent holder shall also keep written records of all repairs made to any part of the wastewater treatment and land application system.

Appendix A- Presby Twenty Year Limited Warranty

PRESBY ENVIRONMENTAL, INC.

INNOVATIVE SEPTIC TECHNOLOGIES

This Twenty Year Limited Manufacturer's Warranty is provided by the Manufacturer, Presby Environmental, Inc., a New Hampshire corporation having a mailing address of 143 Airport Rd., Whitefield, New Hampshire, 03598 (hereinafter called "Presby"). This Warranty applies only to Presby Products sold by or through its duly authorized distributor Chankar Environmental an Australian corporation having a mailing address of Unit 6-62 Rene St, Noosaville, Qld 4566 (hereinafter called the "Distributor"). "Presby Products" means Presby's Advanced Enviro-Septic™ leaching systems and Presby Maze© with the required accessories (couplings, offset adaptor).

Warranty: Presby warrants that Presby Products are free from defect for twenty years from the date of installation but in no event more than twenty-one years from the date of manufacture. Product Defects means defects or damage to the Products caused by or occurring during the manufacturing process. This Warranty does not cover or apply to damages to the Products caused by or resulting from transit or from accident, misuse, abuse, neglect, storage, installation, repair, maintenance or from use other than normal and ordinary use of the Products. This Warranty does not apply to damages to the Products caused by or resulting from failure to install or use the Products in accordance with distributor's instructions which have been approved by Presby or failure to properly inspect and maintain the Products.

Warranty Registration, Claim Process and Remedy: Any claim under the Warranty must be in writing and received by the distributor within thirty days of the date when the facts giving rise to such claim under this Warranty become known or are otherwise discovered. The distributor must be provided with an opportunity to inspect the Products as installed. Failure to comply with these requirements renders the Warranty null and void. If, during the Warranty period, the distributor and Presby find and determine that defects in Products exist, then the distributor and Presby's sole and exclusive obligation is to either repair the Products or provide replacement Products. The distributor and Presby, in their discretion, shall determine whether to repair the Products or provide replacement Products. The distributor and Presby shall have no obligation to remove any defective Products or to install any replacement Products. The distributor and Presby shall not be liable or responsible for any other damages or claims arising from or relating to defective Products, including but not limited to claims for general, consequential, or incidental damages, lost profits, or attorney fees.

Disclaimer: The distributor and Presby otherwise make no express warranty concerning the Products and the distributor and Presby disclaims any and all warranties, express or implied. Except as stated herein, there are no warranties express or implied, and the distributor and Presby do not warrant that the goods are merchantable or fit for any particular purpose. Any claim or controversy relating to this Warranty, or to matters of place of contracting, interpretation, performance or breach thereof, shall be brought in and adjudged in accordance with the applicable laws of state of New Hampshire.

Far North District Council

Our Reference: **3000017-LGAEWK**

09 September 2024

Tania J Fox and Grant McKenzie Stevens
179 State Highway 1
RD 2
Kaikohe 0472

Dear Sir / Madam

RE: Earthworks Permit, 488 Manawaora Road, Russell 0184

Attached is a copy of the earthworks permit for the above-mentioned property. Please note that there are site specific conditions listed on schedule B (the Permit).

Additionally, all earthworks are subject to the following standard conditions:

1. The permit holder is to establish and mark the location of boundary pegs and mark all property boundaries adjacent to the proposed earthworks. No authorisation is given for works on private property other than the lot subject to the Earthworks Permit. Where the permit holder is not the lot owner, the permit holder is responsible for obtaining approval from the lot owner prior to commencing work.
2. The permit holder is to ensure that stormwater diversion and silt control measures are in place prior to the commencement of bulk earthworks.
3. The permit holder is responsible for the repair and reinstatement of any underground services damaged as a result of the earthworks.
4. The permit holder is responsible for the repair and reinstatement of the road carriageway, the kerb and footpath damaged as a result of the earthworks. Such works where required will be completed to the satisfaction of the Council's Roading Manager.
5. Any debris deposited on the public road as a result of the earthworks shall be removed by or at the expense of the permit holder.
6. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority obtained from Heritage New Zealand Pouhere Taonga. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of the Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol is attached for your information. This should be made available to all person(s) working on site.

Yours faithfully

Azalea Warren
Resource Consents Engineer
District Services

Far North District Council

SCHEDULE B
EARTHWORKS PERMIT

3000017-LGAEWK

Date:	09 September 2024
Valuation:	
Assessment No:	3352573

Owner:	Grant McKenzie Stevens and Tania J Fox and Robert Theodore Huys	Contractor:	
Address:	179 State Highway 1 RD 2 Kaikohe 0472	Address:	

Location:	488 Manawaora Road, Russell 0184
Legal Description:	PT LOT 6 DP 45917 BLK III RUSSELL SD
Zoning:	

Nature of Permit: (☑ Tick Box)

Excavation	X	Cellar		Filling					
Length		Metres		Width		Depth	44m3	Volume	

Description of Work and Main Use or Purpose: Excavation of material to provide room for tanks and retaining walls, with excavated material to be removed from the site.

Special Conditions:

The work shall be carried out in accordance with the approved drawings and document provided with the application, specifically the Existing Site & Contour Plan prepared by Boundary Hunter Ltd, Sheet 1 of 1, Ref 11369, dated 23/01/24 and attached to this permit with the Council's Approved Stamp affixed to it. The volume of earthworks shall not exceed 44m3.

Note: The Plan shall be amended to include a silt fence erected below the areas excavated.

Prior to earthworks commencing the Permit holder:

Is to install a perimeter silt fence across the lower edge of the construction site (in accordance with the requirements detailed in Auckland Council document GD05) to remove silt and debris from Stormwater runoff prior to its discharge. These measures are to be maintained during the construction phase and can only be removed once appropriate stabilization has been completed.

During construction the permit holder:

Is to ensure that a copy of this permit complete with a set of stamped and approved plans is held on site and is available, on request, for inspection for the duration of the construction works.

