Whangarei District Council
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Land Information Memorandum

Sections 44A-C Local Government Official Information and Meetings Act 1987

LIM number: LM2601735

Received: 19 Oct 2026

Issued: 05 Nov 2026

Applicant

R W Lyon
24 Kea Place
Woodhill
Whangarei 0110

Site Information

Property ID: 110438

Street Address: 122 Old School Road
Whangarei 0178

Legal Description: LOTS 7 12 DP 207955

Disclaimer

The information included in this LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council.

Please note that other agencies may also have information relevant to the use of the land, for example, the Northland Regional Council, Heritage New Zealand Pouhere Taonga, and Land Information New Zealand.

The applicant is solely responsible for undertaking comprehensive due diligence of this property.

Council records may not show illegal or unauthorised building or works on the property. Council has not carried out an inspection of the land or buildings for the purpose of preparing this LIM.

The LIM also includes information that identifies natural hazards known to Council. The existence of a natural hazard or potential natural hazard does not equal likelihood of that hazard occurring.

The LIM is not a risk assessment and does not quantify risk. The applicant is advised to seek further information to ensure that the land is suitable for a particular purpose.

A LIM is only valid at the date of issue as information is based only on information that was known to the Council at the time of that LIM application being made.

Further information about the property may be available in the Council records or the current Record of Title. The LIM and any attachments should be read together.

You may wish to seek independent advice to aid the understanding of any of the information included in this LIM.

Property details

- Location Map
- Aerial Photo
- Record of Title: NA136B/777
- Deposited Plan: DP 207955

s44A(2)(aa) Information identifying special features or characteristics of the land

Information identified on a site-specific scale for this property is attached for your information.

1. Refer to copies of following reports as attached:

    a. Site Suitability Report by TMC Consulting Engineers dated 04/08/2017 from BC2000074 reference S0363-J00679.

    b. Onsite Wastewater Design Report by Waterflow NZ Ltd dated 08/11/2019 from BC2000074.

s44A(2)(b) Information on private and public stormwater and sewerage drains; s44A(2)(bb) Information Council holds regarding drinking water supply to the land

No Whangarei District Council services are available in this area.

As-Built, House Connection and/or Drainage Plan for this property from the building file is attached.

- As Built Services Plan from BC2000074

s44A(2)(c)(ca)(cb) Information relating to any rates owing in relation to the land

Information on Valuation, Rates and Water Meter location (if applicable) for the current financial year, is attached.

s44A(2)(d) Any permit, consent, certificate, notice, order or requisition affecting the land or buildings; s44A(2)(daa) Information relating to non-consented small stand-alone dwellings s44A(2)(da) Information provided under s362T of the Building Act 2004; s44A(2)(e) Certificate issued by a building certifier; s44A(2)(ea) Information notified under s124 of the Weathertight Homes Resolution Services Act 2006

Copy of Building Consent and Code Compliance Certificate issued for this property is attached as listed below:

- BC2000074 – New Dwelling
  Building Consent Issued – 11/05/2020
  Minor Variation – Changes to bracing bedroom 4 and back of bathroom Approved – 15/09/2020
  Code Compliance Certificate Issued – 25/08/2021

Council holds no current record of a swimming pool or spa at this property.

s44(2)(f) Information relating to the use to which the land may be put and conditions attached to that use

This property is located in a Rural Production Zone.

See map attached and for more information search the property address on Council's ePlan: https://eplan.wdc.govt.nz/plan

A Deemed Permitted Boundary Activity application under the Resource Management Act 1991 has been approved for this property, information attached.

- PB2000010 - A residential unit is proposed to be located 3m from the southern boundary of the subject site. A retaining wall (with a maximum height of 2m) is proposed between the proposed residential unit and Old School Road, and between the proposed residential unit and the southern boundary of the subject site. The proposal breaches rule RPE.2.3.4.b of the Operative Whangarei District Plan because the proposed setback for the residential unit is less than 8m from the southern boundary of the subject site.
  Notice of Decision Granted – 26/03/2020

s44(2)(g) Information regarding the land which has been notified to Council by another statutory organisation

Whangarei District Council is not aware of any classification attached to the land or building/s.

s44(2)(h) Information regarding the land which has been notified to Council by a network utility operator pursuant to Building Act 1991 or Building Act 2004

Information relating to any utility service other than Councils such as telephone, electricity, gas and regional council will need to be obtained from the relevant utility operator.

Further information may be available from other authorities; Northpower; Spark; Vector Limited; etc.

S44A(3) Other information Council considers relevant to the land

Whangarei District Council recommends that all Whangarei District residents visit the Northland Regional Council website for information on Civil Defence hazard response: https://www.nrc.govt.nz.

This information includes Tsunami evacuation zones, maps and community response plans for flooding and extreme weather events etc.

Copies of site plan, floor plan and elevations are attached for your information.

s44B(2) Natural Hazards

This LIM includes natural hazard information held by Northland Regional Council and Whangarei District Council, however:

- There may be hazards the Councils do not have information about.
- Some hazard information may be held by other organisations.
- If a hazard is not mentioned in this LIM, it does not necessarily mean the hazard does not exist.

Information about a single hazard (such as flooding, erosion, or land instability) may be included in more than one part of this report. Please check all relevant sections to ensure you have a complete understanding of the hazard.

District Plan Information about Natural Hazards

This property is mapped under PC1 as **Moderate & High Land Instability**. The Whangarei District Council notified PC1 on 31 May 2023. The Plan Change introduces new provisions relating to natural hazards to the District Plan, including updated hazard maps and rules for land use, development, and subdivision in hazard susceptible areas. As of 4 December 2024 the Decision Version PC1 rules have legal effect.

Refer to map attached and for more information on the proposed plan change please visit https://www.wdc.govt.nz/PlanChanges

Building Act Information about Natural Hazards

No Building Act Information about natural hazards applies to this property.

Flooding

Flooding occurs when rainfall exceeds the capacity of the river, land or urban stormwater systems to hold the water. In steep terrain or around rivers, floods can be fast-moving; in low-lying areas and wetlands, floods can cause ponding.

In coastal areas, storm surges can cause flooding affecting land.

Northland Regional Council has modelled the flood risk across Te Taitokerau Northland and maintains a monitoring and forecasting programme to predict flooding. However, the absence of flooding information contained in this report does not exclude the possibility of site flooding, including from local depressions or overland flow paths on nearby properties.

River flood maps

Modelling by Northland Regional Council does not identify a River Flood Hazard for this property.

A river flood occurs when a river, lake or stream overflows its banks due to excessive rain. The duration and intensity (volume) of rainfall in the catchment area of the river determine the severity of a river flood. Other factors include soil water saturation due to previous rainfall, and the terrain surrounding the river system. In flatter areas, floodwater tends to rise more slowly and be shallower, and it often remains for days. In hilly or mountainous areas, floods can occur within minutes after a heavy rain, drain very quickly, and cause damage due to debris flow.

To determine the probability of river flooding, models consider past precipitation, forecasted precipitation, current river levels, as well as soil and terrain conditions. Flood risk will increase with climate change with the forecast increase in rainfall. Northland Regional Council's flood hazard models include predicted climate change impacts.

Draft river flood reports

Northland Regional Council are continuing with their flood hazard modelling programme to improve the information about the potential for flooding in the region. The reports on these models are not currently published as they are going through peer review and quality checks, however they are available upon request from the Northland Regional Council.

The following reports are available:

- Whangārei Catchment Upgrade and Options Model. Project objectives include providing an appropriate modelling capability for catchment management, asset management and flood risk management. The completed model as well as the Whangārei urban areas detailed level which is closely related to the drainage system management. The report was prepared April 2023 by EWaters and updated in 2025

- Report on the Northern Wairoa Rainfall, Tidal and Storm-Surge Model is designed to simulate rainfall-induced flooding, tidal influences, and storm surge effects for the Northern Wairoa catchment, with a focus on the Dargaville area. The model has been calibrated using multiple flood events at all river gauge locations within the catchment. The report was prepared in September 2025 by Submergent Limited for Northland Regional Council.

In 2019 - 2021 Northland Regional Council undertook regionwide flood modelling to model catchments not covered by the priority rivers programme. The flood extent shown on the maps are produced at a catchment scale and is not intended to depict specific flooding details for individual properties. We recommend obtaining site-specific engineering assessments to assess flood risk. The regionwide flood hazard maps are available on the Northland Regional Council Natural Hazards Map viewer https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

The regionwide flood hazard maps include the following flood hazard zones:

- *River Flood Hazards Zone - Regionwide models (10 year extent).* Flood extent for the most common scenario - a flood with a 10% chance of happening in any year.
- *River Flood Hazards Zone - Regionwide models (50 year extent).* The extent of a flood that has a 2% annual probability of happening.
- *River Flood Hazards Zone - Regionwide models (100 year extent CC).* The extent of a flood that has a 1% annual probability of happening, taking the effects of climate change into account.

Northland Regional Council are continuing with their flood hazard modelling programme and as at October 2025 currently has draft flood models for Whangārei, Kerikeri, Northern Wairoa, Waima and Punakitere, Catchments. These models are not currently published as they go through peer review and quality checks. Flood hazards for these catchments can be requested from Northland Regional Council.

Surveyed and observed flood levels

Northland Regional Council records flood levels during flood and storm events which provides evidence of lands that are effected by flooding.

Surveyed River Flood Levels are available on the Northland Regional Council Natural Hazards Maps viewer.
https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

Information about observed Coastal Flood Levels is available on the Northland Regional Council's website.
https://www.nrc.govt.nz/media/jtmbbgr1/historicobservedcoastalfloodlevelsnorthland2017.pdf

Flood susceptible lands

Prior to undertaking flood modelling and mapping, Northland Regional Council identified land that could be susceptible to flooding based largely on soil type. This information should only be used where flood hazard modelling and maps are not available (upper Kaihu, upper Kerikeri and upper Rotokakahi and upper Waitangi, Waima and Punakitere catchments).
Flood susceptible land information is available on the Northland Regional Council Natural Hazards Maps viewer.
https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

River Flood Hazard Technical Reports

1. Scope of report:	Wairoa Catchment (Catchment M18)
2. Report Title:	Design Modelling Northern Wairoa Catchment (M18)
3. Report date:	May 2021
4. Report prepared by:	Water Technology
5. Report commissioned by:	Northland Regional Council
6. Purpose of the report:	This report documents the design modelling methodology for Northern Wairoa Catchment (M18), noting that this catchment was not calibrated however, model parameters reflected regional parameters and assumptions relied upon for Catchments M01, M13, M14 and M15, located within close proximity to Catchment M16 and which were calibrated.
7. Where or how to access report:	River modelling technical reports https://www.nrc.govt.nz/resource-library-summary/research-and-reports/river-modelling-technical-reports/

Stormwater Catchment and Flood Management

This property has been identified as having information available under Stormwater Catchment and Flood Management, see map attached.

Overland flow paths provide indicative routes of where the surface stormwater may flow during rainfall events and the direction of this flow. Depression storage areas/surface depression ponding areas provide an indicative extent of ponding that may occur if the outlet to the ponding area is blocked or where the outlet capacity is exceeded, for example, if a pipe is either blocked or the design capacity of the pipe is exceeded during a rainfall event.

The Overland Flow Paths are a useful indicator of flow direction and location of where ponding will occur frequently during smaller events and before larger flooding may occur in major rainfall events.

The Overland Flow Path information was developed using LiDAR (Light Detection and Ranging) data. If the landform had changed since the LiDAR data was collected, the indicative Overland Flow Paths and depression ponding areas may not be accurate.

Climate change could make the natural hazard worse by increasing the amount and intensity of rain, which means more water could flow over land and follow these paths, leading to a higher risk of flooding.

Whangārei Stormwater Planning - Overland Flow Paths and Depression Storage Areas district wide report by Morphum Environmental Ltd, dated 4 October 2019, provided a technical overview of the scope, methodology, issues and limitations of the mapped Overland Flow Paths and indicative extent of surface depression areas.

The report can be viewed under the Whangārei Overland Flow Paths and Depression Storage Area section on our Natural Hazards web page: https://www.wdc.govt.nz/NaturalHazards

Refer disclaimer with the mapped OLFP and ponding
https://geo.wdc.govt.nz/portal/sharing/rest/content/items/73a86bc1bfed41a3baf4842efbcf9ae1/data

Land Instability

Whangarei District Council holds indicative information on land stability hazard for Whangārei. Information on land stability.

A landslide is defined as the downslope movement of a mass of earth, rock or debris under the influence of gravity. Whangārei District is susceptible to landslides due to a combination of steep topography, subtropical climate and the underlying geology which includes weak or expansive soil, weak rock and highly weathered, clay rich soils. Landslides are often triggered by intense or prolonged rainfall (as well earthquakes, loss of vegetation cover, leaky water infrastructure and earthworks) which will increase with the effects of climate change.

It is not possible to identify all potential or actual landslides or land instability. The absence of information in this section does not necessarily indicate the absence of a landslide risk.

'Landslide susceptibility' is the relative likelihood of future landsliding occurring based on underlying properties compared with surrounding areas. It does not indicate the size or frequency of potential landslides, or the potential for landslides to cause damage or loss.

This LIM includes maps which indicate Landslide Susceptibility in relation to this property and its surrounds - is **moderate/high.** These maps are based on a district wide study entitled 'Landslide Susceptibility Assessment for Whangarei District Council, October 2022.

These maps are a generalisation of available data, and do not represent site specific assessment. They are not intended to be viewed or relied upon on a property-level scale.

The Whangarei District Council may require site-specific investigations before granting future subdivision or building consent for the property, the level of investigation or assessment would depend on the level of stability risk of the area the property is in.

Technical report

1. Report Title:	Landslide Susceptibility Assessment for Whangarei District Council
2. Report date:	October 2022
3. Report prepared by:	Tonkin & Taylor Ltd
4. Report commissioned by:	Whangarei District Council
5. Purpose of the report:	The purpose and outcomes of this analysis and mapping is to: Provide a landslide susceptibility assessment and map that covers the Whangārei District and follows on from the landslide susceptibility assessment and mapping done previously but covered discrete areas of the district only.
6. Scope of report:	Whangārei District
7. Where or how to access report:	You can find the above report under the Land Instability section on our Natural Hazards webpage. Additional reports that may be relevant to Land Instability are also available at: https://www.wdc.govt.nz/NaturalHazards

Liquefaction

This property is located within an area classified as Liquefaction vulnerability category: **unlikely** and can be viewed on the Council Hazard viewer: https://www.wdc.govt.nz/HazardsGISMap

Please note: To view the liquefaction layer your map scale must be greater than 1:5000.

Liquefaction is a natural process where earthquake shaking increases water pressure in the ground in granular soils, resulting in temporary loss of soil bearing capacity. Liquefaction commonly leads to buildings 'sinking' on their foundations during the shaking - in line with that experienced in the 2011 Canterbury earthquakes.

Climate change is expected to cause sea level rise, and in turn an elevation of groundwater levels. Elevated ground water levels are likely to increase liquefaction susceptibility, but the extent of the increase has not been quantified by the report, nor Whangarei District Council.

Whangarei District Council commissioned Tonkin and Taylor Ltd to complete a district wide Liquefaction Vulnerability Study in August 2020. The report identifies and analyses the risk of liquefaction to help inform decisions about future development of land and buildings.

You can find the report under the Liquefaction section on our Natural Hazards web page: https://www.wdc.govt.nz/NaturalHazards

Tsunami

Tsunami are a series of waves, typically created by submarine or coastal earthquakes, landslides (including underwater landslides) and offshore submarine volcanic eruptions. Tsunami may travel hundreds of kilometres an hour and pass by unnoticed at sea, but slow down and grow as they move to shallow water, causing significant damage when they make landfall.

This property is located in an area identified as **Green Zone - Safe Area**

With funding from the Natural Hazards Commission Northland Civil Defence and Emergency Management have modelled the tsunami risk and created Tsunami Evacuation Zone and Safe Zone map:
https://experience.arcgis.com/experience/912cac3d84b64d55abe97b68e4980d94

Technical Report for Tsunami Evacuation Zone and Safe Zone map

1. Scope of report	Regional
2. Report Title:	Tsunami Inundation Modelling for Evacuation Planning in Northland
3. Report date:	2024
4. Report prepared by:	Orca Consulting
5. Report commissioned by:	Natural Hazards Commission
6. Purpose of the report:	The objective of this study was to produce tsunami inundation and evacuation zones for the Northland region that are compliant with guidelines set forth in the document 'Tsunami Evacuation Zones: Director's Guidelines for Civil Defence Emergency Management Groups' (MCDEM, 2016). To define these zones, numerical modelling was undertaken to determining the extents of the tsunami inundation zones for the Northland Region. The study used a Level 3/Level 4 modelling approach (as defined in MCDEM 2016) whereby a physics based numerical model was used to model the evolution of the tsunami from source through to inundation. The study used multiple sources, both local and distant.
7. Where or how to access report	A copy is available upon request from Northland Regional Council

Erosion and Landslide

Erosion is any movement of soil, rocks or sand, under the influence of wind, water or gravity. Landslides are a type of erosion. A landslide is the downslope movement of a mass of earth, rock or debris under the influence of gravity. Te Taitokerau Northland is susceptible to landslides due to its steep topography, subtropical climate, and underlying geology. Landslides are often triggered by intense or prolonged rainfall (as well as earthquakes, loss of vegetation cover, leaky water infrastructure and earthworks), which will increase with the effects of climate change. Climate change is expected to increase erosion in Te Taitokerau Northland.

Northland Regional Council has modelled the region's relative risk of erosion and sediment loss to water and these have been published as Erosion and Sediment Risk at this link - https://experience.arcgis.com/experience/bf65abc23bc144e2a32cd1efd6094167

The maps are based on a predictive model created using a range of information, including LiDAR (remote sensing technology that uses lasers to create 3D maps), soil and geology type, slope and climate data. The maps are designed as a tool to help landowners manage risks to water quality as a result of sediment loss to water - they provide an assessment of the relative risk of erosion and risk of sediment reaching waterways across Northland.
The maps do not provide a geotechnical assessment of land suitability for subdivision or built development, nor do they quantify the likelihood of future landslides or slips.