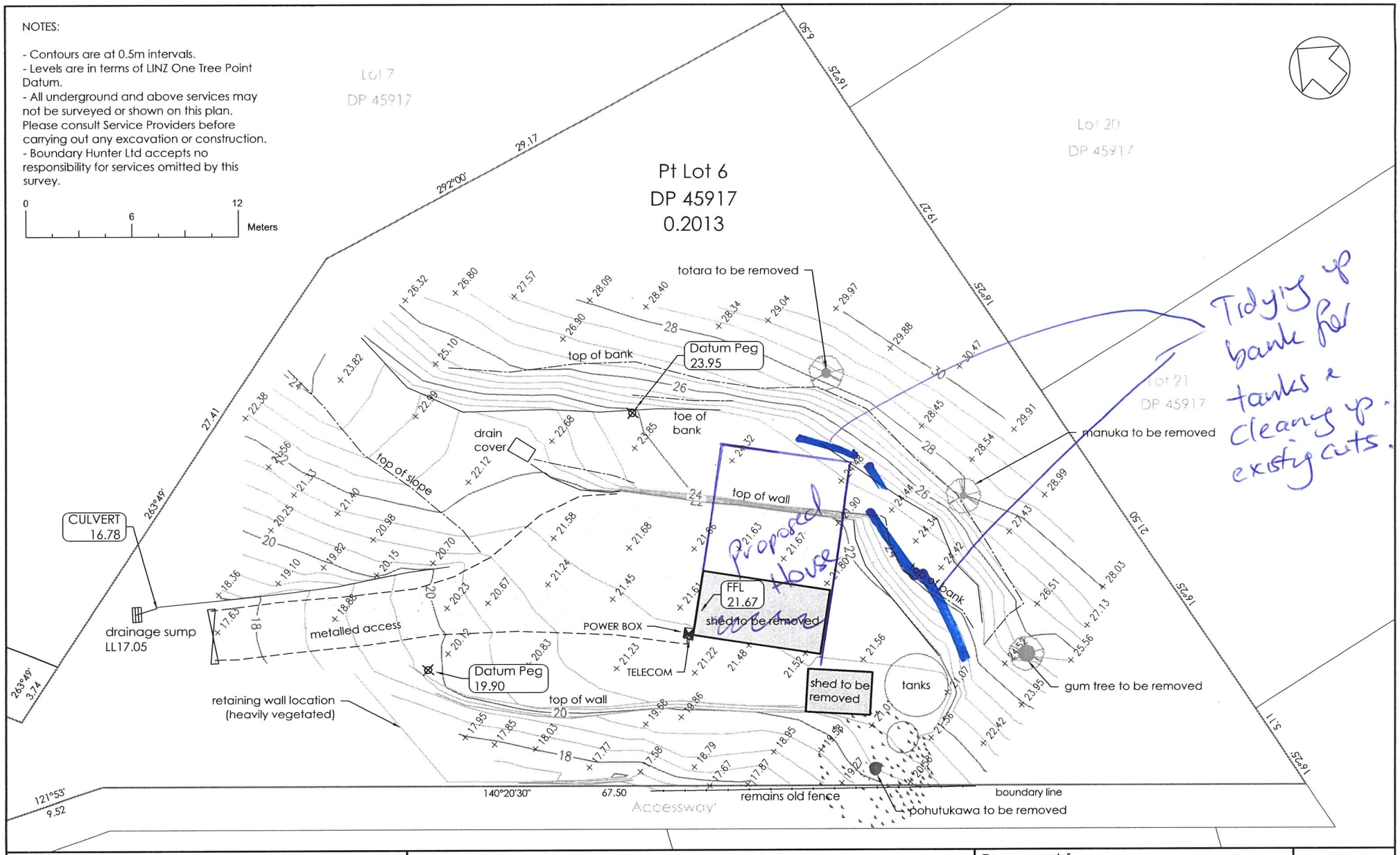
Is to ensure that all existing vegetation cover down slope of the proposed earthworks is retained to facilitate the filtering of silt from the stormwater runoff.

At the completion of construction, the permit holder:

Is to ensure that all bare areas of land and fill is covered with aggregate, or top soiled and established with a suitable grass/legume mixture to achieve an 85% groundcover within two (2) months of the completion of earthworks. Temporary mulching or other suitable ground cover material may be applied to achieve total ground cover of any areas unable to achieve the above requirements.

Permission is hereby granted to carry out the proposed works described herein in accordance with the approved drawings, documents and all conditions imposed: work will be subject, at any time during progress to inspection; and be carried out in strict conformity with the requirements of this Permit, and subject to the contractor taking full responsibility for any damage done to any services such as telephone cables, power mains, sewers, pipes, footpaths, road or other services or for any damage done to an adjacent property or slope stability adversely affected by the earthworks.

Issued By: Far North District Council



Surveyed & Drawn by:
BOUNDARY HUNTER LTD
Ph. 09 435 5387
Email. bruce@boundaryhunter.co.nz

488 Manawaora Rd, Te Uenga Bay
Pt Lot 6 DP 45917
Existing Site & Contour Survey

Prepared for:
Tania Fox & Grant Stevens

Sheet:
1 of 1

Surveyed: B Kidd	Checked. B Smith
Date: 23/01/24	Scale: 1:200 @ A3

Ref: 11369

Non-Reticulated Firefighting Water Supplies, Vehicular Access & Vegetation Risk Reduction Application for New and Existing Residential Dwellings and Sub-Divisions

Contents

Section A - Firefighting Water Supplies and Vegetation Risk Reduction Waiver 3

Section B – Applicant Information 4

Section C – Property Details 4

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Section A - Firefighting Water Supplies and Vegetation Risk Reduction Waiver

"Fire and Emergency New Zealand strongly recommends the installation of automatic fire detection system devices such as smoke alarms for early warning of a fire and fire suppression systems such as sprinklers in buildings (irrespective of the water supply) to provide maximum protection to life and property".

Waiver Explanation Intent

Fire and Emergency New Zealand [FENZ] use the New Zealand Fire Service [NZFS] Code of Practice for firefighting water supplies (SNZ PAS 5409:2008) (The Code) as a tool to establish the quantity of water required for firefighting purposes in relation to a specific hazard (Dwelling, Building) based on its fire hazard classification regardless if they are located within urban fire districts with a reticulated water supply or a non-reticulated water supply in rural areas. The code has been adopted by the Territorial Authorities and Water Supply Authorities. The code can be used by developers and property owners to assess the adequacy of the firefighting water supply for new or existing buildings.

The Area Manager under the delegated authority of the Fire Region Manager is responsible for approving applications in relation to firefighting water supplies. The Area Manager may accept a variation or reduction in the amount of water required for firefighting for example; a single level dwelling measuring 200^{m2} requires 45,000L of firefighter water under the code, however the Area Managers in Northland have excepted a reduction to 10,000L.

This application form is used for the assessment of proposed water supplies for firefighting in non-reticulated areas only and is referenced from (Appendix B – Alternative Firefighting Water Sources) of the code. This application also provides fire risk reduction guidance in relation to vegetation and the 20-metre dripline rule under the Territorial Authority's District Plan. Fire and Emergency New Zealand are not a consenting authority and the final determination rests with the Territorial Authority.

For more information in relation to the code of practice for Firefighting Water supplies, Emergency Vehicle Access requirements, Home Fire Safety advice and Vegetation Risk Reduction Strategies visit www.fireandemergency.nz

Section B – Applicant Information

Applicants Information	
Name:	Grant Stevens & Tania Fox
Address:	488 Manawaora Road, Parekura Bay, Russell 0184
Contact Details:	021 271 3688
Return Email Address:	c/- milton@goingarchitectural.co.nz

Section C – Property Details

Property Details	
Address of Property:	488 Manawaora Road, Parekura Bay, Russell 0184
Lot Number/s:	Pt Lot 6 DP 45917
Dwelling Size: (Area = Length & Width)	14.4 x 9.6m, 166m2 footprint area
Number of levels: (Single / Multiple)	Two

1. Fire Appliance Access to alternative firefighting water sources - Expected Parking Place & Turning circle

Fire and Emergency have specific requirements for fire appliance access to buildings and the firefighting water supply. This area is termed the hard stand. The roading gradient should not exceed 16%. The roading surface should be sealed, able to take the weight of a 14 to 20-tonne truck and trafficable at all times. The minimum roading width should not be less than 4 m and the property entrance no less 3.5 metres wide. The height clearance along access ways must exceed 4 metres with no obstructions for example; trees, hanging cables, and overhanging eaves.

1 (a) Fire Appliance Access / Right of Way	
Is there at least 4 metres clearance overhead free from obstructions?	☒YES ☐NO
Is the access at least 4 metres wide?	☒YES ☐NO
Is the surface designed to support a 20-tonne truck?	☒YES ☐NO
Are the gradients less than 16%	☒YES ☐NO
Fire Appliance parking distance from the proposed water supply is 4 metres	

If access to the proposed firefighting water supply is not achievable using a fire appliance, firefighters will need to use portable fire pumps. Firefighters will require at least a one-metre wide clear path / walkway to carry equipment to the water supply, and a working area of two metres by two metres for firefighting equipment to be set up and operated.

1 (b) Restricted access to firefighting water supply, portable pumps required
Has suitable access been provided? ☒YES ☐ NO
Comments: Gentle slope

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

2. Firefighting Water Supplies (FFWS)

What are you proposing to use as your firefighting water supply?

2 (a) Water Supply Single Dwelling	
Tank	☒ Concrete Tank ☐ Plastic Tank ☒ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500 mm above ground) ☐ Fully Buried (access through filler spout) Volume of dedicated firefighting water 10,000litres

2 (b) Water Supply Multi-Title Subdivision Lots / Communal Supply	
Tank Farm	☐ Concrete Tank ☐ Plastic Tank ☐ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500mm above ground) ☐ Fully Buried (access through filler spout) Number of tanks provided Click or tap here to enter text. Number of Tank Farms provided Click or tap here to enter text. Water volume at each Tank Farm Click or tap here to enter text. Litres Volume of dedicated firefighting water Click or tap here to enter text. litres

2 (c) Alternative Water Supply	
Pond:	Volume of water: Click or tap here to enter text.
Pool:	Volume of water: Click or tap here to enter text.
Other:	Specify: Te Uenga Bay within close proximity.
	Volume of water: Click or tap here to enter text.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

3. Water Supply Location

The code requires the available water supply to be at least 6 metres from a building for firefighter safety, with a maximum distance of 90 metres from any building. This is the same for a single dwelling or a Multi-Lot residential subdivision. Is the proposed water supply within these requirements?

3 (a) Water Supply Location	
Minimum Distance:	*Is your water supply at least 6 metres from the building?* ☒YES ☐ NO
Maximum Distance	*Is your water supply no more than 90 metres from the building?* ☒YES ☐ NO

3 (b) Visibility
How will the water supply be readily identifiable to responding firefighters? E.g.: tank is visible to arriving firefighters or, there are signs / markers posts visible from the parking place directing them to the tank etc.
Comments: Signage / markers will be positioned

3 (c) Security
How will the FFWS be reasonably protected from tampering? E.g.: light chain and padlock or, cable tie on the valve etc.
Explain how this will be achieved: Cable tie on the valve

Internal FENZ Risk Reduction comments only:
Click or tap here to enter text.

4. Adequacy of Supply

The volume of storage that is reserved for firefighting purposes must not be used for normal operational requirements. Additional storage must be provided to balance diurnal peak demand, seasonal peak demand and normal system failures, for instance power outages. The intent is that there should always be sufficient volumes of water available for firefighting, except during Civil Défense emergencies or by prior arrangement with the Fire Region Manager.