Technical Reports for erosion prone land

1. Scope of report	Regional
2. Report Title:	Northland's Landscape Driven Erosion Map: A Resources for Decision-Makers and Communities
3. Report date:	2025
4. Report prepared by:	Land and Water Science
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This report was created for people across Northland-farmers, council staff, iwi and hapū, community leaders, and planners-who want to better understand a new regional tool called the Sediment-Process Attribute Layer, or S-PAL. S-PAL does not replace older soil or geology maps. Instead, it builds on those valuable foundations by adding a new layer of information made possible through modern datasets.
7. Where or how to access report	Northland Regional Council website: https://www.nrc.govt.nz/media/tr4ng33g/northlands-landscape-driven-erosion-map-lws-2025.pdf

1. Scope of report	Regional
2. Report Title:	The S-PAL Framework: Technical User Guide for Erosion Susceptibility Assessment and Mitigation
3. Report date:	2026
4. Report prepared by:	Land and Water Science
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This User Guide explains how to use the S-PAL v 2.0 Framework to identify land that is prone to erosion across Northland. S-PAL stands for Sediment-Process Attribute Layers - a system that combines detailed maps and measurements to show where the land is most likely to erode and shed sediment into waterways.
7. Where or how to access report	Northland Regional Council website: https://www.nrc.govt.nz/media/qkofckd2/northland-erosion-and-sediment-risk-map-technical-user-guide-11jan2026.pdf

Draft subsidence report

Northland Regional Council have commissioned work into subsidence regions. The available report is Northland Region InSAR and Differential LiDAR Study. This report presents an analysis of surface deformation across the Northland region between January 2019 and August 2021 using InSAR (Interferometric Synthetic Aperture Radar), a technique for mapping ground deformation using space-borne radar images of the Earth's surface. This report was prepared in June 2026 by Harvey Geoscience.

Drought

Drought in Te Taitokerau Northland is a complex hazard to define and detect, and its impacts vary from one area to the other.

Technical Report for Northland Drought Assessment

1. Scope of report	Regional
2. Report Title:	Droughts in Northland: A Local and Regional Analysis
3. Report date:	2024
4. Report prepared by:	National Institute of Water and Atmosphere
5. Report commissioned by:	Northland Regional Council
6. Purpose of the report:	Analysis of the development, occurrence and severity of droughts in Northland Region.
7. Where or how to access report	Envirolink website: Droughts in Northland: A local and regional analysis https://www.envirolink.govt.nz/assets/Envirolink/2403-NLRC240-Droughts-in-Northland-A-Local-and-Regional-Analysis.pdf

In September 2024 the Ministry for the Environment and NIWA published national climate projections.

Droughts are expected to become more frequent and more severe in Te Taitokerau Northland by 2090.

Volcanic, Geothermal and Earthquake

There are many processes associated with volcanic eruptions, and these can be hazardous when they interact with people and/or infrastructure. The type and intensity of volcanic process will vary from volcano to volcano. There are two areas of past local volcanic activity in Northland, at Puhipuhi-Whangārei and at Kaikohe-Bay of Islands. While climate change does not affect volcanic eruptions, it can affect the risk from volcanic hazards such as lahars (volcanic mudflows) because of the forecast changes in rainfall.

Earthquakes occur when stress that has built up along a fault - a break in the Earth's crust - is suddenly released. Earthquakes can cause ground shaking, fault rupture, permanent ground movement, subsidence or lateral spreading, liquefaction, landslides, rock falls and tsunami. Although climate change does not affect earthquakes, it can make some of the problems earthquakes cause, such as subsidence, liquefaction, and landslides, more likely or more severe. This is because climate change affects rainfall and groundwater, which play roles in these hazards.

While the earthquake risk in Northland is low, there have been earthquakes recorded in the region.

Northland Regional Council does not have a map of volcanic, geothermal or earthquake risk but did commission information on volcanic hazards as part of the review of natural hazards information for Northland region. This information relates to region-wide studies and may not reflect the on-site situation or natural hazard investigations and mitigation done on a site-specific property level.

Technical Report for earthquake information

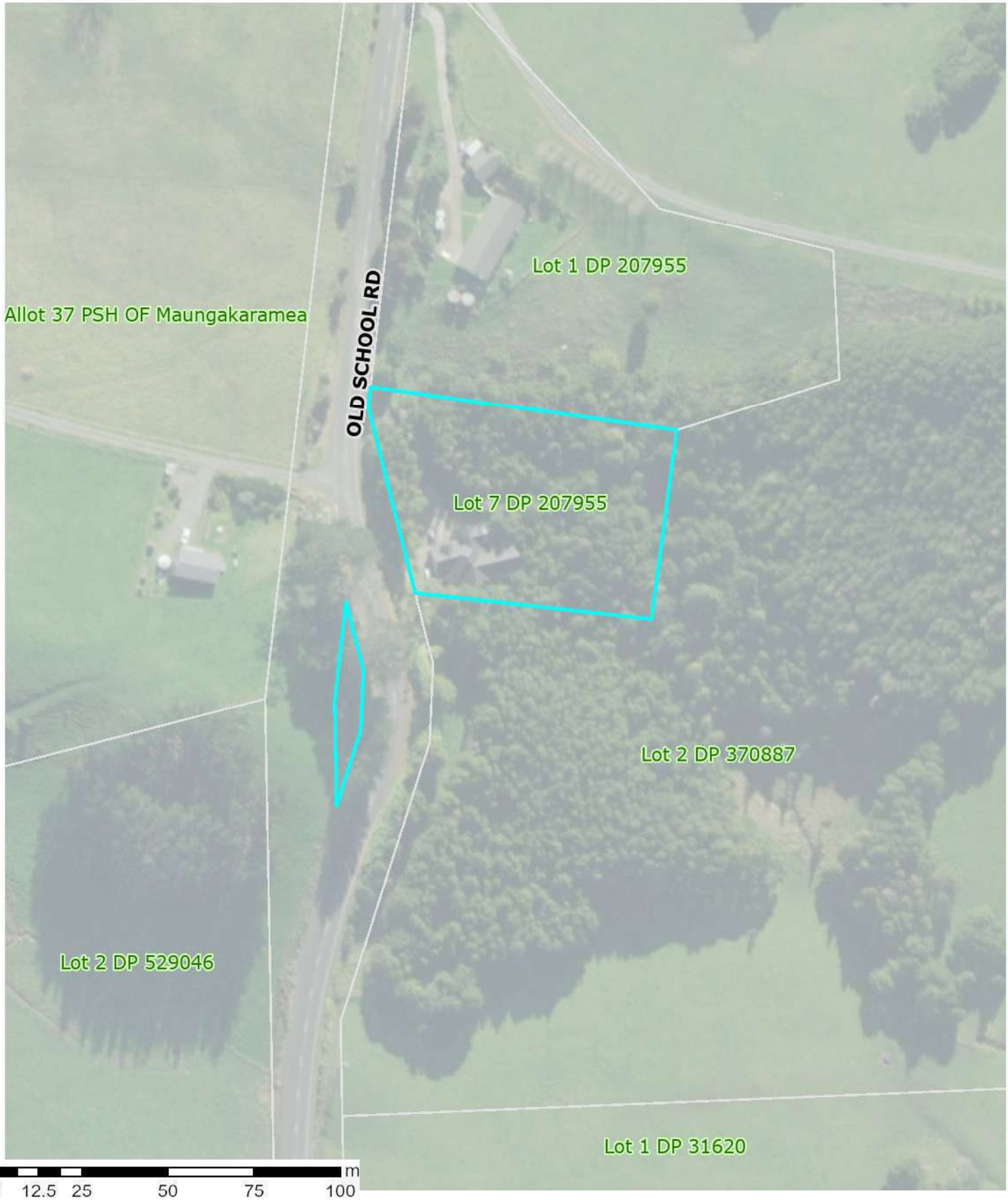
1. Scope of report	Regional
2. Report Title:	A review of natural hazards information for Northland region Section 2.0 Seismic Hazards
3. Report date:	2004
4. Report prepared by:	Institute of Geological & Nuclear Sciences Limited
5. Report commissioned by:	Northland Regional Council and Whangarei District Council
6. Purpose of the report:	The aim of this report is to assemble and present a review of existing information on natural hazards, including earthquakes. The report identifies gaps and possible future work. Please note sections on flooding and erosion prone land have been superseded by more recent work and modelling.
7. Where or how to access report:	Northland Regional Council Website https://www.nrc.govt.nz/media/2itixwuo/naturalhazards.pdf

Signed for and on behalf of Council:

P Luwes
Property Information Officer

Property Map

Whangarei District Council



New Subdivisions

- Proposed Pre-223
- 223 Certificate

New subdivisions: Proposed as accepted, pre-223 and 223 Certificate with set Conditions.

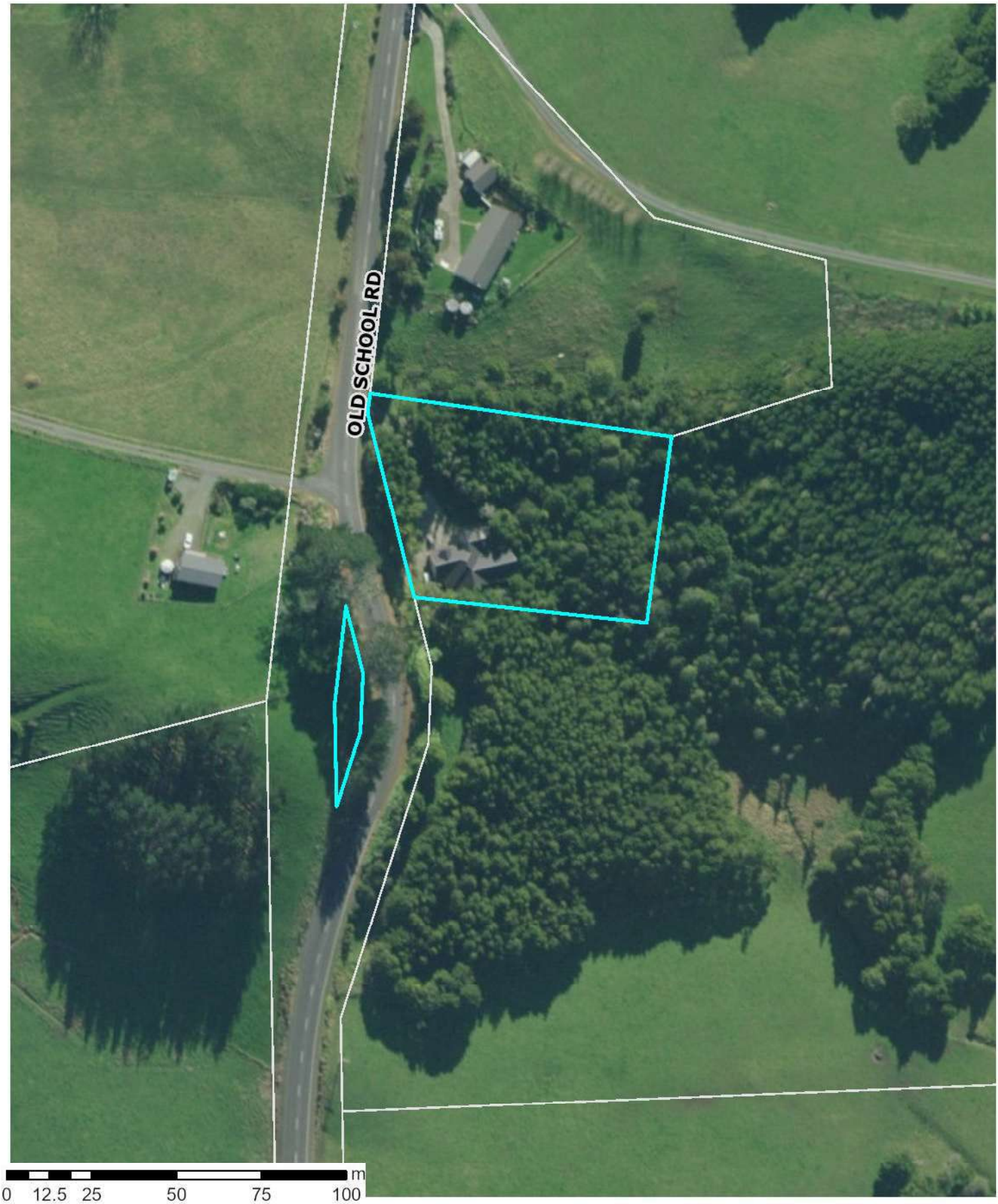
Land Parcel boundaries are indicative only and are not survey accurate. Area measurement is derived from the displayed geometry and is approximate. True accurate boundary dimensions can be obtained from LINZ survey and title plans

4 November 2026

Scale 1:1,500

The information displayed is schematic only and serves as a guide. It is made available in good faith but its accuracy or completeness is not guaranteed. Parcel Information is provided by LINZ Data Service, licensed for reuse under CC BY 4.0. Other data sources: Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors, Whangarei District Council, Sourced from the LINZ Data Service and licensed for reuse under the CC BY

Aerial Photography



This map includes New Zealand's most current publicly owned aerial imagery and is sourced from the LINZ Data Service.

4 November 2026

Scale 1:1,500

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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	**NA136B/777**
Land Registration District	**North Auckland**
Date Issued	01 September 2003

Prior References
NA121C/570

Estate	Fee Simple
Area	4834 square metres more or less
Legal Description	Lot 7, 12 Deposited Plan 207955
Registered Owners	

John Walter Kaiser and Tabitha Laura Pasco

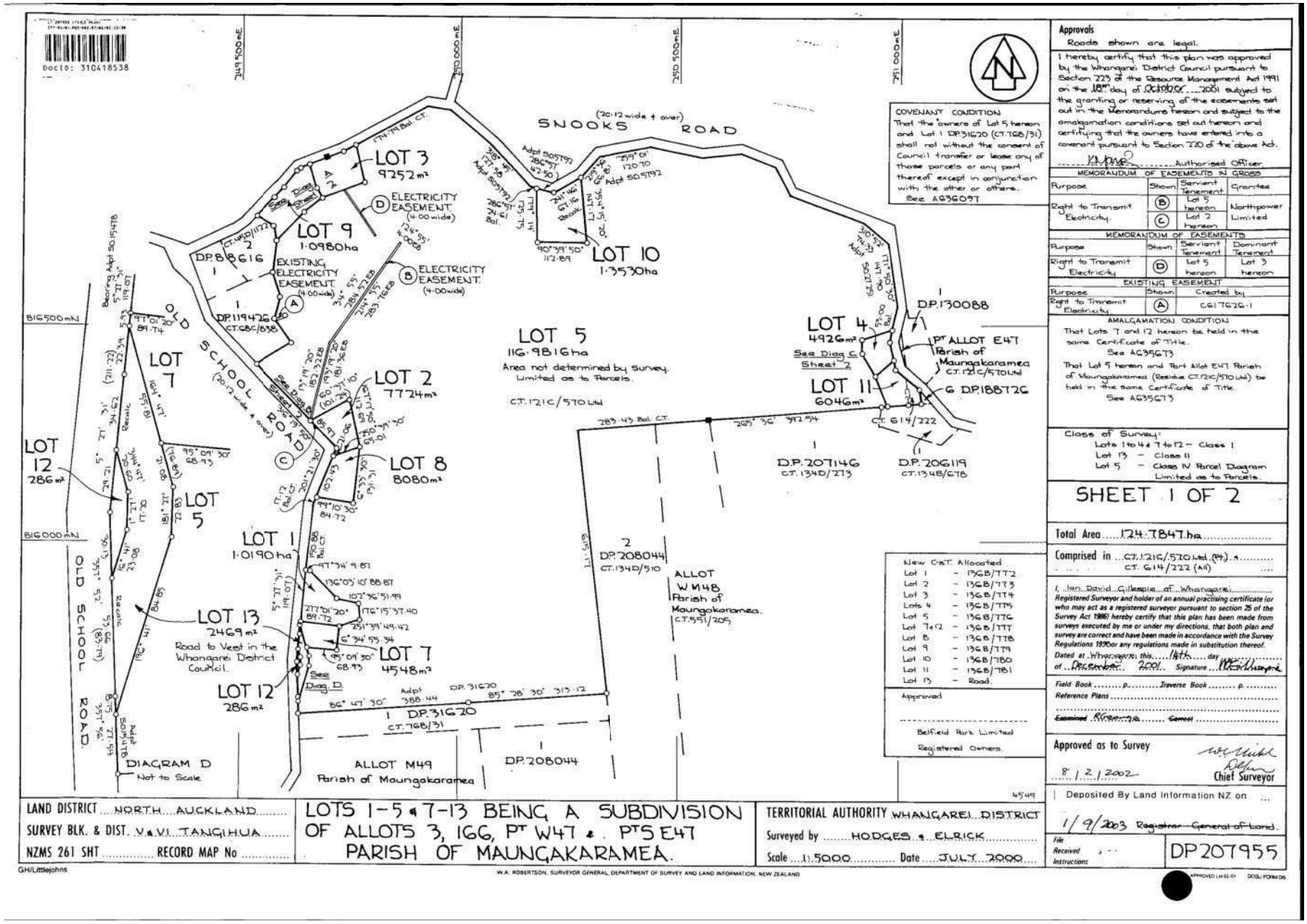
Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 207955)