4 (a) Adequacy of Water supply
Note: *The owner must maintain the firefighting water supply all year round. How will the usable capacity proposed be reliably maintained? E.g. automatically keep the tank topped up, drip feed, rain water, ballcock system, or manual refilling after use etc.*
Comments: Water tanks will be fitted with a ballcock system to maintain min. supply requirements.

Internal FENZ Risk Reduction comments only:
Click or tap here to enter text.

5. Alternative Method using Appendix's H & J

If Table 1 + 2 from the Code of Practice is not being used for the calculation of the Firefighting Water Supply, a competent person using appendix H and J from the Code of Practice can propose an alternative method to determine firefighting water supply adequacy.

Appendix H describes a method for determining the maximum fire size in a structure. Appendix J describes a method for assessing the adequacy of the firefighting water supply to the premises.

5 (a) Alternative Method Appendix H & J	
If an alternative method of determining the FFWS has been proposed, who proposed it? Name: Click or tap here to enter text.	
Contact Details: Click or tap here to enter text.	
Proposed volume of storage?	Litres: Click or tap here to enter text.
Comments: Click or tap here to enter text. ** Please provide a copy of the calculations for consideration.*	

Internal FENZ Risk Reduction comments only: Click or tap here to enter text.

6. Diagram

Please provide a diagram identifying the location of the dwelling/s, the proposed firefighting water supply and the attendance point of the fire appliance to support your application.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

7. Vegetation Risk Reduction - Fire + Fuel = Why Homes Burn

Properties that are residential, industrial or agricultural, are on the urban–rural interface if they are next to vegetation, whether it is forest, scrubland, or in a rural setting. Properties in these areas are at greater risk of wildfire due to the increased presence of nearby vegetation.

In order to mitigate the risk of fire spread from surrounding vegetation to the proposed building and vice-versa, Fire Emergency New Zealand recommends the following;

I. *Fire safe construction*

Spouting and gutters – Clear regularly and consider screening with metal mesh. Embers can easily ignite dry material that collects in gutters.

Roof – Use fire resistant material such as steel or tile. Avoid butanol and rubber compounds.

Cladding – Stucco, metal sidings, brick, concrete, and fibre cement cladding are more fire resistant than wood or vinyl cladding.

II. *Establish Safety Zones around your home.*

Safety Zone 1 is your most import line of defence and requires the most consideration. Safety Zone 1 extends to 10 metres from your home, you should;

a) *Mow lawn and plant low-growing fire-resistant plants; and*
b) *Thin and prune trees and shrubs; and*
c) *Avoid tall trees close to the house; and*
d) *Use gravel or decorative crushed rock instead of bark or wood chip mulch; and*
e) *Remove flammable debris like twigs, pine needles and dead leaves from the roof and around and under the house and decks; and*
f) *Remove dead plant material along the fence lines and keep the grass short; and*
g) *Remove over hanging branches near powerlines in both Zone 1 and 2.*

III. *Safety Zone 2 extends from 10 – 30 metres of your home.*

a) *Remove scrub and dead or dying plants and trees; and*
b) *Thin excess trees; and*
c) *Evenly space remaining trees so the crowns are separated by 3-6 metres; and*
d) *Avoid planting clusters of highly flammable trees and shrubs*
e) *Prune tree branches to a height of 2 metres from the ground.*

IV. *Choose Fire Resistant Plants*

Fire resistant plants aren't fire proof, but they do not readily ignite. Most deciduous trees and shrubs are fire resistant. Some of these include: poplar, maple, ash, birch and willow. Install domestic sprinklers on the exterior of the sides of the building that are less 20 metres from the vegetation. Examples of highly flammable plants are: pine, cypress, cedar, fir, larch, redwood, spruce, kanuka, manuka.

For more information please go to https://www.fireandemergency.nz/at-home/the-threat-of-rural-fire/

If your building or dwelling is next to vegetation, whether it is forest, scrubland, or in a rural setting, please detail below what Risk Reduction measures you will take to mitigate the risk of fire development and spread involving vegetation?

7 (a) Vegetation Risk Reduction Strategy
Distance from proposed house to closest existing vegetation on Eastern boundary side is 7m approx. Distance from house to existing bush on other south side is 10m approx. All other surrounding bush areas are significantly further away.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

8. Applicant

Checklist	
☒	Site plan (scale drawing) – including; where to park a fire appliance, water supply, any other relevant information.
☒	Any other supporting documentation (diagrams, consent).

I submit this proposal for assessment.

Name: Milton Going Dated: 18/08/2022

Contact No.: 0274780009

Email: milton@goingarchitectural.co.nz

Signature: MG

9. Approval

In reviewing the information that you have provided in relation to your application being approximately a Click or tap here to enter text. *square metre,* Choose an item. *dwelling/sub division, and non-sprinkler protected.*

The Area Manager of Fire and Emergency New Zealand under delegated authority from the Fire Region Manager, Te Hiku, has assessed the proposal in relation to firefighting water supplies and the vegetation risk strategy. The Manager Choose an item. *agree with the proposed alternate method of Fire Fighting Water Supplies. Furthermore; the Manager agrees with the Vegetation Risk Reduction strategies proposed by the applicant.*

Name: Click or tap here to enter text.

Signature: Click or tap here to enter text. Dated: Click or tap to enter a date.

P.P on behalf of the Area Manager

Alex Billot

From: Alex Billot
Sent: Tuesday, 20 May 2025 12:34 pm
To: Cushla Jordan
Cc: Rochelle
Subject: RE: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Thanks Cushla, much appreciated.

Kind regards,

NORTHLAND
PLANNING & DEVELOPMENT

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm.

From: Cushla Jordan <cushla.jordan@fndc.govt.nz>
Sent: Monday, 19 May 2025 4:52 pm
To: Alex Billot <Alex@northplanner.co.nz>
Cc: Rochelle <rochelle@northplanner.co.nz>
Subject: RE: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Hi Alex

I will follow-up tomorrow with Elizabeth who assesses applications and advise.

Apologies for the oversight with this email.

Kind Regards

Cushla Jordan
Senior Asset Manager
M 278010719 | **P** 6494015332 | cushla.jordan@fndc.govt.nz
Te Kaunihera o Te Hiku o te Ika | Far North District Council

Pokapū Kōrero 24-hāora | 24-hour Contact Centre 0800 920 029
fndc.govt.nz

From: Alex Billot <Alex@northplanner.co.nz>
Sent: Friday, 16 May 2025 12:55 pm
To: Cushla Jordan <cushla.jordan@fndc.govt.nz>

Cc: Rochelle <rochelle@northplanner.co.nz>
Subject: RE: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Good afternoon Cushla,

I am just following up on my below email.
If you could please advise if you have any questions regarding the proposal or if written approval would be able to be obtained to include with our land use resource consent application, that would be greatly appreciated.

Thanks in advance.

Kind regards,

NORTHLAND
PLANNING & DEVELOPMENT

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm.

From: Alex Billot
Sent: Friday, 9 May 2025 9:29 am
To: cushla.jordan@fndc.govt.nz
Cc: Rochelle <rochelle@northplanner.co.nz>
Subject: FW: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Good morning Cushla,

Robin Rawson advised that she had sent on our below email to yourself, regarding a sunlight infringement for a proposed dwelling at 488 Manawaora Road, Parekura Bay.
The proposal results in a sunlight infringement along the western boundary which adjoins a public walkway. The public walkway is technically noted as forming part of a road as per the FNDC zone maps, and detailed in the below email.

I am just following up to see if you had any questions regarding the proposal and if written approval would be able to be obtained to include with our land use resource consent application.

Thanks and I look forward to hearing back from you.

Kind regards,

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm.

From: Robin Rawson <Robin.Rawson@fndc.govt.nz>
Sent: Friday, 2 May 2025 3:05 pm
To: Alex Billot <Alex@northplanner.co.nz>
Subject: Re: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Hi Alex,

As this is road reserve I passed this onto Cushla in the Roading team, but have not heard back from her. You may wish to follow up with her next week.

Regards,
Robin

Robin Rawson
Parks & Reserves Planner - Growth Planning and Placemaking
M 272171426 | **P** 6494015288 | Robin.Rawson@fndc.govt.nz
Te Kaunihera o Te Hiku o te Ika | Far North District Council

From: Alex Billot <Alex@northplanner.co.nz>
Sent: Friday, May 2, 2025 9:23 AM
To: Robin Rawson <Robin.Rawson@fndc.govt.nz>
Cc: Rochelle <rochelle@northplanner.co.nz>
Subject: Proposed land use RC application - 488 Manawaora Road, Parekura Bay

Good morning Robyn,

We are in the process of preparing a land use resource consent application for a new dwelling at 488 Manawaora Road, Parekura Bay, which is zoned as Coastal Residential.

The proposal will see a two storey dwelling constructed, with an upper storey attached deck. The lower storey will contain a garage, workshop and utility area, with the upper floor containing living and kitchen areas as well as 3 bedrooms, one bathroom and an ensuite. Given the existing slope of the land, the proposed design of the dwelling is considered to be best suited for the site. The plan set is attached to this email for your reference.

The proposal results in an infringement of permitted rule 10.8.5.1.5 Sunlight along the western boundary which adjoins a public walkway. The sunlight infringement can be seen on Sheet A-05 & A-06 of the attached plan set. The infringement occurs due to the slope of the land, which slopes away to the west, where the site adjoins the public walkway.
As can be seen in the below photos, there is some existing vegetation along the walkway boundary. The fence line in the first image indicates the dividing boundary between the site and the walkway. The retaining wall shown in the first photo will be replaced as noted in the plan set.

The public walkway is technically noted as forming part of a road, as can be seen in the below zone maps.

If you could please provide comment on the proposal in regards to the sunlight infringement, that would be greatly appreciated.

If you require any further information, please do not hesitate to get in touch.

Thanks in advance.

Kind regards,

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm.

Northland Planning Development

From: Northland Planning Development
Sent: Thursday, 8 May 2025 4:07 pm
To: Bill Edwards
Cc: James Robinson
Subject: Request for comments - Land use consent 488 Manawaora Road, Parekura Bay

Good afternoon Bill,

We are preparing a land use resource consent application for a new dwelling at 488 Manawaora Road, Parekura Bay. The proposal requires land use consent for a sunlight infringement along the western boundary and due to the dwelling being located within 20 metres of vegetation to the west and south. I have attached a onedrive link below with the plan set as the file size is too large to send via email attachment.
The bulk of earthworks have been historically completed, as can be seen in the site photos within the onedrive link.
Fox - Plan Set & Photos

If you could please provide comments on the proposal to include with our application, that would be greatly appreciated.

Thanks in advance.

Kind regards,

NORTHLAND
PLANNING & DEVELOPMENT

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm

Northland Planning Development

From: Northland Planning Development
Sent: Thursday, 8 May 2025 4:11 pm
To: rewiri.boyce@xtra.co.nz; rmukiterawhiti@outlook.com; ngatikutahapu@gmail.com; kmcchair2016@gmail.com; karataumarere@gmail.com; heidi.mackey@ngatihine.maori.nz; mariu@ngatiwai.iwi.nz; ihapera.paniora@ngatiwhatua.iwi.nz
Subject: Proposed landuse resource consent application - 488 Manawaora Road, Parekura Bay

Tēnā koutou,

We are preparing a landuse resource consent application on behalf of our client at 488 Manawaora Road, Parekura Bay.
The proposal will see a two-storey dwelling constructed, with an upper storey attached deck. The plan set is attached within the onedrive link below, as the file size is too large to send via email attachment.
Fox - Planset
One new retaining wall (no more than 3 metres in height) will be constructed to the east of the dwelling, in front of an existing cut face. The existing retaining wall which runs through the middle of the site will remain, and will be incorporated into the design of the dwelling by utilising the surrounding area as a walkway through the lower storey. A new retaining wall will also be constructed to replace an existing failing retaining wall along the western side of the dwelling.