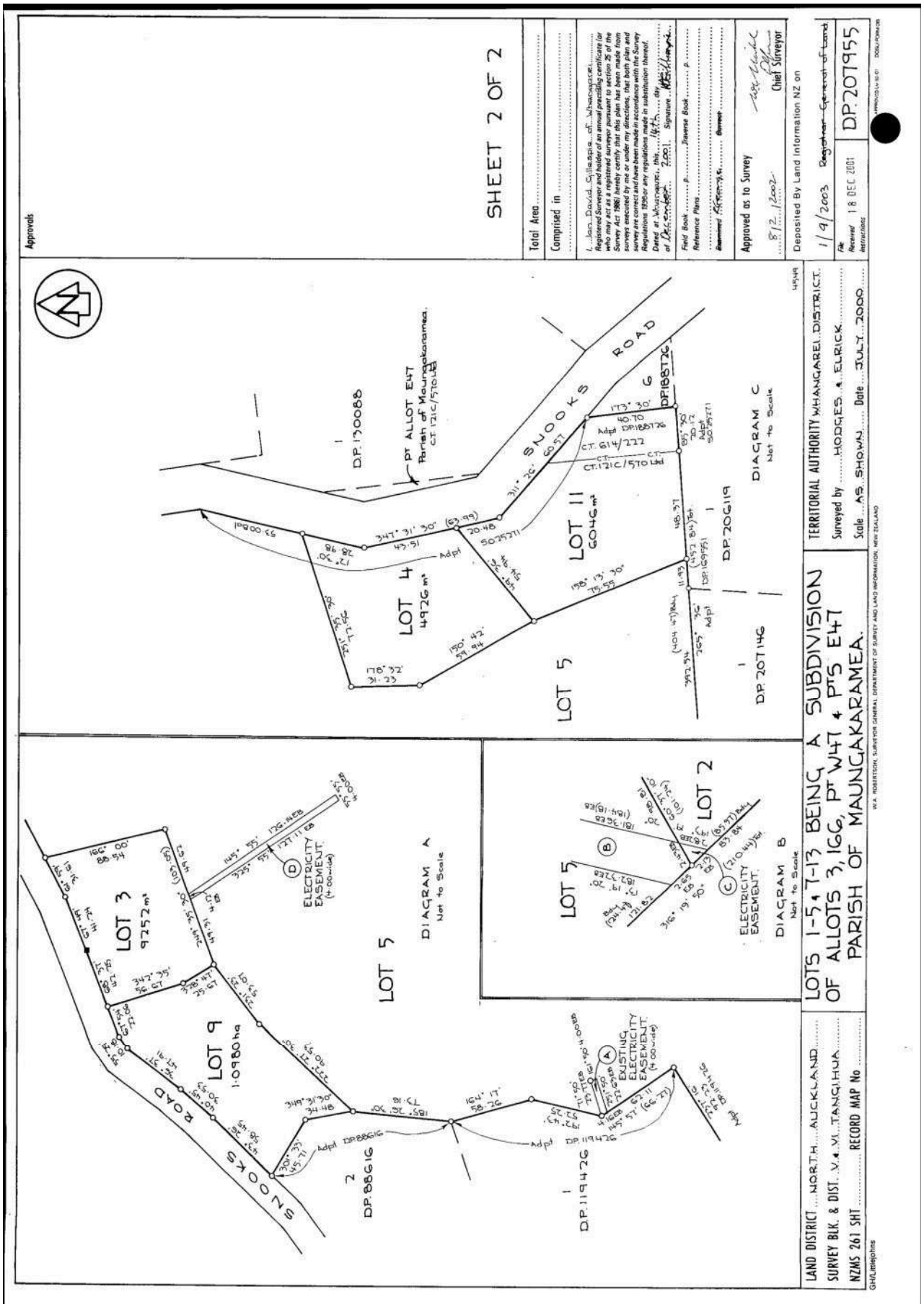
Land Covenant in Transfer 5712564.6 - 1.9.2003 at 9:00 am

7686894.1 Partial surrender of the land covenant created by Transfer 5712564.6 - 22.1.2008 at 9:00 am

12218086.4 Mortgage to Bank of New Zealand - 25.8.2021 at 3:06 pm

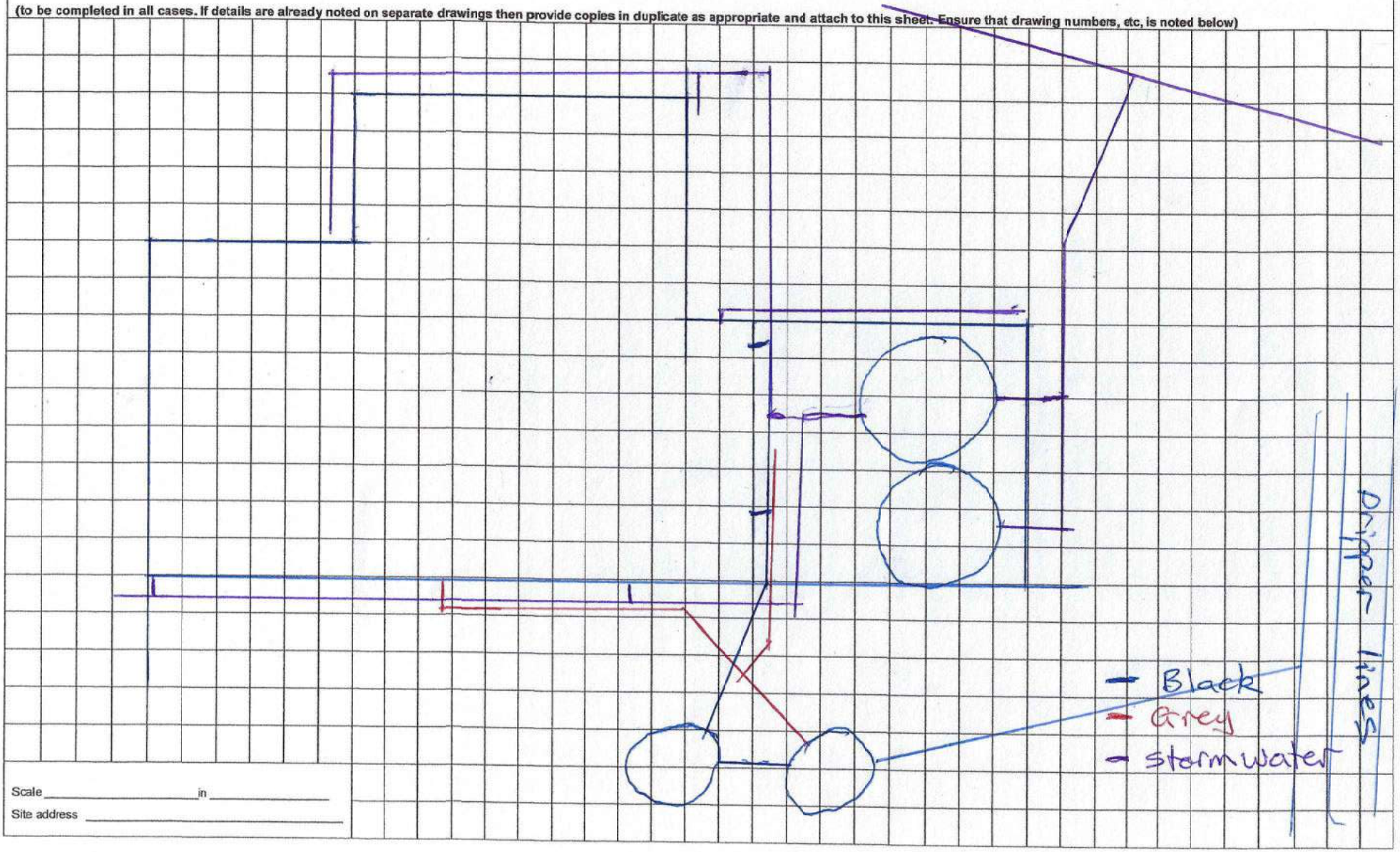


Transaction ID 10548040
Client Reference Quickmap
Guaranteed Search Copy Dated 19/10/26 9:30 am, Page 2 of 3
Register Only


SHEET 2 OF 2
Approvals
Total Area
Comprised in
Approved as to Survey
Chief Surveyor
Deposited By Land Information NZ on
1/9/2003 Registrar-General of Lands
File Reference
Received 18 DEC 2001
DP 207955
TERRITORIAL AUTHORITY WHANGAREI DISTRICT
Surveyed by HODGES & ELRICK
Scale AS SHOWN Date JULY 2000
LOTS 1-5, 7-13 BEING A SUBDIVISION OF ALLOTS 3, 166, PT W47 & PTS E47 PARISH OF MAUNGAKARAMEA.
LAND DISTRICT NORTH AUCKLAND
SURVEY BLK. & DIST. V & VI TANGIHUA
NZMS 261 SHT RECORD MAP No
W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND
GH/Limitelphins
SNOOKS ROAD
LOT 1 DP 130088
PT ALLOT E47 Parish of Maungakaramea. CT 121C/570 Ltd
LOT 4 4926 m²
LOT 11 6046 m²
LOT 5
LOT 6 DP 188726
DP 206119
DP 207146
DIAGRAM C Not to Scale
LOT 3 9252 m²
LOT 9 1.0980ha
LOT 2 DP 88616
DP 119426
DIAGRAM A Not to Scale
DIAGRAM B Not to Scale
ELECTRICITY EASEMENT (A) (B) (C) (D)
Adpt DP 88616
Adpt DP 119426
Adpt DP 188726
CT 614/272
CT 121C/570 Ltd
4549

PART C As-built services plan

(to be completed in all cases. If details are already noted on separate drawings then provide copies in duplicate as appropriate and attach to this sheet. Ensure that drawing numbers, etc, is noted below)



Scale _____ in _____

Site address _____

Whangarei District Council
Private Bag 9023, Te Mai
Whangarei 0143
Ph:0-9-430 4200
Email: mailroom@wdc.govt.nz

Rates LIM Report

As at: Wednesday, 4 November, 2026

Property Number	110438
Legal Description	LOTS 7 12 DP 207955
Assessment Number	0037011006
Address	122 Old School Road Whangarei 0178
Record of Title(s)	136B/777,136B/777
Land Value	$365,000
Capital Value	$1,275,000
Date of Valuation	01-July-2024
Effective Date (used for rating purposes)	01-July-2025
Meter Location	

Rates Breakdown (up to 30 June 2027)

Rates Charge	Charge Total
General Residential - Lifestyle	1,124.93
Stormwater	124.00
Uniform Annual General Charge	996.00
Regional Emergency & Hazard Management	58.36
Regional Rescue Services	11.09
Regional Council Services	214.35
Regional Flood Infrastructure	43.11
Regional Economic Development	12.85
Regional Land and Freshwater Management	102.05
Regional Pest Management	110.40
Regional Sporting Facilities	7.94
Regional Whangarei Transport Rate	29.70
Annual Charge Total	**$2,834.78**

Opening Balance as at 01/07/2026 $0.00

Rates Instalments	Total
20/07/2026 Instalment	$710.78
20/10/2026 Instalment	$708.00
20/01/2027 Instalment	$708.00
20/04/2027 Instalment	$708.00
Rates Total	**$2,834.78**

Balance to Clear $2,124.00

Whangarei District Council
Private Bag 9023, Whangarei 0148, New Zealand
P +64 9 430 4200 | 0800 WDC INFO | 0800 932 463 F +64 9 438 7632
E mailroom@wdc.govt.nz www.wdc.govt.nz

Form 5

Building Consent No: BC2000074

COPY

Section 51, Building Act 2004

Issued: 11 May 2020

The Building

Street address of building:	Old School Road Whangarei 0178
Legal description of land where building is located:	LOT 7 DP 207955 LLP: 102521
Building name:	N/A
Location of building within site/block number:	N/A
Level/unit number:	N/A

The Owner

T L Pasco
J W Kaiser
400 Tauraroa Road
RD 8
Whangarei 0178

Phone number:	N/A
Mobile number:	0211404719
Facsimile number:	N/A
Email address:	john@kaiserconstruction.co.nz
Website:	N/A
Street address/registered office:	Old School Road Whangarei 0178

First point of contact for communications with Council/building consent authority

Contact Person

Ross Craven Draughting
431 Crane Road
RD 1
Kamo 0185

Phone number:	4350737
Mobile number:	021535080
Facsimile number:	N/A
Email address:	rosscraven4@gmail.com
Website:	N/A

Building Work

The following building work is authorised by this consent:

New Dwelling

DEC

Whangarei District Council

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

Section 90 Building Act 2004

Section 90 Building Act 2004 Inspections by Building Consent Authorities applies. This building consent is subject to the condition that agents authorised by the building consent authority are entitled at all times during normal working hours or while work is being done to inspect land on which building work is being or is proposed to be carried out and building work that has been or is being carried out on or off the building site and any building.

Nominated Inspections are carried out to ensure that the building work is in accordance with the building consent. Completed Inspections will be classified as pass, or pass subject to remedial work or failed status.

Compliance Schedule

A compliance schedule is not required for the building.

Attachments

The schedule of site requirements for inspections and documentation required.

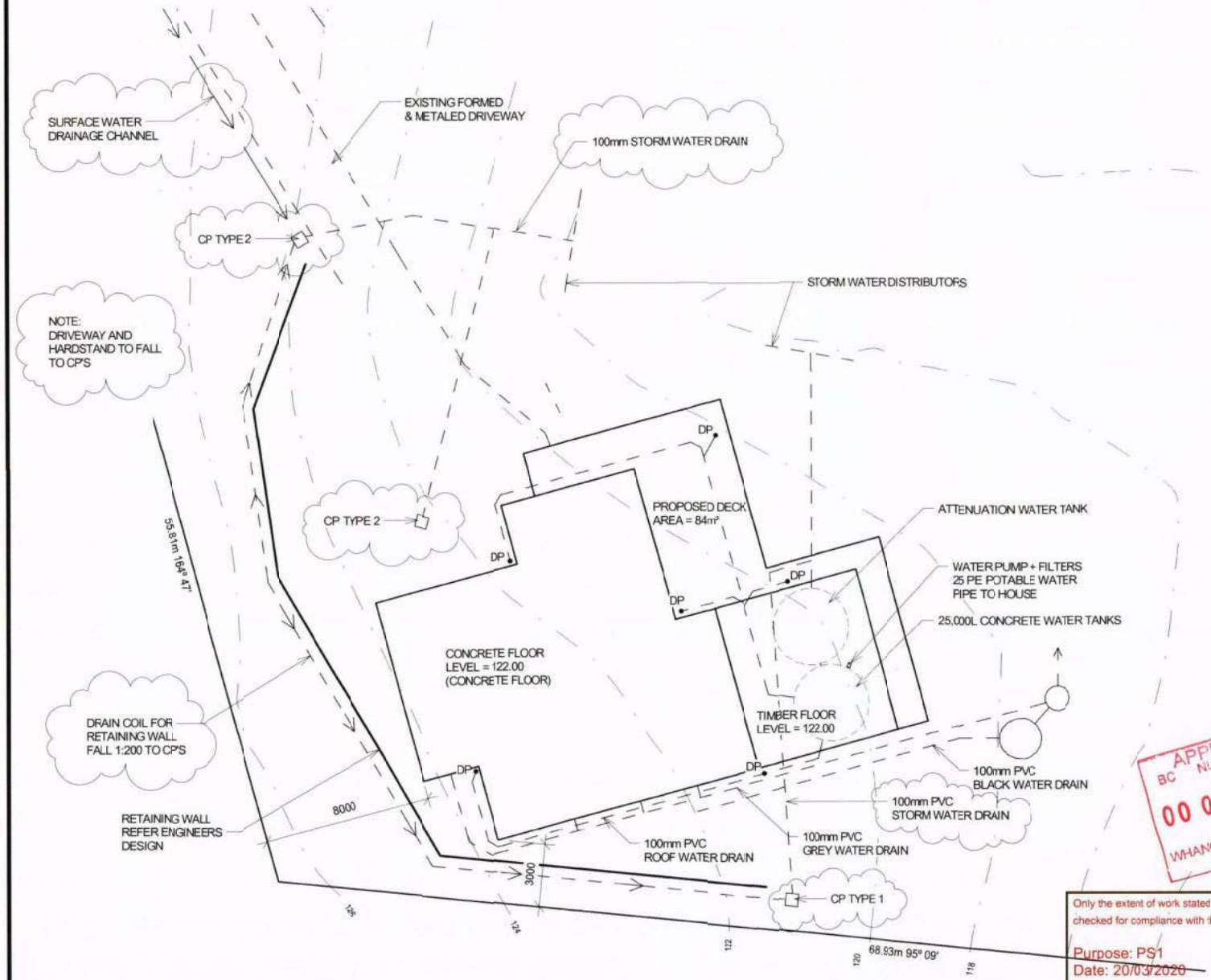
Information on how to proceed with the building work.

Additional Information

1. The applicant must control dust nuisance created by any site or building works.
2. Toilet facilities must be provided within reasonable distance of the construction site. Ground discharge is no longer acceptable.
3. Lapsing of building consent. For the purposes of S52(b) of the Building Act 2004, the period after which this consent will lapse if the building work to which it relates does not commence will be 12 months from the date of issue.
4. To confirm compliance an Energy Works Certificate will be required (Electrical).
5. To confirm compliance an Energy Works Certificate will be required (Gas).
6. A Producer Statement PS4 is required for site excavation - site cuts, benching and placement of any engineered fill. (as per TMC review assessment)
7. A Producer Statement PS4 is required foundations - pile holes and footing and all foundation excavations and RibRaft Slab.