If you could please provide comment/feedback on the proposal to include with our resource consent application, that would be greatly appreciated.

We look forward to hearing from you. If you have any further questions, please do not hesitate to contact me.

Ngā mihi,

NORTHLAND
PLANNING & DEVELOPMENT

Alex Billot
Resource Planner

Offices in Kaitaia & Kerikeri
09 408 1866
Northland Planning & Development 2020 Limited

My office hours are Monday, Thursday & Friday 9am – 2pm

512068 TE 01011870

(*Approved by the District Land Registrar, Auckland, No. 2716*) 31-D

New Zealand]

Under the Land Transfer Act, 1915

Memorandum of Transfer

STAMP DUTIES DEPT 28.11.52 AUCKLAND

WHEREAS LEONARD HARRY KIMBER of Russell, Farmer, and IRENE ANNA JACOBINE KIMBER his wife (hereinafter called "the Transferors") being registered as proprietor of an estate in fee simple

subject however to such encumbrances, liens and interests as are notified by memoranda underwritten or endorsed hereon in all thospieces of land situated in the Land District of Auckland containing together One thousand .. Nine hundred and Eighteen acres Two roods and Thirty five perches . (1918a.2r.35p.) situated in Block III of the Russell Survey District being parts of the Rawhiti No.2. Block and being all of the land .. comprised in Certificate of Title Volume 798 Folio 175 AND WHEREAS by an Agreement in writing bearing date the 21st day of November .. 1950 made between the Transferors of the one part and HUMPHREY JOHN CHRISTIAN HARE formerly of Rata near Marton, but now of Russell, .. Farmer, (hereinafter called "the Transferee") of the other part the Transferors agreed to sell and the Transferee agreed to purchase .. part of the said land being all that piece of land containing Nine hundred and Eighty nine acres Three roods Sixteen perches and Nine Tenths of a perch (989a.3r.16.9p.) more or less being Lots 1,2,3,4, and 5 on Deposited Plan No. 38894 being parts of the said Rawhiti . No.2. Block and being part of the said land comprised in Certificate of Title Volume 798 Folio 175 AND WHEREAS the Transferors have .... agreed to give and grant to the Transferee a right of way over part of the said land first above described AND WHEREAS the Transferee . has agreed that the Transferors shall reserve to themselves a right of way over that part of the said land secondly above described ... coloured yellow on the said Deposited Plan No. 38894 NOW THIS ..... MEMORANDUM OF TRANSFER WITNESSETH that in consideration of the .... premises and in consideration of the sum of Nine thousand Five .... hundred pounds (£9500) paid to the Transferors by the Transferee .. (the receipt whereof is hereby acknowledged) the Transferors do ... hereby transfer to the Transferee all the estate and interest of the Transferors in the land secondly above described RESERVING nevertheless to the Transferors and their assigns full and free right and liberty to and for them and other the registered proprietor or proprietors for the time being of all that the residue of the said land firstly above described being the balance of the land in the said Certificate of Title or any part thereof and their tenants servants agents .... workmen and visitors and all persons having business with them from time to time and at all times hereafter at their will and pleasure to go pass and repass on foot and with or without vehicles implements and animals of all descriptions loaded or unloaded by night as well as by day through over and along that portion of the said land .... secondly above described coloured yellow on the said Deposited Plan to the intent that the right of way hereby reserved shall be forever hereafter appurtenant to the residue to the said land firstly above described being the balance of the land in the said Certificate of Title for all purposes connected with the use occupation and ...... enjoyment thereof AND FOR THE CONSIDERATION AFORESAID the Transferors do hereby transfer and grant to the Transferee his executors ...... administrators and assigns and his and their servants agents workmen and visitors and all persons having business with him or them the . free and perpetual right of way ingress egress and regress on foot and with or without implements vehicles and animals of all descriptions loaded or unloaded by night as well as by day in over and ...

1918-2-35
989-3-16.9
928-3-18.1

1075/285

Powell

L. H. K.
I. A. I. K.

~~In consideration of~~

(the receipt of which sum is hereby acknowledged)

Do hereby Transfer to the said

all estate and interest in the

~~said piece of land above described~~

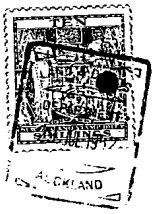
upon the part of the said land first above described being the part of Lot 6 on the said Deposited Plan No. 38894 coloured yellow on the said plan to the intent that such easement of right of way hereby created shall be forever appurtenant to the land secondly above described and any part thereof for all purposes connected with the use occupation and enjoyment thereof.

In witness whereof they have hereunto subscribed their names this 21st day of July one thousand nine hundred and Fifty two.

Signed by the above named
LEONARD HARRY KIMBER and
IRENE ANNA JACOBINE KIMBER
as Transferors
in the presence of

L. H. Kimber.
Irene Kimber

W. J. Rushworth
Solicitor
Launceston



MEMORANDUM OF PARTIAL RELEASE.

THE PUBLIC TRUSTEE FOR THE DOMINION OF NEW ZEALAND being registered as the proprietor of an estate as mortgagee under Memorandum of Mortgage Registered Number 351433 in inter alia all that piece of land containing 989 acres 3 roods 16.9 perches more or less being Lots 1, 2, 3, 4 and 5 on Deposited Plan Number 38894 being parts of Rawhiti Number 2 Block and being part of the land comprised in Certificate of Title Volume 798 Folio 175 Auckland Registry IN CONSIDERATION of the sum of Two thousand three hundred pounds (£2,300) paid to him by Leonard Harry Kimber and Irene Anna Jacobine Kimber both of Russell, Farmers, (the receipt whereof is hereby acknowledged) DOTH HEREBY but without prejudice to his rights and powers as such mortgagee as aforesaid in respect of the residue of the land comprised in the said mortgage and without releasing such other lands from the said mortgage DOTH HEREBY DISCHARGE the land above described from the provisions of the said mortgage Number 351433 and from all liability for payment of the moneys secured thereby.

IN WITNESS WHEREOF these presents have been executed this 21st day of July 1952.

SIGNED by the Public Trustee by the District Public Trustee for Whangarei and sealed with the latter's seal of office in the presence of :-

R P Hopkins
Solicitor
Whangarei

THE PUBLIC TRUSTEE

by

District Public Trustee for Whangarei.

Correct for the Purposes of the Land Transfer Act.

H. S. Ransworth

Solicitor for the Mortgagors.

A 276372 Transfer surrendering the Easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/12) with respect to Lot 6 Plan 49854 C.T. 3B/1445.

ALR

A283370 Transfer surrendering the Easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/12) with respect to Lot 8 Plan 49854 CT 9B/798

ALR

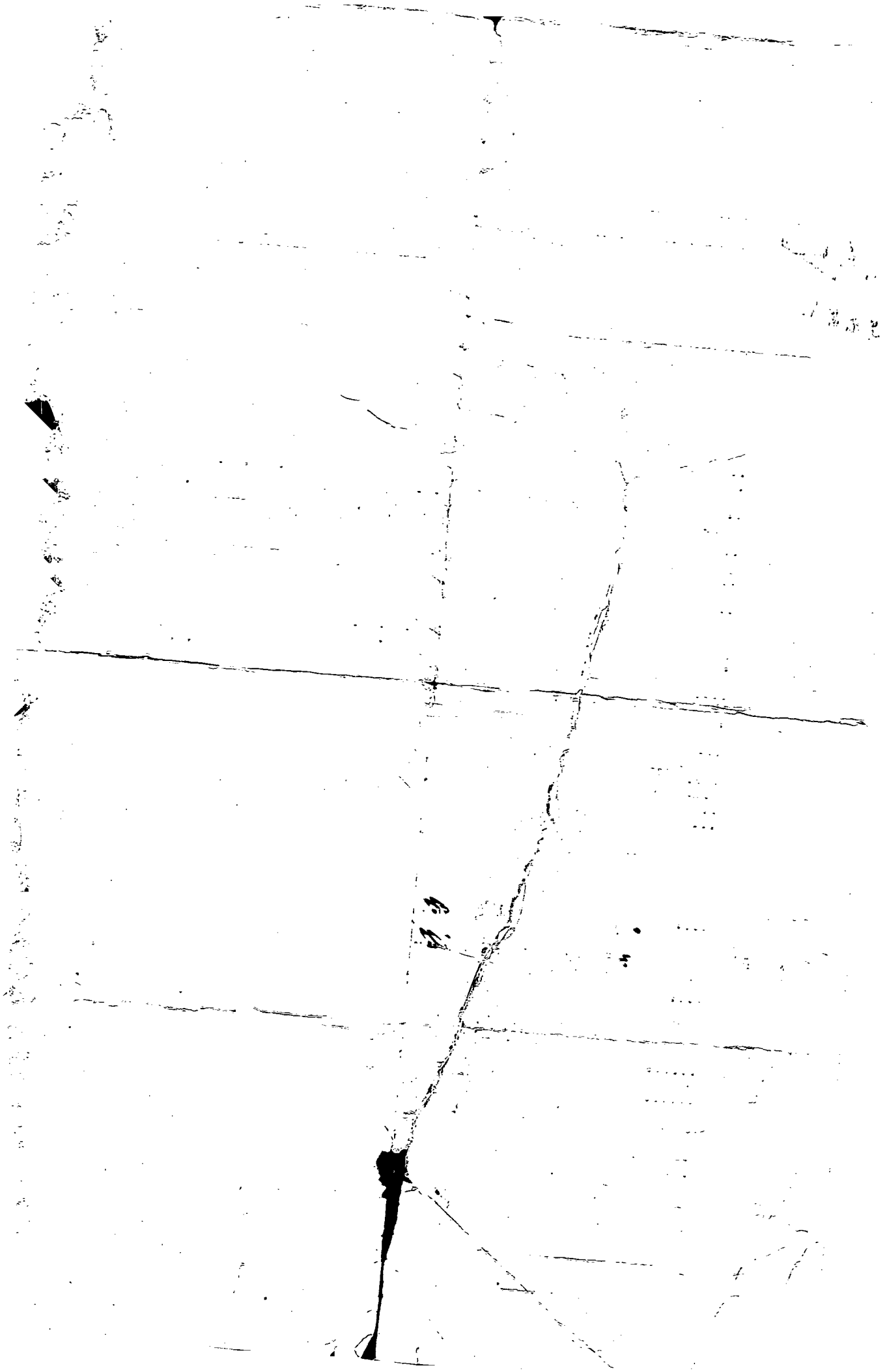
A283371 Transfer surrendering the Easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/12) with respect to Lot 9 Plan 45343 CT 1652/94.

ALR

Schedule

Transfer Surrendering.	Dominant land.	ALR.
A295415	1961/24	
A295418	1643/93	
A302821	1664/64	
A302820	108/104	
A324390	204/[illegible]	
A311190	1684/28	
A341590	13A/190	
A378938.	143/531 & 150/118	
A. 4160/6	Lot 9 Plan 49854 CT 8A/509	
A. 311189	13A/188	

N.B. This easement is still ~~all~~ alive in favour of our Lease C.T. 6C/224 + 1664/89.



No. 512068

106

Correct for the purposes of the Land Transfer Act.

TRANSFER OF
land in the Russell Survey District.

H. S. Rishworth
Solicitor for the Transferee

LEONARD HARRY KIMBER and

IRENE ANNA JACOBINE KIMBER *Transferors*

HUMPHREY JOHN CHRISTIAN HARE *Transferee*

A 274471 Transfer surrendering the easement created by within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/12) 28.2.1968 at 10.50 am. with respect to Lot 14 Plan 45343 (C.T. 26/120). A.R.