Tilly Selwyn
Support Assistant – Building Processing
On behalf of Whangarei District Council

11 May 2020
Date



SITE PLAN

APPROVED 2020
BC NUMBER 1DAY 1MTH
00074 0705
WHANGAREI DISTRICT COUNCIL
BCA

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 20/03/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC CONSULTING ENGINEERS

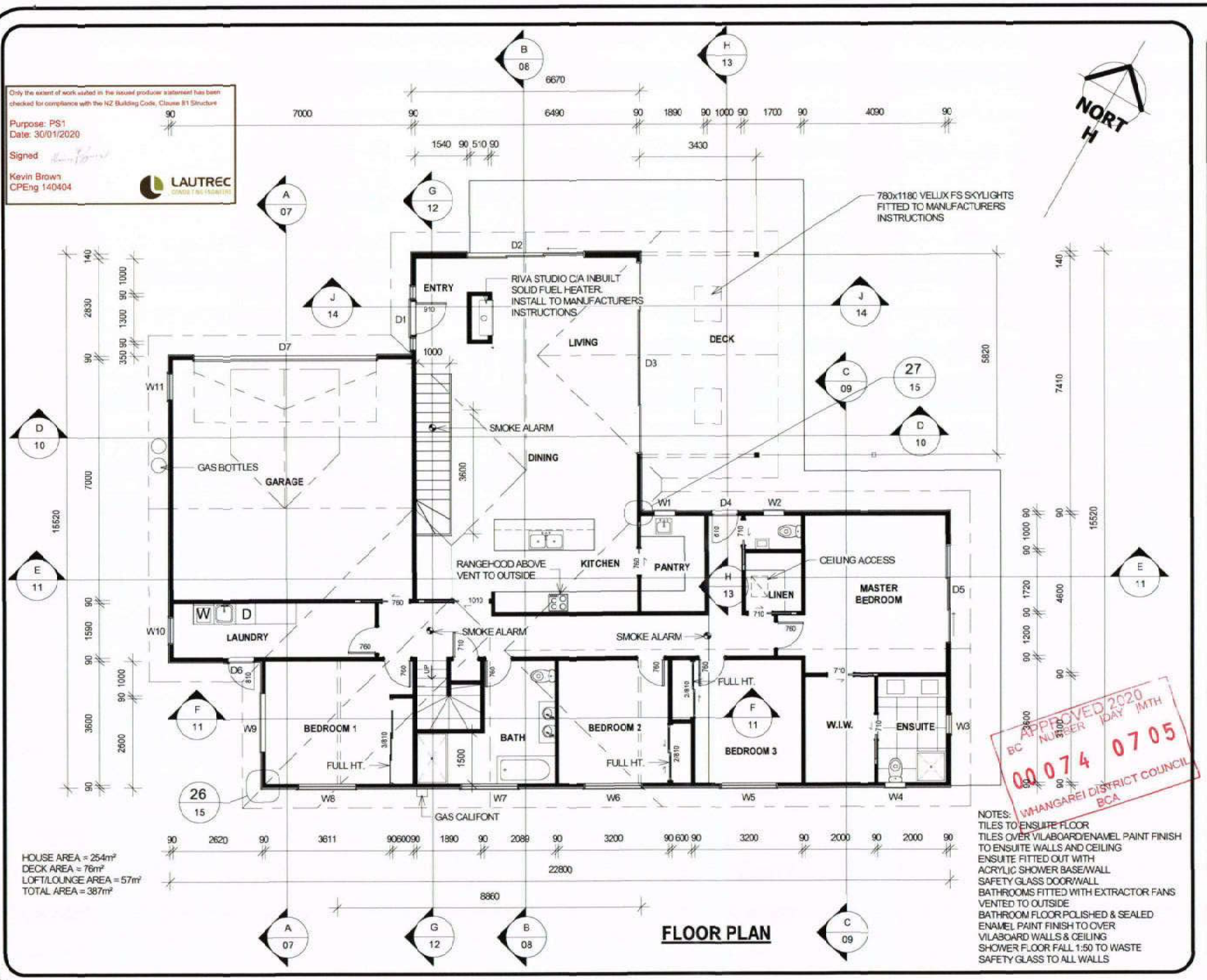
ROSS CRAVEN DRAUGHTING
ARCHITECTURAL & INDUSTRIAL C.A.D. DESIGN & DRAUGHTING
431 Crane Road
RD1 Kamo
Whangarei
Ph 09 435 0737
rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

SITE PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1:200	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No: B	Revsion Date: 10/03/2020
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No:
Checked By: RHC	



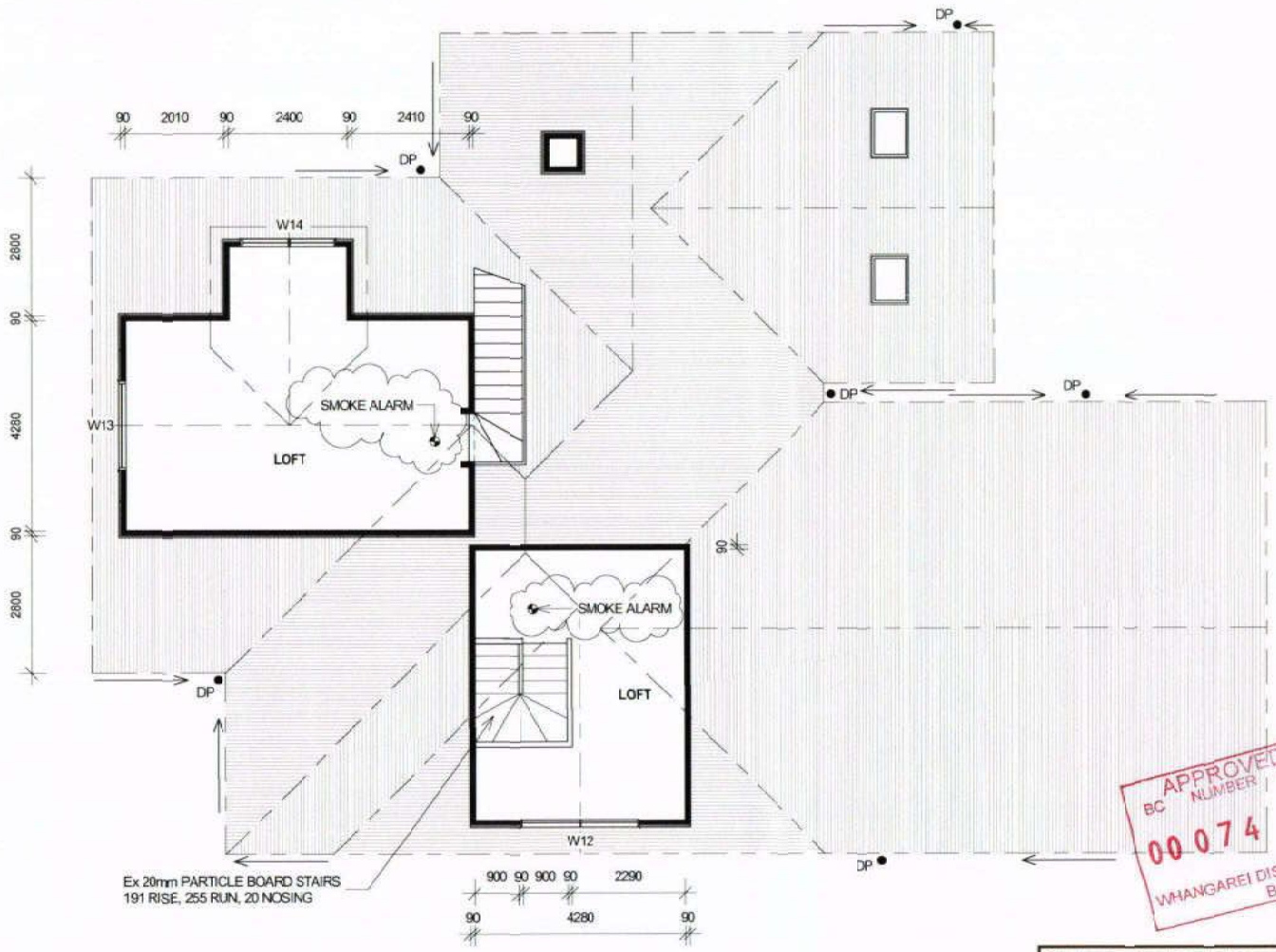
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PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

FLOOR PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No:
Checked By: RHC	



LOFT FLOOR PLAN

APPROVED 2020
BC NUMBER / DAY / MTH
00074 0705
WHANGAREI DISTRICT COUNCIL
BCA

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 20/03/2020

Signed

Kevin Brown
CPEng 140404

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CONSULTING ENGINEERS

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Ph 09 435 0737
rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

LOFT FLOOR PLAN

Drawing No: D-897	Date: 7/02/2017
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Revsion No: A	Revsion Date: 29/01/2020
Revsion No: B	Revsion Date: 10/03/2020
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No:
Checked By: RHC	



NORTH-WEST ELEVATION

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 30/01/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC CONSULTING ENGINEERS



SOUTH-EAST ELEVATION

BC APPROVED 2020 NUMBER IDAY IMTH
00074 0705
WHANGAREI DISTRICT COUNCIL BCA

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ARCHITECTURAL & INDUSTRIAL C.A.D. DESIGN & DRAUGHTING
431 Crane Road RD1 Kamo Whangarei
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rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

ELEVATIONS

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No:
Checked By: RHC	



NORTH-EAST ELEVATION



SOUTH-WEST ELEVATION

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 30/01/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC
CONSULTING ENGINEERS

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BC NUMBER IDAY IMTH
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BCA

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Ph 09 435 0737
rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

ELEVATIONS

Drawing No: D-897	Date: 7/02/2017
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Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No:
Checked By: RHC	

Whangarei District Council
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E mailroom@wdc.govt.nz www.wdc.govt.nz

Minor Variations Record – S45(c) Building Act 2004

To T L Pasco and J W Kaiser Date 15-9-2020

Address Old School Road, Maungakaramea, Whangarei, 0178.

Consent no BC2000074 Event code *(if applicable)*

This document confirms that a minor variation to the consented documents for the above building consent has been

☑ Approved because *(reason for decision)*

Designer has supplied new bracing plan and calculation sheets for changes to bracing bedroom 4 and back of bathroom, deem to be compliant under B1 Structure.

❑ Not approved because *(reason for decision)*

The minor variation refers to

Changes to bracing bedroom 4 and back of bathroom.

Or, is contained in the attached documents

Revised plan and calculation sheets.

Shane Hakaraia
Name of Approving Building Officer

Signature of Approving Building Officer

15-9-2020
Date

The owner's copy of this form and any supporting papers to be placed in the site building consent pack

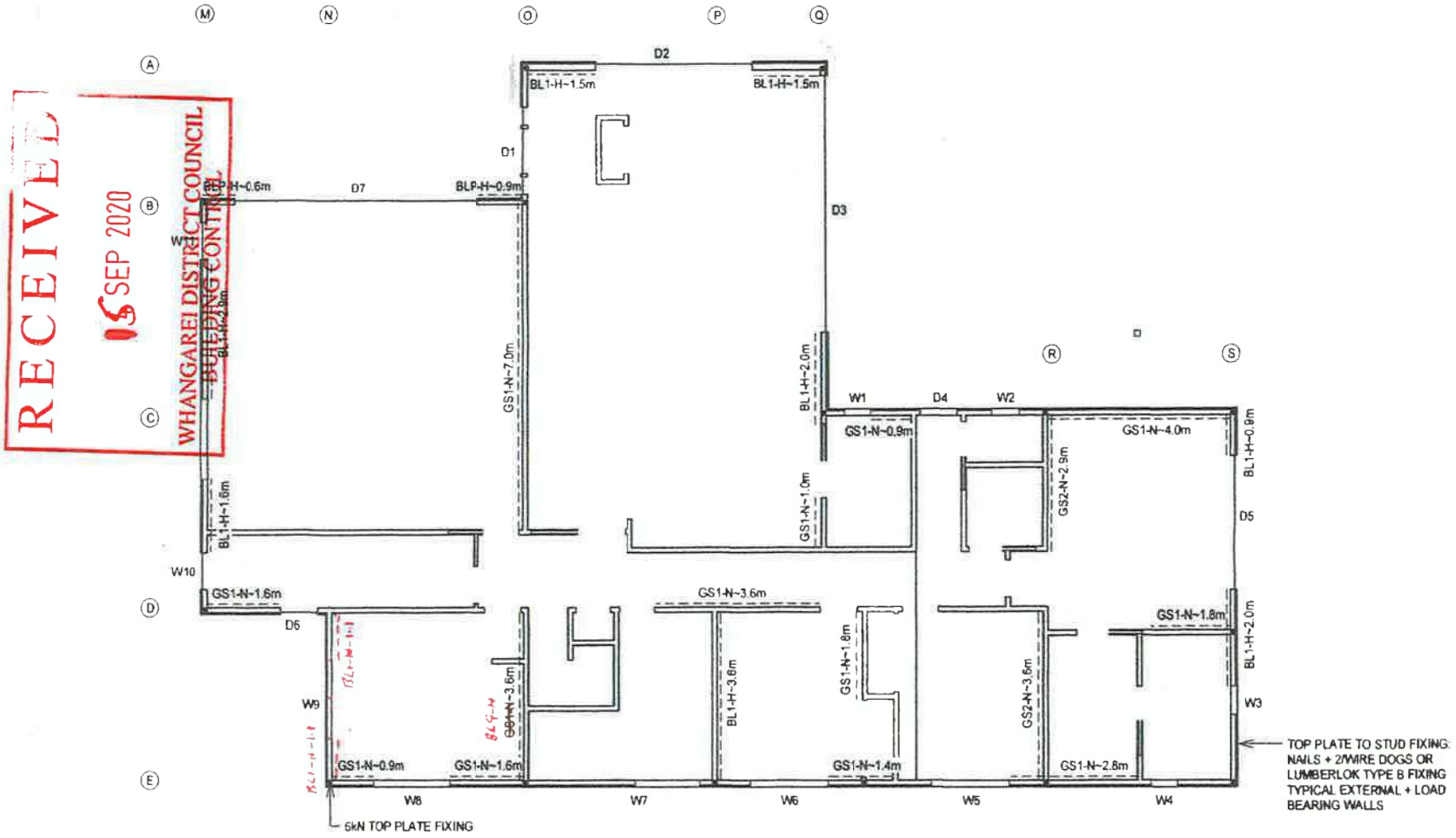
The building consent authority's copy of this form and any supporting papers to be

a Entered into TechOne

b Filed on building consent file

This approval is given only under s45(c) of the Building Act 2004 and does not relate to any requirements under other Acts, legislation or Council Bylaws

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15 SEP 2020
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BUILDING CONTROL



BRACING PLAN

WINDOW SCHEDULE					
MARK	HEIGHT	WIDTH	LINTEL SIZE	FIXING TYPE	COMMENTS
W1	1000	600	90x90	F	
W2	1000	600	90x90	F	
W3	1500	600	90x90	F	OBS. GLASS
W4	1200	600	90x90	F	OBS. GLASS
W5	1400	1700	140x90	G	
W6	1400	1700	140x90	H	
W7	1400	1700	140x90	F	OBS. GLASS
W8	1400	1700	240x90	G	
W9	800	1700	140x90	F	
W10	2180	800	90x90	F	
W11	2180	800	90x90	F	
W12	1800	2400	2/240x45 LVL	G	REF. DET. 25, SHEET 19
W13	820	1800	2/240x45 LVL	G	REF. DET. 25, SHEET 19
W14	1610	1940	150 PFC	-	REF. DET. 21, SHEET 19

DOOR SCHEDULE					
MARK	HEIGHT	WIDTH	LINTEL SIZE	FIXING TYPE	COMMENTS
D1	2180	1800	140x90	G	
D2	2180	3400	290x90	G	SLIDER
D3	2180	5500	200 PFC	H 3 SUPPORTING STUDS	SLIDER
D4	2180	870	90x90	F	810 DOOR LEAF
D5	2180	2800	240x90	F	SLIDER
D6	2180	870	190x90	G	810 DOOR LEAF
D7	2100	5400	250 PFC	H 3 SUPPORTING STUDS	GARAGE DOOR

WINDOW AND DOOR HEAD HEIGHT
2180 (NOM). ADJUST TO SUIT SOFFIT HEIGHT.
SIZES SHOWN ARE FOR O/A WINDOW + DOOR FRAME SIZES.
REFER TO WINDOW MANUFACTURER FOR REQUIRED TRIM SIZES

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 11/03/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC

ROSS CRAVEN DRAUGHTING
ARCHITECTURAL & INDUSTRIAL CAD DESIGN & DRAUGHTING
431 Crane Road
RD1 Kamo
Whangarei
Ph 09 435 0737
rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

BRACING PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revision No: A	Revision Date: 29/01/2020
Revision No: B	Revision Date: 10/03/2020
Revision No: C	Revision Date: 28/07/2020
Drawn By: TC	Sheet No: 20
Checked By: RHC	

Extract Copy

TMC CONSULTING ENGINEERS

Job# S0363-J00679

Lot 7 Old School Road Whangarei

Site Suitability Report



4th August 2017

APPROVED 2020
BC NUMBER DAY MTH
00074 0705
WHANGAREI DISTRICT COUNCIL
BCA

TMC Consulting Engineers Ltd
33 Norfolk Street
PO Box 252
Whangarei
Ph. (09) 393 0337
www.tmcengineers.co.nz

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Task	Responsibility	Signature	Date
Prepared by	Luke Dimick BSc (Earth Science)		04/08/2017
Reviewed by	David Taylor Dip. Eng. (Civil)		04/08/2017
Approved by	Vinnie Marotta BE(Civil), MIPENZ, CPEng		10/08/2017
Revision			

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1. INTRODUCTION

TMC Consulting Engineers Ltd (TMC) were engaged by John Kaiser to undertake a geotechnical investigation with the purpose of establishing foundation conditions for a new dwelling. This report outlines the findings of our investigation and provides recommendations regarding the development of the site including on-site wastewater disposal. This brief was detailed in a short form agreement dated 7th July 2017 and in a site meeting (DT/JK) on the 25th July 2017.

We understand that the proposal is to construct a new dwelling supported on a combination of pile type foundations and masonry foundation wall infill supporting a concrete slab type foundation and suspended timber floor. On the 25st July 2017, a site walkover and intrusive investigation was carried out on the proposed building site.

The findings of this report will be used to support any building consent or resource consent application for the development proposed in the brief.

1.1 PREVIOUS REPORTS

We have no knowledge of any previous geotechnical investigations undertaken on this property.

2. SITE DESCRIPTION

2.1 DESCRIPTION

The property is legally described as Lot 7 DP 207955 and is on the eastern side of Old School Road. The property is sized at approximately 4,548 m^2 and is rectangular in shape but for the western end where the boundary is angled to accommodate the road layout on the eastern side of Old School Road. The lot is predominantly in a forest stand. The site is located within the south-western section of the property.