A279566 Transfer surrendering the easement created by the within Transfer over parts Lots 1 and 2, Plan 38894 (CT 2105/12). with respect to Lot 2, Plan 45343 (CT 1650/35)

A279567 Transfer surrendering the easement created by the within Transfer over parts Lots 1 and 2, Plan 38894 (CT 2105/12), with respect to Lot 8, Plan 45343, C.T. 1667/48 A.R.

A 276370 Transfer surrendering the easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/12) with respect to Lot 7 Plan 49854 CT 2-98/78

A 276371 Transfer surrendering the easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/2) with respect to Lot 3 Plan 46012 CT 1670/26

Particulars entered in the Register-Book 798/175
4 on M 351433.

the 29th day of July 1952.
at 11.35 o'clock.

A.M. Benjamin
Assistant District Land Registrar
of the District of Auckland.

Part 798/175 see over page

989.3.16.9

Russell S.D. being Lots 1, 2, 3, 4 & 5 on D.P. 38894 & being parts of Rawhiti No 2 Block.

D.P. 38894

A 302820 Transfer surrendering the Easement created by the within Transfer over parts Lots 1 and 2 Plan 38894 (CT 2105/2) with respect to Lot 3 Plan 49854 (10B/107).

RISHWORTH AND HARRISON
Solicitors for the Transferee
WHANGAREI.

THE LAW SOCIETY OF THE DISTRICT OF AUCKLAND
A.D.Ltd. 13051

A495267TE

Approved by the Registrar-General of Land, Wellington, No. 62/541431 NEW ZEALAND

MEMORANDUM OF TRANSFER

I, HUMPHREY JOHN CHRISTIAN HARE of Russell, Farmer

1. Here state nature of the estate or interest.

being registered as the proprietor of an estate[1] fee simple

subject however to such encumbrances liens and interests as are notified by memoranda

2. District, county, or township.

underwritten or endorsed hereon in all that piece of land situated in the[2] Provincial District of Auckland

3. Here state area, exclusive of roads intersecting the same, if any.

containing[3] TWO ROODS SEVEN DECIMAL THREE PERCHES (2r. 7.3p.)

4. Here state rights of way, privileges, or easements, if any, intended to be conveyed: If the land to be dealt with contains all that is included in an existing grant, or certificate of title, or lease, refer thereto for description of parcels and diagrams, otherwise set forth boundaries in chains, links or feet, and refer to the plan delineated on the margin, or annexed to the Instrument or deposited in the Land Registry Office.

be the same a little more or less[4] being Lot 6 on Deposited Plan 45917 and being part Rawhiti Number 2 Block and being all of the land comprised and described in Certificate of Title Volume 16B Folio 1156 North Auckland Registry TOGETHER WITH the right of way created by Transfer 512068 AND TOGETHER WITH AND SUBJECT TO the rights of way created by Easement Certificate S withdrawn AND FURTHER SUBJECT TO Section 37 (1) (c) of the Counties Amendment Act 1961.

-3 IX 70 9141 -008.00

O.T. Stamp Duty TGV

DECLARATION OF NON-REVOCATION

Land Transfer Act

I, BARRY MAXWELL ATKINS of Whangarei, Solicitor, do solemnly and sincerely declare as follows:

1. THAT I have executed the within written Memorandum of Transfer as the attorney and in the name of the therein named and described HUMPHREY JOHN CHRISTIAN HARE under and by virtue of a certain Power of Attorney bearing date the 17th day of December 1969 (a copy of which said Power of Attorney is deposited in the North Auckland Land Registry under no. A451051).

2. THAT I have not received any notice or information of the revocation of the said Power of Attorney by death or otherwise and I verily believe the same to be in full force and effect.

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

DECLARED at Whangarei by the said)
BARRY MAXWELL ATKINS this 2nd)
day of September 1970 before me:) B M Atkins

A Solicitor of the Supreme Court of New Zealand

In consideration of the sum of EIGHT HUNDRED DOLLARS ($800)

paid to me by BEATRICE MARION WEBSTER of Tauranga, Married Woman.

the receipt of which sum I hereby acknowledge

Do hereby Transfer to the said Beatrice Marion Webster

5. Or a lesser estate or interest desribing such lesser estate.

all my[5] estate and interest[5] in the said piece of land, Terms approved

together with a Right of Way over part Lot 7 coloured yellow on Plan 45917 (CT 16B/1157) and reserving a Right of Way over part of Lot 6 coloured yellow on Plan 45917 (CT 16B/1156) transferred herein appurtenant to Lot 7 Plan 45917 (CT 16B/1157).

In Witness whereof these presents have been executed this 2nd day of September

one thousand nine hundred and seventy

Signed by the said

HUMPHREY JOHN CHRISTIAN HARE
by his Attorney
BARRY MAXWELL ATKINS

Barry Atkins

in the presence of

Solicitor
Whangarei

A495267 390

NO.

TRANSFER

Freehold land of

Situated in Provincial District of Auckland.

Correct for the purposes of the Land Transfer Act.

Solicitor for the Transferee

HUMPHREY JOHN CHRISTIAN HARE *Transferor*

BEATRICE MARION WEBSTER *Tranferee*

PARTICULARS entered in Register Book,

Vol. 16B , Folio 1156
16B 1157

the 29th day of October 1970

at 11.35 o'clock.

DISTRICT LAND REGISTRAR NORTH AUCKLAND, N.Z.

Assistant Land Registrar of the District of ~~South~~ North Auckland

The easements created herein are subject to section 37(1)(a) Counties amendment act 1961

(1)

LAND & DEEDS
Nature: Transfer
Firm:
Date:
Time:
Fee: $
Abstract No.

LAND & DEEDS
Nature: T
Firm: Mountain G
11 SEP 1970
Time: 11.35
Fee: $ 2
Abstract No. 99498

SHARP, TUDHOPE & CO.
SOLICITORS
TAURANGA, N.Z.

LT/5-10/66 THE CAXTON PRESS CHRISTCHURCH SERIAL NO. 173

A495267