2.2 TOPOGRAPHY

The general appearance of the property was a minor valley falling from west to east and decreasing in slope angle towards the eastern boundary. The proposed building site for the dwelling is located on a north-west facing descending slope of between 10 to 15 degrees, increasing to around 20 degrees below the site. The bottom of the slopes encounters an overland creek flow.

2.3 ACCESS

Access to the property is to be provided via a proposed driveway beginning from the north-western corner of the lot, and moving semi-parallel to the western boundary towards the proposed building site.

2.4 SITE HAZARDS

No mapped hazards were found in relation to this site.

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3. GEOTECHNICAL INVESTIGATIONS

3.1 GEOLOGY

The geological map of Whangarei indicates that the site lies within an area of Punakitere Sandstone (Kkp) being weakly to moderately indurated, alternating thin- to thick-bedded, quartzofeldspathic sandstone and mudstone of Mangakahia Complex of the Northland Allochthon. *Edbrooke, S.W.; Brook, F.J. 2009: Geology of the Whangarei area: scale*

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14 FEB 2020
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DISTRICT COUNCIL

1:250,000. Lower Hutt: GNS Science. Institute of Geological & Nuclear Sciences 1:250,000 geological map 2.

The soils map of the area identifies the property to be within Waiotira Clay loam bordering Riponui clay and sandy clay loam and Ripouni sandy clay and sandy loam. *Sutherland, C. F.; Cox, J. E.; Taylor, N. H.; Wright, A. C. S. 1981: Soil map of Hukerenui – Whangarei area (sheets Q06/07, R06/07), North Island, New Zealand. Scale 1:100,000 N.Z. Soil Bureau Map 187.*

3.2 SUB-SURFACE INVESTIGATIONS

Investigations undertaken included a walkover inspection and two 50 - 100 mm diameter hand auger boreholes drilled to depths of up to 3.0 m within the proposed dwelling site. In-situ undrained shear vane strengths were measured at 300 mm intervals in these boreholes where practicable. The boreholes were supplemented with Scala Penetrometer testing to assess soil strength at depth. The Scala tests were undertaken alongside the boreholes and then restarted in the base of the holes to a total depth of up to 3.9 m.

Two further Scala Penetrometer tests were carried out to a depth of 1.9 m to determine if homogeneous and uniform soil conditions exist across the building site.

One additional borehole was undertaken within the area of the proposed effluent disposal field to a depth of 0.9 m to determine soil and groundwater conditions.

The test logs and Scala results are attached to this report.

3.3 SUB-SURFACE FINDINGS

The augers identified up to 250 mm of moist topsoil overlying a generally stiff to very stiff, silty clay, becoming silt dominated at 2.1 m and 0.9 m in Borehole one and two respectively.

The underlying soils in excess of one metre below ground level were generally stiff to very stiff and provided reasonable shear strength readings. These soils can be considered to have an ultimate bearing capacity of 300 kPa. Shear vane readings generally indicate a shear strength ratio of between approximately two to six, indicating that some of the soils are sensitive.

The sub-surface conditions are outlined in this section and detailed on the bore logs attached. The observations noted in the investigations have been extrapolated between the various test locations to infer probable site conditions. It is noted that these inferences in no way guarantee the validity of these findings due to the inherent variability of natural soil deposits. The actual ground conditions discovered during the development of the site may vary from those assumed.

This report utilises the New Zealand Geotechnical Society's Field Description of Soil and Rock, dated December 2005.

Our Findings are as follows;

3.3.1 Site Stability

The walkover of the sites and subsurface investigations undertaken indicate no signs of recent ground movement on or within close proximity of the sites. However, slopes that were in excess of 25 degrees surrounding the sites, showed signs of surface creep.

3.3.2 Expansive Soils

We have assessed the in-situ soils as Class M, Moderately Expansive in terms of AS 2870:2011. This soil classification can experience characteristic surface movement (y_s) from moisture changes of up to 40 mm. Expansive soils are prone to shrinkage and swelling effects resulting from moisture changes within the soil. Several factors that can influence these properties are climatic conditions, variations in groundwater levels, vegetation water demand, water disposal systems and site coverage. Care must be taken when planning the development to mitigate the potential effects of shrink/swell on any structures or infrastructure.

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3.3.3 Fill Suitability

Sub-soils found on site may be difficult to reuse as structural fill. Some of the sub-soils could be acceptable as structural fill subject to controlled filling operations and moisture content at the time of construction. Any structural fill utilising hard fill over 600 mm in depth or alternate material of any fill depth will be subject to controlled filling operations and observation by an Engineer.

3.3.4 Stormwater & Groundwater

Slight groundwater seepage was encountered in borehole 2 at 2.9 m, simultaneously encountering weathered mudstone. The presence of an overland flow was observed north of the proposed building site. Subsoil drains were evident along the western boundary discharging into the property from beneath the adjacent road pavement.

4. DEVELOPMENT RECOMMENDATIONS

4.1 EARTHWORKS

All earthworks should be undertaken in accordance with good practice, relevant standards and the district and regional rules.

Depending on the ground conditions and groundwater levels at the time of construction, temporary support may be required to stabilise the cuts that are excavated for the building platforms. In addition, all cuts should be protected with polythene to mitigate dramatic moisture loss or gain during the construction period.

Cuts and fills in excess of 0.5 m and within 3.0 m of buildings should be either battered back at no greater than 1v:3h or retained by a suitably designed retaining structure unless approved otherwise by an engineer.

Filling should not exceed 1.0 m in depth unless a light weight fill such as Polyrock is used and filling should be avoided on slopes in excess of 20 degrees without further assessment.

Earthworks should not be undertaken during inclement or wet conditions due to the sensitive and plastic nature of some of the soils. Excavation and reworking during wet conditions may result in the exposed materials being unsuitable for reuse as fill or reduce soil strengths below those originally designed for.

All earthworks and foundation excavations are to be inspected by a chartered professional engineer or their agent who is familiar with this site and the contents of this suitability report. Preceding the placement of any fill or foundation construction a geotechnical engineer should be contacted to discuss the earthworks methodology, inspection requirements and testing frequency.

4.2 FOUNDATION OPTIONS

We understand the dwelling is to be supported on a combination of timber piles, a masonry foundation type wall, and a concrete slab or raft floor.

Based on our investigation and findings, the soils fall outside the scope of NZS 3604:2011 and therefore all foundations will require specific engineering design.

Shallow foundations should be designed for an ultimate bearing capacity of 240 kPa. Depending on structure type, shallow footings should be founded into natural soils at a depth of between 400 mm to 900 mm below cleared ground level as outlined in AS2870:2011. This is to mitigate the swell/shrink effects that moisture changes may have on the soils. Pile foundations should be embedded a minimum of 600 mm below cleared ground level.

Where foundations are to be on or within 3.0 m of slopes in excess of 20 degrees they should be supported on piles or where piles are proposed to be on these slopes they will require additional embedment. These piles should be embedded a minimum of 1.5 m into stiff natural

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soils and designed to account for soil creep loading in the upper 1.0 m. The final depth will be dependent on the structural design and may extend deeper. The design for deep piles can be based on an ultimate end bearing capacity of 720 kPa and ultimate skin friction of 25 kPa.

4.3 RETAINING

There may be a requirement for specifically designed retaining walls. Levels, retained heights and surcharge loads should be considered to determine the need for specific design. The proposed building site may require retaining depending on the final finished ground level chosen.

For design purposes, the following soil parameters are considered appropriate:

Soil cohesion	$c' = 0$
Internal friction angle of soil	$\phi' = 26°$
Specific weight of soil	$\gamma = 18$ kN/m^3

For timber pole retaining wall design an undrained shear strength $S_u = 80$ kPa can be assumed for the soil in front of the wall. This may be increased subject to further assessment and depending on the finished ground level in front of the wall.

4.4 STORMWATER & DRAINAGE

The stormwater disposal from developed surfaces should be collected into sealed pipes or drains and discharged in a controlled manner to overland flow paths within the property.

Depending on the final scope of earthworks, and final ground levels, there may be a requirement for subsoil drainage. The extent will need to be determined during the earthworks process. As a minimum, a surface water interceptor drain should be instated up slope of the sites to divert any surface flow around and away from the building platforms.

Stormwater flows must not be allowed to run onto or saturate the ground to adversely affect slope stability or foundation conditions.

5. EFFLUENT DISPOSAL

The following section has been prepared in accordance with AS/NZS 1547:2012 and the Regional Water and Soil Plan for Northland (RWSPN).

5.1 SOIL AND GROUNDWATER INVESTIGATIONS

A soil and groundwater borehole was drilled to a depth of 0.9 m in the location of the proposed effluent disposal field (Borehole 5). Boreholes 1 and 2 were also used to assess soil profile and groundwater levels. The locations of the boreholes are noted on the attached site plan.

5.2 SITE ASSESSMENT

Feature	Comment
Topography	Linear planar slope of between 5 to 15 degrees. Aspect – east facing.
Ground Cover	Forest Stands.
Geology	The geology and soils are noted above in Section 3.1. Investigations concur with the published information and we consider that the soil should be considered Category 5 terms of AS/NZS 1547:2012.
Seasonal Ground Water Variations	It is unlikely that there will be seasonal variations in soil drainage that will impact negatively on the disposal system. Groundwater was not observed in Borehole 5 during the investigation.

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Feature	Comment
Fill	No fill was observed in the proposed location of the effluent field.
Drainage Control	Surface water from developed areas should be collected by drains or sumps and discharged as noted above. A surface water cut-off drain should be instated upslope of the field.
Rock Content	No rocks or boulders were observed within the site.
Site Stability	No recent instability was observed within the area of the proposed disposal field.
Climate & Rainfall	Annual rainfall is in the order of 1400mm. Rainfall intensity is approximately 40 mm/hr for a storm with a 10% probability of occurring annually and of one-hour duration.
Lot Size	The Lot is sized at approximately 4,548 m^2.

5.3 PERMEATION TESTING

No permeation tests were carried out due to the topography and nature of the soils encountered in the boreholes.

5.4 DESIGN PARAMETERS

The Lot will be supplied by tank water supply.

For a household of four bedrooms with standard water reduction fixtures, we have used a per capita volume of 165 L/day resulting in a treated effluent loading rate of 990 litres/day based on a six-person occupancy. A Design Irrigation Rate of 3.0 mm per day for an irrigated system has been assumed. These rates are in accordance with AS/NZS1547:2012 in recognition of the field test results and brief provided.

Any proposed disposal field is required by The Regional Soil and Water Plan for Northland (RSWPN) and our recommendations to comply with the following minimum offsets:

Primary Disposal Field Offsets	Secondary Disposal Field Offsets
1.5 m to boundaries	1.5 m to boundaries
1.2 m to ground water	0.6 m to ground water
3.0 m to buildings	3.0 m to buildings
20 m to surface water	15 m to surface water
20 m to ground water bores	20 m to ground water bores

5.5 DISPOSAL SYSTEM RECOMMENDATIONS

Due to the soils encountered and topography of the site a secondary treatment system is recommended. An area north-east of the proposed building site was identified as a suitable site for effluent disposal. The disposal field is to be fenced off from wandering stock. No allowance for garbage grinders has been included within these recommendations.

5.5.1 Secondary wastewater treatment system

For design purposes, we have assumed an irrigation rate of 3.0 mm/day for a secondary treated wastewater irrigation system. These rates are in accordance with AS/NZS1547:2012 in recognition of the field test results.

We recommend that a secondary treated effluent system that complies with the RSWPN is used with disposal to a pressurised drip irrigation system. The drip irrigation system should be placed on the on the ground surface in rows not exceeding 65 m and at 1.0 m spacings. A minimum 150 mm layer of mulch or 100 mm of topsoil placed over the lines. Vegetation

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should be planted above the dripper lines to increase efficiency; suggested plantings includes shrubs, flaxes and grasses or lawn grass for topsoil buried lines to provide evapotranspiration and nutrient removal.

For a flow rate of 990 litres/day, 330 m of dripper line will be required through an area of 330 m^2. A further 100 m^2 is to be set aside as a minimum 30 % reserve area as required by The Regional Soil and Water Plan for Northland. This should allow easy rejuvenation of the field should operational difficulties be experienced or field extension be required.

With the area available on the subject property it is our opinion that a satisfactory effluent disposal system can be installed that will satisfy all of the parameters set out in AS/NZS 1547:2012. A producer statement should be provided by the supplier of the system selected by the owner/developer.

The manufacturers of treatment systems supply detailed maintenance schedules that must be adhered to. It is imperative that the operator of the system schedule and undertake maintenance of the system to ensure its effectiveness.

5.5.1 Assessment of Environmental Effects

The soils have been assessed as Category 5 in terms of AS/NZS 1547:2012. With a daily application rate of 3.0 mm/day, the soil should be capable of coping well with long-term application of wastewater. Similar systems around Northland produce no noticeable odour or noise impact on neighbours or the homeowners themselves if installed and maintained properly.

To protect against system failure, the system must provide at least 24 hours' buffer and a visible and audible alarm to alert the homeowners to any possible problem(s). To protect against any possible failure of the disposal area, the reserve area should be maintained with a vegetated surface ready for the possible installation of dripline into or onto it.

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

6. CONCLUSIONS AND RECOMMENDATIONS

If the recommendations within this report are followed, we believe on reasonable grounds that the likelihood of instability within the building area is little to none.

1) Once the final location and scope of works for the dwelling has been finalised, TMC should be engaged to review the plans and to assess the suitability of the proposed development.
2) The site consists of approximately 100 – 250 mm of topsoil overlying silty clay, transitioning into silt with depth.
3) The soils do not meet the requirements of Good Ground in terms of NZS 3604:2011 and therefore foundations will require specific engineering design as detailed in Section 4.2 above.
4) Cuts and fills in excess of 0.5 m and within 3.0 m of buildings should be either battered back at no greater than 1v:3h or retained by a suitably designed retaining structure unless approved otherwise by an engineer.
5) Filling should be avoided on slopes in excess of 20 degrees and limited to no greater than 1.0 m on other slopes without further assessment being undertaken.
6) All earthworks and foundation excavations are to be inspected by a chartered professional engineer or their agent.
7) Earthworks should not be undertaken during inclement or wet conditions due to the sensitive and plastic nature of some of the soils.

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8) All stormwater runoff and overflow from developed surfaces is to be directed in a controlled manner to the natural overland flow paths within the property.
9) Subsoil drainage may be required, the extent of which will depend on the final development scope and will need to be determined during the earthworks process.
10) A surface water interceptor drain should be instated up slope of the site to divert any surface flow around and away from the building platform and effluent disposal field.
11) The effluent disposal system should be developed in accordance with Section 5 above.
12) Specific designs will likely require an Engineer to supervise the construction of the design to ensure that the design criteria have been met and to issue a Producer Statement PS4 – Construction Review on completion.

7. LIMITATIONS

This report has been prepared for our client as identified above for the purpose of building consent or resource consent application with respect to the brief noted. It is not to be relied upon for any other purpose without reference to TMC Consulting Engineers Ltd. The reliance by other parties on the information or opinions contained in the report shall be at such parties' sole risk without our prior review and agreement in writing.

Recommendations and opinions in this report are based on data obtained from the investigations and site observations as detailed in this report. The nature and continuity of subsoil conditions at locations other than the investigation bores and tests are inferred and it should be appreciated that actual conditions could vary from the assumed model.

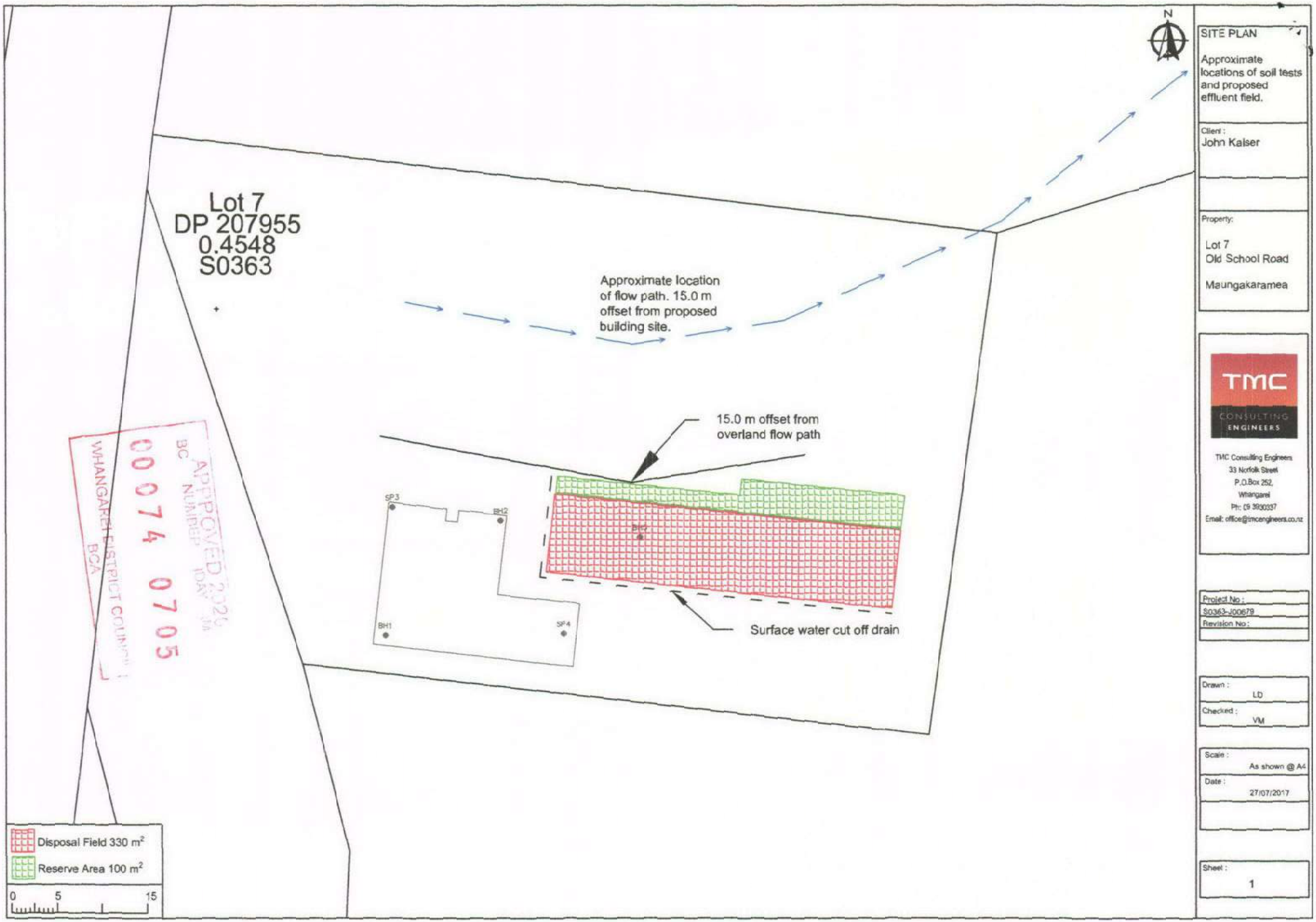
During the process of the site development and construction, an engineer competent to judge whether the conditions are compatible with the assumptions made in this report should examine the site. It is essential that this office be contacted if there is any variation in subsoil conditions from those described in this report as it may affect the design parameters recommended.

If there are any questions arising from the above or during construction, please call this office.

8. ATTACHMENTS

- Test results
- Site Plan

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SITE PLAN

Approximate locations of soil tests and proposed effluent field.

Client :
John Kaiser

Property:
Lot 7
Old School Road
Maungakaramea

TMC CONSULTING ENGINEERS

TMC Consulting Engineers
33 Norfolk Street
P.O.Box 252,
Whangarei
Ph: 09 3930337
Email: office@tmcengineers.co.nz

Project No :
S0363-J00679
Revision No :

Drawn :
LD
Checked :
VM

Scale :
As shown @ A4
Date :
27/07/2017

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2019

Waterflow NZ Ltd
Certified Designer



John Kaiser
Old School Road
Maungakaramea
Lot 7 DP 207955
08.11.2019

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[ONSITE WASTEWATER DESIGN REPORT]

Onsite Wastewater Design Report by Waterflow NZ Ltd – Copyright 2014

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STATEMENT OF DESIGN - PS1

Issued by: Dean Hoyle
To: John Kaiser
Copy to be supplied to: Whangarei District Council
In Respect of: NaturalFlow Domestic Onsite Wastewater and Sewage System Design
At: Old School Road, Maungakaramea
Legal Description: Lot 7 DP 207955

Waterflow NZ Ltd has been engaged by John Kaiser to provide the technical design services and details in respect of the requirements of G13/VM4 and B2 Durability of the Building Regulations 2004, for an Onsite Wastewater and Sewage System for their building at the above location.

The Design has been carried out in accordance with AS/NZS 1547/2012 and Clause B2, G13 and G14 of the Building Regulations 2004.

The proposed building work covered by this producer statement is described on the drawings titled: John Kaiser Onsite Wastewater Design Report, and numbered 1-39 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: correct installation of the system and drainage fields
(ii) All proprietary products meeting their performance specification requirements;

As an independent design professional covered by a current policy for Professional Indemnity Insurance, no less than $200,000*, I **believe on reasonable grounds** 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.

Signed by: Dean Hoyle – PS Author '3037' Auckland Council, NZQA Onsite Wastewater Training/Opus, BOINZ OWM, HBRC & FNDC Approved Designer

Date: 08/11/2019

Signature:

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Waterflow NZ Ltd
1160 State Highway 12
Maungaturoto 0520

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.*

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Attachments

- PS1
- Certificate of Title
- Land Application System Schematics
- Assessment of Environmental Effects
- System & Installation Specifications
- Home Owners Care Guide

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PART A: CONTACT AND PROPERTY DETAILS

A 1. Consultant / Evaluator

Name:	Dean Hoyle
Company/Agency:	Waterflow New Zealand Ltd
Address:	1160 SH 12 Maungaturoto
Phone:	09 431 0042
Fax:	09 431 8845
Email Address:	dean@waterflow.co.nz

A 2: Applicant Details

Applicant Name:	John Kaiser
Company Name:	
Property Owner:	John Kaiser
Owner Address:	Old School Road, Maungakaramea
Phone:	
Mobile:	021 140 4719
Email Address:	john@kaiserconstruction.co.nz

A 3: Site Information

Sited Visited by:	Derek Hulse		**Date:**	Thursday, 12 September 2019		
Physical Address:	Old School Road, Maungakaramea					
Territorial Authority:	Whangarei District Council					
Regional Council:	Northland Regional Council					
Regional Rule	C.6.1.3					
Legal Status of Activity:	**Permitted:**	x	**Controlled:**		**Discretionary:**	
Total Property Area (m^2):	4548m^2					
Map Grid Reference:						
Legal Description of Land (as on Certificate of Title):						
Lot No:	7					
DP No:	207955					
CT No:						

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A 4: Are there any previous existing discharge consents relating to this proposal or other waste discharge/disposal on the site?

Yes:		No:	x

If yes, give reference No's and description:

A 5: Dwelling(s) for which on-site wastewater service is to be provided

Status of dwelling(s) to be serviced:	New:	x	Existing:		Multiple:	
How many dwellings on the property?	1					
Capacity of dwellings:	Dwelling 1	4				
(or number of bedrooms)	Dwelling 2					
	Dwelling 3					
	Other:					
Notes:						

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PART B: SITE ASSESSMENT - SURFACE EVALUATION

B 1: Site Characteristics

Performance of adjacent systems:	(Unknown)			
Estimated annual rainfall (mm):	1250 - 1500 (as per NIWA statistics)			
Seasonal variation (mm):	300-400mm			
Vegetation cover:	Mature bush			
Slope shape:	Linear Planar			
Slope angle:	10 °			
Surface water drainage characteristics:	Broad overland to gully			
Flooding potential?	Yes:		No:	x
If Yes, specify relevant flood levels relative to disposal area:				
Site characteristics:	rectangular shaped site of 4584sqm. It is covered in trees and slopes east toward a gulley feature. It is bounded by trees to the west and south with farmland beyond.			

B 2: Slope Stability

Has a slope stability assessment been carried out on the site?

Yes:		No:	x

If no, why not?

Low slope:	x	No signs of instability:	x	Other:

If yes, give brief details of report:

Details:	
Author:	
Company/Agency:	
Date of report:	

B 3: Site Geology

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B 4: Slope Direction

What aspect does the proposed disposal system face?

North		West	
North-West		South-West	
North-East		South-East	
East	x	South	

B 5: Site Clearances if applicable (also on site plan)

	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries:	>1.5	>1.5
Surface Water:	>20	>20
Ground Water:	>1.2	>1.2
Stands of Trees / Shrubs:	n/a	n/a
Wells/Water Bores:	>20	>20
Embankments / Retaining Walls:	>3	>3
Buildings:	>3	>3
Other:		

B 6: Please identify any site constraints applicable for this property, and indicate how the design process is to deal with these.

Constraints	Explain how constraints are being dealt with
1 Site constraints: (a) (b)	n/a

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PART C: SITE ASSESSMENT - SOIL INVESTIGATION

C 1: Soil Profile Determination Method

Test pit:		Depth (mm):		No. of Test pits:	
Bore hole:	x	Depth (mm):	1200	No. of Bore holes	2
Other:					

C 2: Fill Material

Was fill material intercepted during the subsoil investigation?

Yes:		No:	x

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

C 3: Permeability Testing

Has constant head Permeability Testing (Ksat) been carried out?

Yes:		No:	x

If yes, please indicate the details (test procedure, number of tests):

Test report attached?

Yes:		No:	x

C 4: SURFACE WATER CUT OFF DRAINS

Are surface water interception/diversion drains required?

Yes:		No:	x

C 5: DEPTH OF SEASONAL WATER TABLE:

Winter (m):	>1.2
Summer (m):	>1.2

Was this:

Measured:	✓ no sign of ground water or mottling in bore holes
Estimated:	

C 6: SHORT CIRCUITS

Are there any potential short circuit paths?

Yes:		No:	x

If yes, how have these been addressed?



C 7: SOIL CATEGORY

Is topsoil present?

Yes:	x	No:	

If yes, what is the topsoil depth & soil description?

300mm silty volcanic topsoil over orange silty clay

Indicate the disposal field soil category (as per AS/NZS 1547:2012 Table E1)

Category	Description	Drainage	(x)
1	*Gravel, coarse sand*	*Rapid draining*	
2	Loamy sand, sandy loam	Free draining	
3	Medium-fine sandy loam, loam & silt loam	Good draining	
4	Sandy clay-loam, clay loam & silty clay-loam	Moderate draining	
5	Sandy clay, light clay, silty clay	Moderate to slow draining	x
6	Medium to Heavy Clays	Slow draining	

Reason for placing in stated category:

Result of bore hole/test pit sample	x
Profile from excavation	
Geotech report	
Other:	

C 8: SOIL STRUCTURE

Based on results of the in-situ soil profile investigation above (C7) please indicate the disposal (land application) field soil structure:

Massive	
Single grained	
Weak	
Moderate	x
Strong	

C 9: As necessary, provide qualifying notes on the relationship of Soil Category (C7) to Soil Structure (C8) and the effect this relationship will have on design loading rate selection:

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PART D: DISCHARGE DETAILS - SEE HYDRAULIC LOADING TABLES

D 1: Water supply source for the property:

Rain water (roof collection)	x
Bore/well	
Public supply	

D 2: Are water reduction fixtures being used?

Yes:	x	No:	

If 'yes' Please state:

Standard water reduction fixtures such as 6/3 dual flush toilets, shower-flow restrictors 8L/p/m, aerator faucets and water-conserving automatic washing machine with a 4.5 WELS or better star rating

D 3: Daily volume of wastewater to be discharged:

No. of bedrooms: Dwelling 1:	4
Dwelling 2:	
Dwelling 3:	
Design occupance (people): (as per AS/NZS 1547:2012 Table J1)	6
	Black / Grey water
Per capita wastewater production (litres/person/day): (as per AS/NZS 1547:2012 Table H3, Note 2)	145
Total daily wastewater production (litres per day):	870

D 4: Is daily wastewater discharge volume more than 2000 litres?

Yes:		No:	x

D 5: Gross lot area to discharge ratio:

Gross lot area:	4548 m²
Total daily wastewater production (litres/day):	870
Lot area to discharge ratio:	5.23

D 6: Net Lot Area

Area of lot available for installation of the disposal (land application) field and reserve area:

Net lot area (m²):	3548 m²
Reserve area (m²):	100%

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PART E: LAND DISPOSAL METHOD

E 1: Indicate the proposed loading method:

	Black / Grey Water
Gravity Dose:	
Dosing Siphon:	NaturalFlow Dose Float
Pump:	

E 2: *If a pump is being used please provide following information:*

Total Design Head (m):	
Pump Chamber Volume (litres):	
Emergency Storage Volume (litres):	

Is a high water level alarm being installed in pump chambers?

Yes:		No:	x

E 3: Identify the type(s) of Land Disposal method proposed for this site:

	Black / Grey Water
P.C.D.I. Dripper Irrigation:	
L.P.E.D. System:	LPED surface laid and mulched
Evapo-Transpiration Beds:	
Other:	
	(as per Schematics attached)

E 4: Identify the Loading Rate proposed for option selected in E3:

as per AS/NZS 1547:2012 Table L1 & M1	Black / Grey Water
Loading Rate (litres/m²/day):	2.5
Disposal Area Basal (m²):	
Areal (m²):	348

E 6: *Details and dimensions of the disposal (land application) field:*

Length (m):	24.9	No. Lines:	14	Hole Size:	3.0
Width (m):	14.0	Spacing (m):	1.0	Hole Spacing:	1.3

Notes:	surface laid LPED drip lines laid 1m apart on a level contour, squirt holes overlaid with 300mm squirt guards and a minimum covering of 150mm landscape mulch. See schematic drawing attached.



PART F: PROPOSED WASTEWATER TREATMENT SYSTEM

A Naturalflow NF8000S Treatment System, gravity fed through surface laid LPED dripline is suitable for this site. The NF8000S Treatment System has enough capacity to accommodate 2000ltr per day, so will be well within its capacity. The land application system is designed to discharge a maximum volume of 870ltrs per day and if this is exceeded it could cause failure resulting in environmental and public harm.

PART G: OPERATION AND MAINTENANCE OF SYSTEM

The operation of this complete system will be explained verbally to the owner by the Installer or Agent on Completion of Installation; also provided with Waterflow's Home Owner's Manual.

Waterflow NZ Ltd encourages the Home Owner to monitor and care for your Naturalflow system yourself, with our backing and support, and by doing so you will learn how your system works and operates and how to keep it in top working order.

It is also recommended that a Maintenance Program contract is in place at all times to ensure this system is maintained at top performance at all times.

All on site wastewater systems require regular maintenance; in this case once annually is suffice and may be specified within the consent process by the Building Department of Whangarei District Council. This Maintenance will be recorded on hard copy and supplied to both the Owner and Whangarei District Council Compliance Officer if requested.

NOTE TO OWNER: All written records pertaining to the wastewater system should be retained in a safe place. When a change of ownership occurs, a full and complete history is able to be passed to the new owners.

Animals are to be physically excluded from the installed effluent field to avoid damage, and to reduce the risk of soil compaction in the vicinity of the bed.

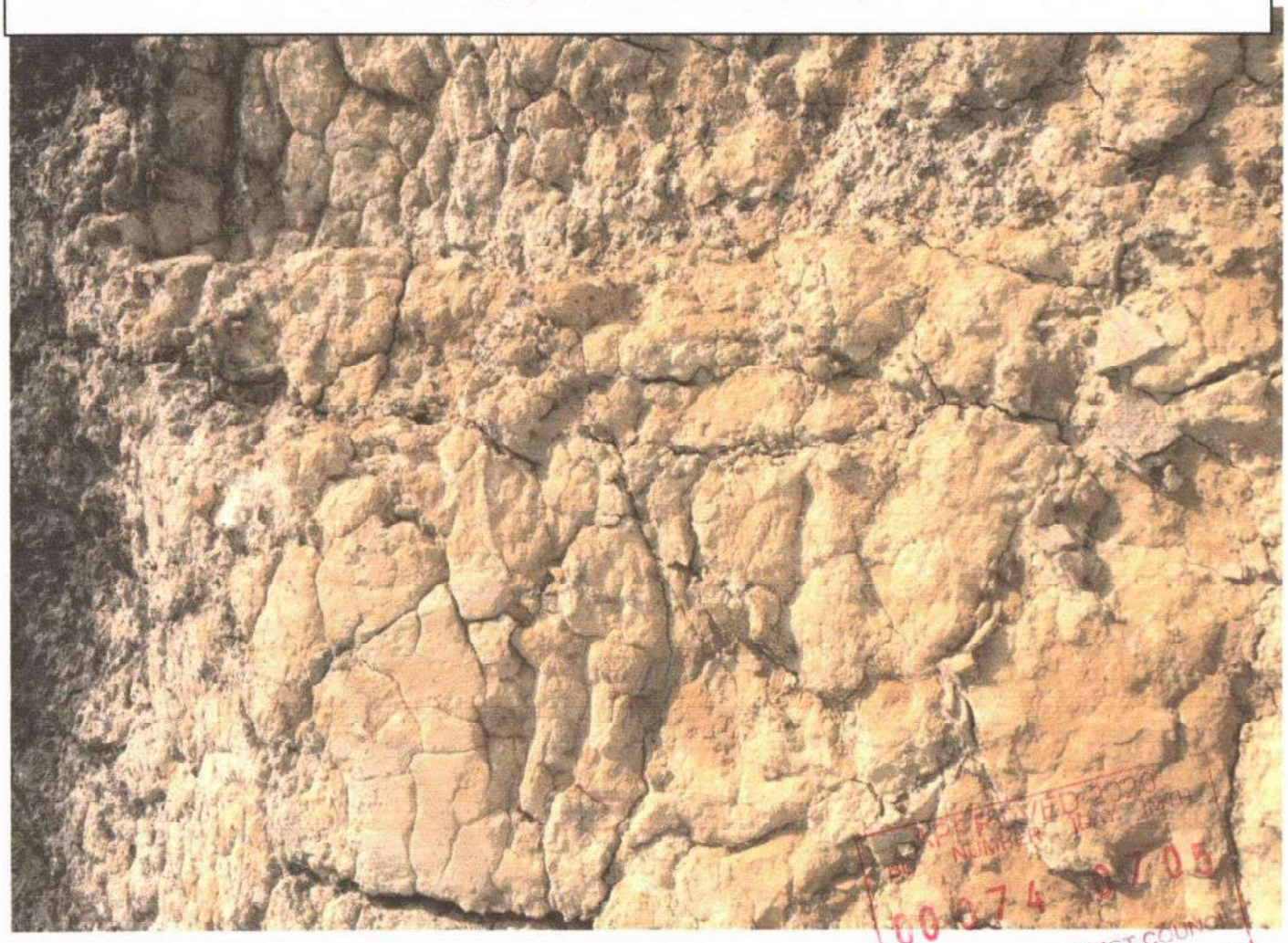
Planting within this area is encouraged to assist with evapotranspiration by plants.

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PART H: SOIL LOG PROFILE

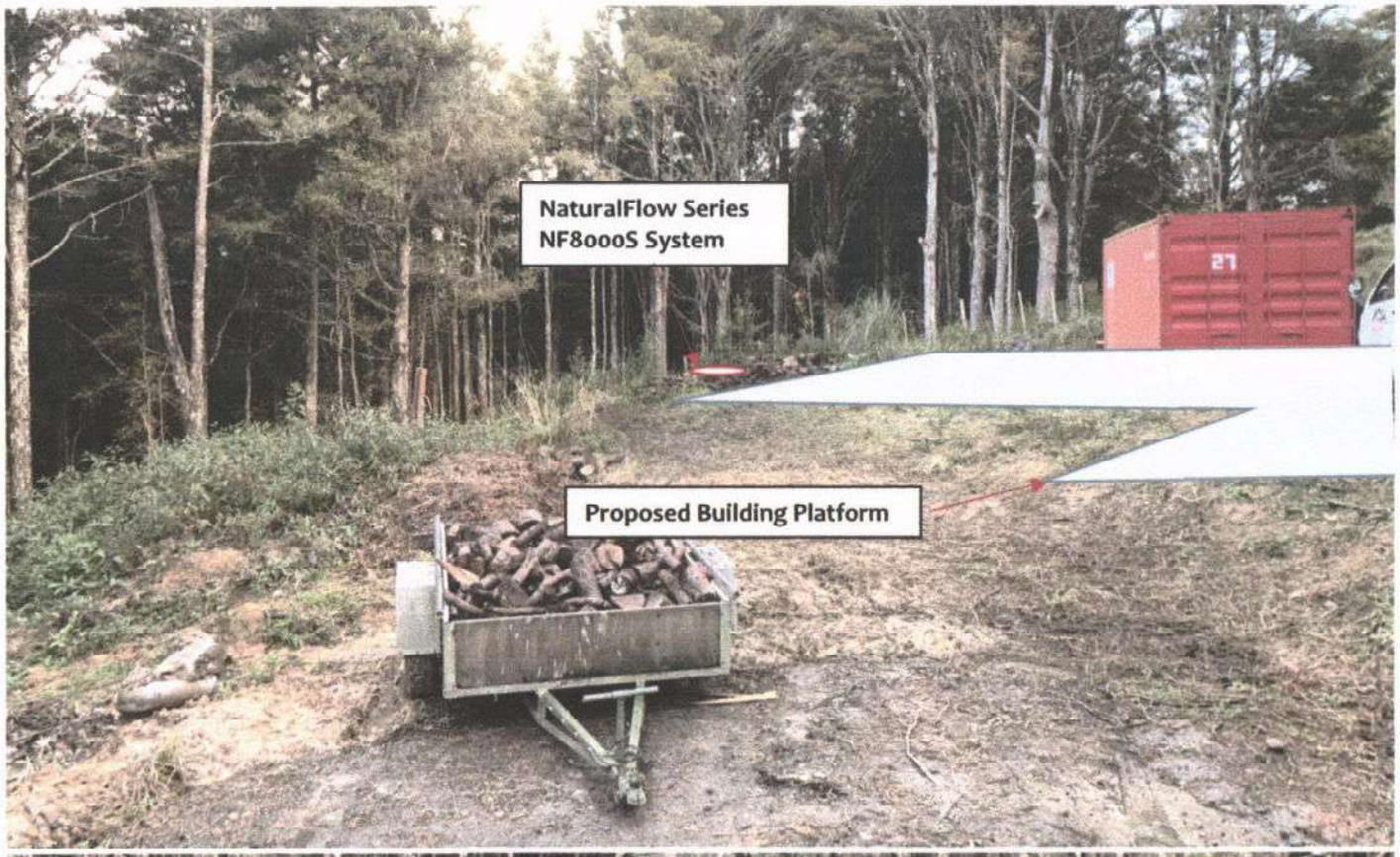


300mm silty volcanic topsoil over orange silty clay
Class 5, (as per AS/NZS 1547:2012 Table E1)



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PART I: SITE IMAGES





Land Application Area: 348m2 of LPED surface laid irrigation. 14 x 25mm x 24.9m surface laid LPED irrigation @ 1m centers, laid on a level contour through a 14 Port Manifold System. To be covered with min 100mm landscape mulch and protected from stock and vehicular traffic. See schematic drawing attached.

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DECLARATION

I, hereby certify that, to the best of my knowledge and belief, the information given in this application is true and complete.

Prepared By:	
Name:	**Dean Hoyle – PS Author '3037' Auckland Council, NZQA Onsite Wastewater Training/Opus, BOINZ OWM, HBRC Approved Designer**
Signature:	
Date:	8/11/2019

Reviewed By:	
Name:	**Ken Hoyle - NZQA Onsite Wastewater Training/Opus, HBRC Approved Designer**
Signature:	
Date:	8/11/2019

NOTE: The Waterflow Systems are to be installed by a registered drainlayer to the designs supplied by Waterflow NZ Ltd. All work to comply with Regional Council Water and Soil Plans.

Comments/Summary:

The disposal field will need to be protected from traffic and animal grazing. Planting this area is recommended to increase Evapotranspiration.

Suitable plants for the disposal field can be found on our website www.naturalflow.co.nz

Waterflow Treatment systems to be installed by accredited installer unless other arrangements have been made by Waterflow NZ Ltd

For more information do not hesitate to contact the team at Waterflow NZ Ltd on 0800 628 356





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SITE LOCATION PLAN:	SCALE:
John Kaiser Old School Road Maungakaramea Lot 7DP 207955 0.4548HA	1 : 131 @ A3



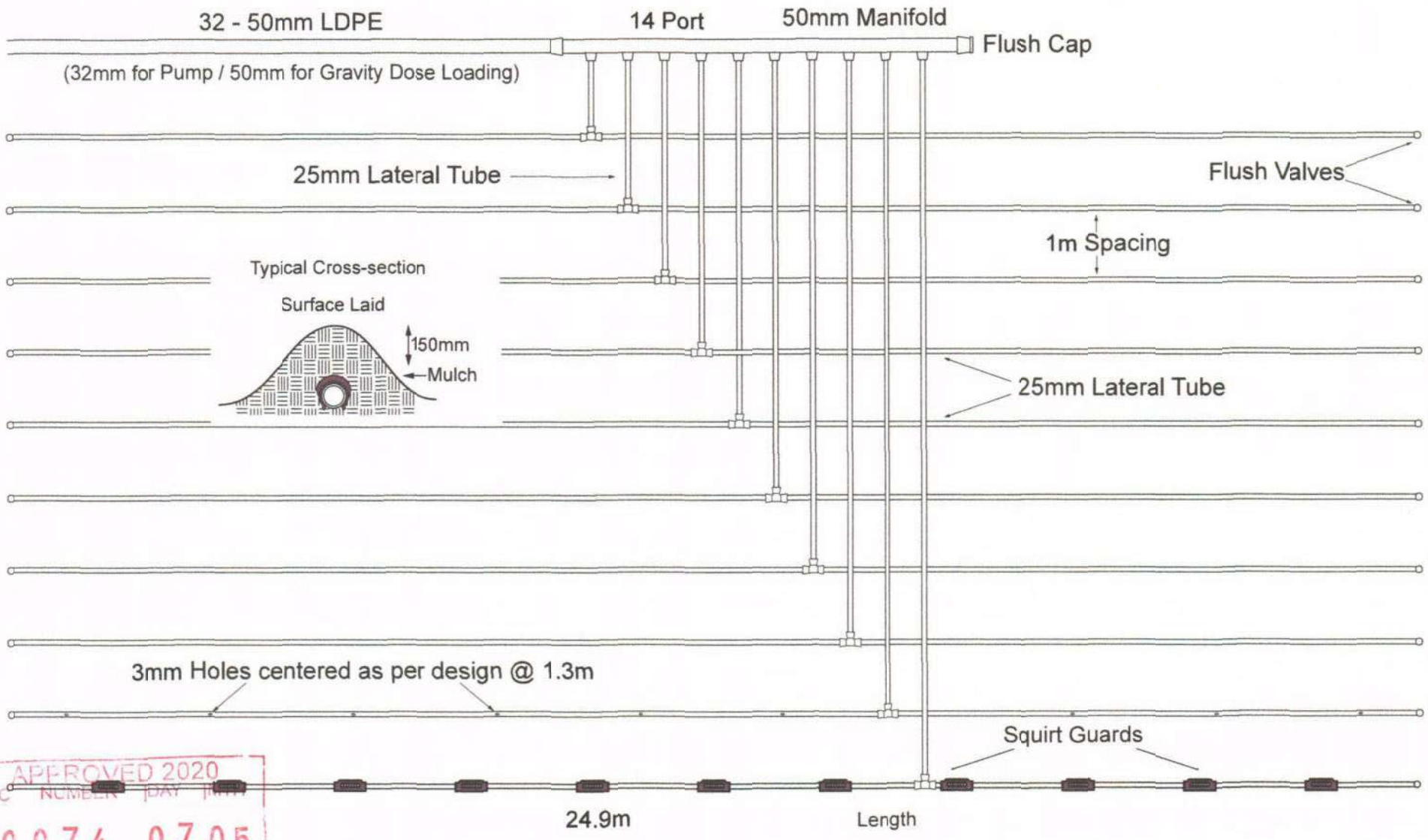
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Water Flow NZ LTD
'Trusted wastewater management solutions'

DATE DRAW: 8/11/2019 PREPARED BY: Dean Hoyle REVISED: Ken Hoyle	SITE LAYOUT PLAN: John Kaiser Old School Road Maungakaramea Lot 7 DP 207955 0.4548HA	SCALE: 1 : 31 @ A3

Surface Laid Standard LPED Field Layout

naturalflow
eco-wastewater & sewage systems



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Note: Each individual line must be laid level (even if you are following a contour)

Note: With sub surface laid LPED lines the disposal field must be planted as per Waterflow NZ Ltd.'s recommendations, to maintain maximum performance.

Assessment of Environmental Effects

John Kaiser of Old School Road, Maungakaramea
Lot 7 DP 207955

1.1 Description of Proposal

The owners of this site propose the construction of a new 4 bedroom dwelling .

1.2 Site Description

This site, located at Old School Road, is a rectangular shaped site of 4584sqm. It is covered in trees and slopes east toward a gulley feature. It is bounded by trees to the west and south with farmland beyond.

1.3 Wastewater Volume

In calculating the wastewater flows we have allowed for a maximum occupancy of 6 persons, based on the proposed 4 bedroom dwelling (as per AS/NZS 1547:2012 Table J1). Total wastewater production is based on an allowance of 145 litres per person per day (as per AS/NZS 1547:2012 Table H3, Note 2), which is conservative given that water supply is roof collected rain water and standard water conserving fixtures will be used throughout the house.

1.4 Wastewater Volume

The Naturalflow Series NF8000 treatment system that is proposed will treat the wastewater to a high standard prior to dispersal using a LPED system, into a purpose-designed disposal field where the removal of nutrient will continue, both in the receiving soils and by plant uptake.

The system will be capable of producing reductions in Biochemical Oxygen Demand, Total Suspended Solids, Nitrogen, and Coliforms to a standard that meets the requirements (see details below). The system will cater for the wastewater requirements of the private dwellings (domestic wastewater) and will not service any commercial or trade waste sources. Risk Minor to Nil.

1.5 Proposed Treatment System

The objective of the treatment system is to reduce and remove much of the contaminants from the wastewater prior to discharge into the receiving soil. This will improve the long-term performance of the disposal field as well as reducing the risk to the receiving environment. The system will consist of:

- Wormorator – Solids separation and breakdown unit
- Aeration discharge chamber

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- Land Application System

The system is constructed using plastic roto-molded tanks. The system produces treated effluent with BOD <40mg/l, Suspended solids <40mg/l.

1.6 Land Application System

The proposed irrigation system uses a LPED irrigation and manifold system, ensuring an even delivery of moisture over the entire irrigation field and a conservative DLR of 2.5mm. We propose the use of 25mm lateral tube with 3mm perforations at 1.3mm centres and laid out at 1mtr apart. This LPED line will then be covered by 100mm landscape mulch. Densely planting this area will greatly enhance evapo-transpiration and be very beneficial especially in the wetter months of the year. This irrigation can be installed in conjunction with existing or proposed landscaping.

1.7 Surface & Ground Water

It is proposed to treat the water to a high standard prior to discharge and the proposed irrigation system will introduce the water into the topsoil horizon using LPED irrigation. A low application rate of treated effluent into the topsoil will significantly reduce the likelihood of, any breakout or runoff or any risk of surface water contamination. With the ground water levels being >1.2m this conservative DLR also means the risk of ground water contamination is virtually nil. A majority of the undeveloped areas of this site are suitable for a LPED disposal field when the necessary setbacks are observed. Risk Minor to Nil.

1.8 Air Quality

The proposed NF8000 system will produce no noticeable odour when functioning correctly. Any odour will be contained within the tanks. The LPED irrigation system will load the soil at a rate that should not cause ponding, spraying or aerosol of the effluent that could potentially cause odours. Risk Minor to Nil.

1.9 Visual Impact

The tanks are installed wholly below ground level with only the lids being visible. The lids will protrude approximately 100mm to prevent egress of storm water into the system. The disposal field will be located in a purpose designed mulched and intensively planted disposal area. Warning signs may be installed to indicate the presence of the disposal area, although probably not necessary in a domestic situation, also the area may be fenced to restrict access.

1.10 Environmental Risks

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Risks are associated with this proposal are minor. The treatment system will be automated, and the Home Owner will be given a 'Home Owners Care Guide' which explains the necessary visual checks to ensure no issues arise with the system, specifically – solids build-up - high water level – discharge failure – filter blockage.

Peak flow into the system are not expected to be significant and the system includes a large emergency storage volume.

1.11 Maintenance Requirements

The maintenance requirement of this system is minimal, with the system fully automated. The system requires little input from the operator apart from the regular visual checks of the treatment system and land application system. All other maintenance interventions must be carried out by service persons familiar with the operation of the system and approved by the manufacturer. Maintenance may include checking of the dissolved oxygen levels, cleaning of effluent outlet filter, removal of excess sludge volume, checking of control panel function, etc....

The disposal field is quite possibly the most important and sensitive part of the treatment system and requires a reasonable amount of maintenance to keep it function well. Any leaking or damaged LPED irrigation must be fixed quickly using the appropriate materials, the planting must be maintained, weeds removed and grass kept cut.

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NaturalFlow Series NF8000 Treatment System

System Specifications & Installation Instructions



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Compliance Requirements

All NaturalFlow Treatment Systems meet the requirements of the NZ Building Code G13-VM4.

Section 9 of AS/NZS 1546.1:2008 state that tanks constructed to these Standards will meet the requirements of the Code for Clauses B1 and B2, structure and durability.

Compliance with Section 9 of AS/NZS 1546.1:2008 and also Clauses G13.3.4 relating to on-site treatment and disposal systems and G14.3.1 and 14.3.2 relating to the control of foul water as an industrial waste are covered in the 'NaturalFlow Compliance Requirements' document.

Please feel free to ask for a copy of this complete document, if required.

The Treatment Process

The NaturalFlow Series NF8000 Treatment System comprises of an 1800mm diameter x 1650mm high WORMORATOR® module and a 1200mm diameter x 2125mm high dose treatment chamber.

The black water (B/W), (which in the NaturalFlow System includes the kitchen sink waste) in order to remove the solids, is directed onto a bed of natural medium lined with a textile cloth which is designed to retain maximum solids.

These residual solids are seeded with tiger worms which break down the solids and promote aerobic conditions to treat the liquid. Results of long term testing have shown that they reducing the solids by approximately 95%, leaving only residual vermicasts which are virtually free of harmful bacteria and other pollutants. The B/W then flows through a second media tray which further treats the water reducing the TSS & BOD and also reducing the particle size, in the TSS, to less than 1mm.

The G/W enters at the base of the Wormorator and the combined liquid then flows into the dose treatment chamber for settlement and filtration through the built in aerating matrix outlet filter as per AS/NZS 1546 1:2008 Clause D3.3.1.

It is then disposed of via a Dose Float or pump into the receiving environment, in accordance with AS/NZS 1547:2012 and the relevant local authority's requirements. The size and extent of the disposal system is determined by the receiving environment and the expected flow volumes. Factors such as soil types, slope and the proximity of potentially sensitive environments such as creeks, wells, bores and other water ways determine the extent, location and type of disposal system chosen.

The Wormorator® and dose treatment chamber has a 2000ltr reserve capacity where pump loading is necessary to allow for 24hrs emergency storage should a pump fail. The operating capacity of the NaturalFlow Series NF8000 Treatment System is 2000ltrs per day of combined Black and Grey water.

Because the Wormorator® is a dry vault system there is negligible sludge build up so it does not require any regular de-sludging. This specifically meets clause AS/NZS 1547:2012 5.4.2.2.1 as to desludging requirements.

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NATURALFLOW SERIES NF8000

System Specification & Installation Instructions

New Zealand's Leaders in Eco-Sustainable, Odourless Wastewater and Sewage Systems

Wormorator® & Dose Chamber Specifications

Tanks are made of Cotene 9050 which is a linear medium density polyethylene, designed specifically for rotational molding of large tanks and products that require a high level of rigidity. It contains a fully formulated long term UV stabilization package (with a minimum UV8 rating) and is suitable material for wastewater treatment containment meeting all the requirements of Section 4.3.3 of AS/NZS 1547:2012 which cross references the structural performance requirements of its section 2.4.2.3 back to the relevant provisions of AS/NZS 1546.1, which for plastic septic tanks constructed via by rotational molding using thermoplastics (polyethylene) are set out in Section 9 of that Standard. These tanks have an expected lifespan of 50 years.

SXL5000 Wormorator® Module
4000ltrs Nominal capacity
1800mm Diameter over main body
2200mm over feet
1650 mm O/A height

Dose Chamber
1500ltrs Nominal capacity
1200mm Diameter over main body
732mm Riser Diameter
2125mm O/A height

Installation Location and Certification

These tanks are not designed for vehicle loads and shall be located no closer than 1.50m to a driveway, road frontage or a building. If for any reason the tank is located where vehicle traffic may drive over the tank or approach closer than 1.50m, or where it may be trampled on by farm stock then the tank should be protected by a concrete slab designed to support these loads. Surface water must also be diverted from flowing into the installation.

Installation must be certified to AS/NZS 1547:2012, the certificate to be issued and held by the regulatory authority.

High Water Table Installations

All tanks have been engineered and designed with support ribbing for maximum strength, in accordance with the NZC 3604. Clauses B1 and B2 for structure and durability, to withstand any hydraulic pressures, both lateral and uplift, created by high water table conditions, even when the tanks are completely empty at install stage.

As per the NaturalFlow Systems installation instructions, in these conditions, tanks must be anchored in with concrete around base, as per the installation instructions, to height as specified.

Plumbing Pipes and Fittings

All internal plumbing is done with PVC pipes with appropriate connections according to AS/NZS 1260 and AS/NZS 4130.

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Backfill and Bedding

Place and bed to NZBC G13/AS2, using compacted granular metal, in layers not exceeding 100mm.

Electrical

Where a pump is required on a flat site electrical connection must be installed according to AS/NZS 3000 and the control and alarm system must be in a weatherproof housing located in a readily visible position.

Warranty

WATERFLOW NZ LTD warrants that the NaturalFlow System will be free from defects in material and workmanship for the following periods of time from the date of installation as set out in the following conditions:

1. Roto-Molded tanks 15yrs
2. Filter media 15yrs
3. Dosing float/and or pumps 2yrs
4. WATERFLOW NZ LTD will at its discretion replace or repair such components that prove to be faulty with the same or equivalent part at no charge.
5. Warranty of operation covers the performance of the NaturalFlow systems as connected to the effluent inflow for which they are designed, and also installed to the criteria as set out in the relative installation instructions and procedures.

Warranty excludes defects due to:

A) Failure to use the system in accordance with owner's manual.
B) A force majeure event outside the reasonable control of WATERFLOW NZ LTD such as (but not limited to) earthquake, fire, flood soil subsidence ground water table variations or plumbing fault.
C) Modifications to surrounding landscape contours after installation
D) The actions of a third party
E) The system required to bear loads (either hydraulic or biological) greater than that for which it was designed
F) Any modifications or repairs undertaken without the consent of WATERFLOW NZ LTD
G) Failure, where applicable, to fence and plant land application system (disposal field)

1st June 2014
Dean Hoyle
Managing Director



NATURALFLOW SERIES NF8000

System Specification & Installation Instructions

NaturalFlow Series NF8000 Dose Installation Instructions

The NaturalFlow system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd.

The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate a 2.5m diameter level platform for the Wormorator® at the appropriate depth to ensure adequate fall for inlet pipe from the source. This has to be installed on virgin ground.
2. Lay 100mm of bedding metal on platform and place Wormorator®. Do this before excavating for dose chamber as this helps keep the excavations to a minimum.
3. Analyze where the dose chamber needs to be placed (this needs to line up with one of the feet at the base of the WORMORATOR®) and excavate a 1.3m diameter level platform 550mm below the Wormorator platform (this allows for 100mm of bedding material).
4. Very carefully drill a 127mm hole with a hole saw at the lowest point of the foot on Wormorator and fit Uniseal (see Uniseal instruction details appendix B below).
5. Lay 100mm of bedding metal on dose chamber platform and place tank.
6. Measure the distance between the Wormorator outlet and dose chamber inlet allowing 50mm both ends to insert into tanks. Mark pipe before inserting to ensure there is 50mm of pipe inside both tanks also fit the directional junction with flow being towards dose chamber.
7. Fit enough riser pipe to directional junction, to bring it up to grey water outlet level.
8. Trench from Dose Chamber outlet to disposal field, ensuring there is a constant fall from outlet to disposal field.
9. Where possible excavate a trench away from System and lay drain coil and drainage metal at the base of the system to drain away any surface or ground water. On a flat or high water table site System must be bedded in as per appendix A below.
10. Take a minimum of 3 photos at this point to showing connections and back fill, to ensure correct installation for sign off.
11. Back fill around the installed tanks until the required depth for the Grey Water module is reached, then excavate a level platform off 1.5m diameter and position tank on 100mm of bedding material and connect to 'riser'.
12. Back fill around tanks with pea-metal or similar. DO NOT back fill with soil or clay of any type as this can cause point pressure on the modules, through expansion and contraction, and will cause distortion.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

Worms: Ensure adequate moisture in the Wormorator® and add worms once installed unless systems is not going to be used within 2 months of installation.

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NATURALFLOW SERIES NF8000

System Specification & Installation Instructions

NaturalFlow Series NF8000 Pump Installation Instructions

The NaturalFlow system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd.

The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate a 2.5m diameter level platform for the Wormorator® at the appropriate depth to ensure adequate fall for inlet pipe from the source. This has to be installed on virgin ground.
2. Lay 100mm of bedding metal on platform and place Wormorator®. Do this before excavating for dose chamber as this helps keep the excavations to a minimum.
3. Analyze where the dose chamber needs to be placed (this needs to line up with one of the feet at the base of the WORMORATOR®) and excavate a 1.3m diameter level platform 550mm below the Wormorator platform (this allows for 100mm of bedding material).
4. Very carefully drill a 127mm hole with a hole saw at the lowest point of the foot on Wormorator and fit Uniseal (see Uniseal instruction details appendix B below).
5. Lay 100mm of bedding metal on dose chamber platform and place tank.
6. Measure the distance between the Wormorator outlet and dose chamber inlet allowing 50mm both ends to insert into tanks. Mark pipe before inserting to ensure there is 50mm of pipe inside both tanks also fit the directional junction with flow being towards dose chamber.
7. Fit enough riser pipe to directional junction, to bring it up to grey water outlet level.
8. Where possible excavate a trench away from System and lay drain coil and drainage metal at the base of the system to drain away any surface or ground water. On a flat or high water table site System must be bedded in as per appendix A below.
9. Take a minimum of 3 photos at this point to showing connections and back fill, to ensure correct installation for sign off.
10. Back fill around the installed tanks until the required depth for the Grey Water module is reached, then excavate a level platform off 1.5m diameter and position tank on 100mm of bedding material and connect to 'riser'.
11. Trench from Dose Chamber outlet to disposal field, ensuring there is a constant fall from outlet to disposal field.
12. Back fill around tanks with pea-metal or similar. DO NOT back fill with soil or clay of any type as this can cause point pressure on the modules, through expansion and contraction, and will cause distortion.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

Worms: Ensure adequate moisture in the Wormorator® and add worms once installed unless systems is not going to be used within 2 months of installation.

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Appendix A

High Water Table: For installation in high water table areas, make sure you have a pump to pump away ground water whilst installing. Excavate a pump cavity to one side of the platform and pump ground water away during entire installation process .Half fill dose tank with water, this will flow back into Wormorator as well and will help with resisting the hydraulic uplift (ensure that Wormorator is not completely flooded). Either lay 2-3m^3 of concrete around the base of the tanks or mix 3 bags of cement/cube of GAP20 (or similar) metal to form a mass to stop any hydraulic uplift. Leave water in tanks for at least 12 hours after installation is completed and then pump out to allow Wormorator to dry out.

Appendix B

Instructions for fitting UNISEAL®

1. Cut hole to the Hole saw size indicated for the UNISEAL® you are using. Either 127mm hole for a 4"/100mm pipe or 67.2mm hole for a 2"/50mm pipe.

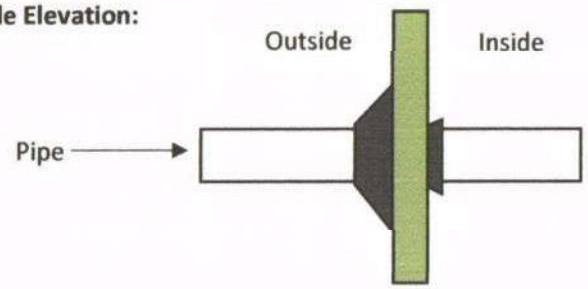
2. Ensure that the hole is clean cut with sharp edges. Irregularities could cause poor seating and ultimate leakage.

3. Insert the UNISEAL® into the hole with the wide side facing the pipe to be inserted.

4. Make certain that the pipe end to be inserted is clean cut. File the edges so that there are no sharp points to cut UNISEAL®.

5. Using Detergent, lubricate the outside of the pipe end to be inserted, then push the pipe through the UNISEAL® from the large flange side. The detergent will be squeezed off as the pipe passes through the UNISEAL®. The co-efficient of friction of the rubber holds the pipe tightly in place.

Side Elevation:



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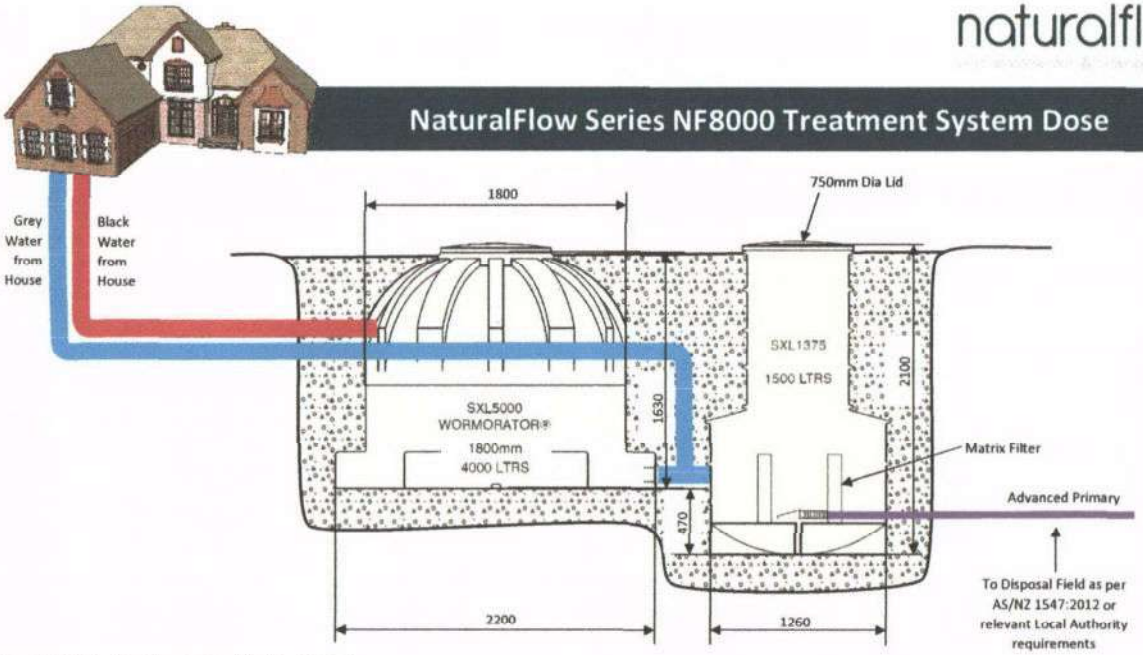
NATURALFLOW SERIES NF8000

System Specification & Installation Instructions

NaturalFlow Series NF8000 Flow Charts

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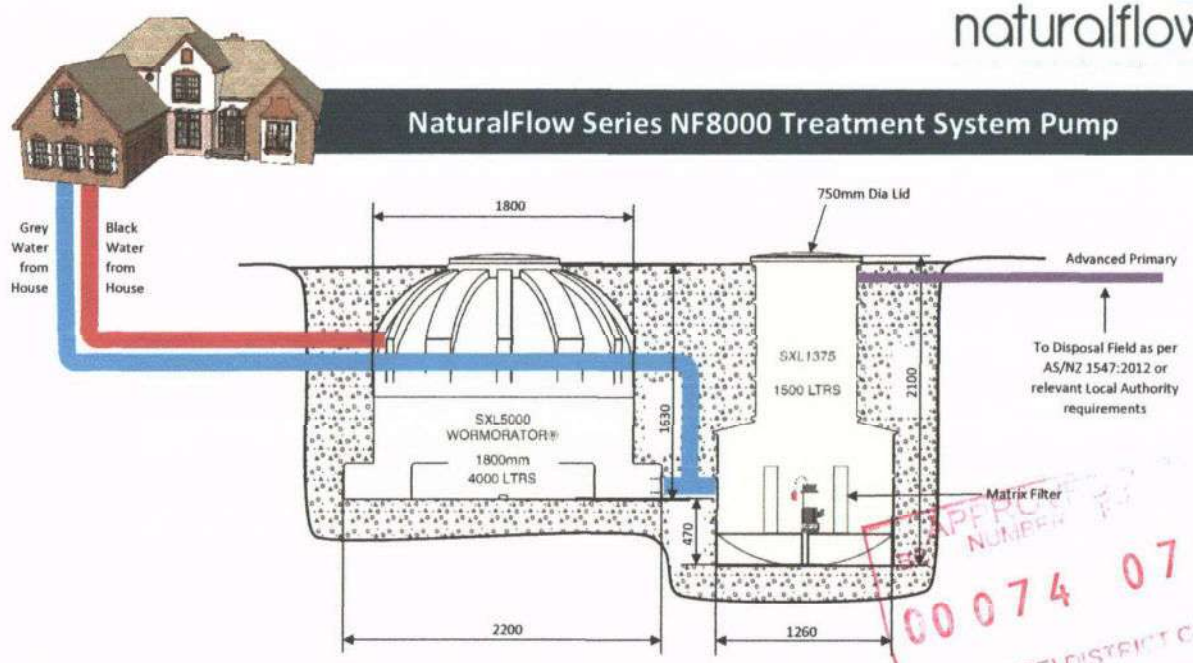
NaturalFlow Series NF8000 Treatment System Dose



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NaturalFlow Series NF8000 Treatment System Pump



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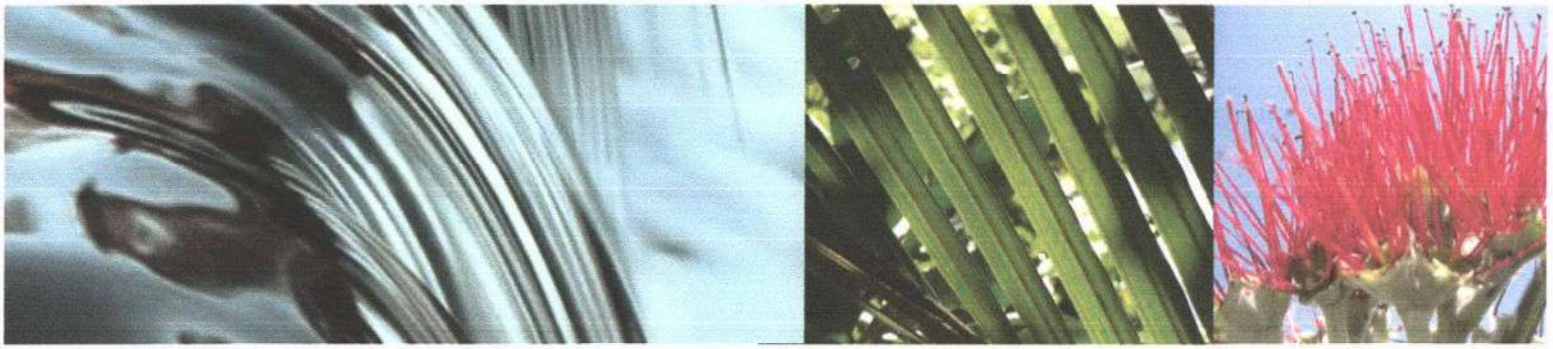
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Call us today to discuss your needs

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Or for more information www.naturalflow.co.nz



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Home Owner Care Guide

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HOME OWNERS CARE GUIDE

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HOME OWNERS CARE GUIDE

• To The Home Owner

Thank you for choosing a NaturalFlow System to treat and care for your on-site sewage and wastewater.

NaturalFlow is a truly natural living system that uses well-established, sustainable processes to treat both solid and liquid waste. Nature is one huge recycling mechanism and NaturalFlow harnesses these forces that have been working together for thousands of years and continue to do so today, working with our environment, to treat your wastewater. The system does not draw on any other resources and does not use external power in any of the treatment processes.

We would encourage you to monitor and care for your NaturalFlow system yourself with our backing and support and by doing so you will learn how your system works and operates and how to keep it in top working order. As with all living organisms a little care and supervision will ensure that it will run at peak performance for many years.

The system accommodates and works with all of today's conveniences such as conventional toilets, 'waste master' units from the kitchen and more. All domestic wastewater can be taken care of and even on steep and difficult sites with poor soakage; NaturalFlow will deliver consistent results year after year.

Kind regards,
The NaturalFlow Team







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HOME OWNERS CARE GUIDE

• Waterflow NZ Ltd Warranty

WATERFLOW NZ LTD warrants that the NaturalFlow System will be free from defects in material and workmanship for the following periods of time from the date of installation as set out in the following conditions:

1. Roto-Moulded tanks 15yrs
2. Filter media 15 yrs.
3. Dosing float and/or pumps 2yrs
4. WATERFLOW NZ LTD will at its discretion replace or repair such components that prove to be faulty with the same or equivalent part at no charge.
5. Warranty of Operation covers the performance of the NaturalFlow System as connected to the effluent inflow for which they are designed, and has been installed to the criteria as set out in the relative installation instructions and procedures, and has an assigned Service/Maintenace contract in place with Waterflow NZ Ltd or it's appointed agent/s.

Warranty excludes defects due to:

A) Failure to use the system in accordance with owner's manual.

B) A force majeure event outside the reasonable control of WATERFLOW NZ LTD such as (but not limited to) earthquake, fire, flood, soil subsidence, ground water table variations or plumbing fault.

C) Modifications to surrounding landscape contour after installation

D) The actions of a third party

E) The system required to bear loads (either hydraulic or biological) greater than that for which it was designed

F) Any modifications or repairs undertaken without the consent of WATERFLOW NZ LTD

G) Failure, where applicable, to fence and plant disposal field.

Dean Hoyle
Managing Director.

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Love nature, stay close to nature
Study nature, it will never fail you

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HOME OWNERS CARE GUIDE

• Caring For Your Wastewater And Sewage System

Home Owner Care Role

The Home owner is greatly encouraged to maintain a monthly visual check of the operation of their system and to make sure their land application systems are maintained in good condition.

1. Industry recommendation is to have a maintenance contract in place at all times
2. Visual check of treatment system
3. Visual check of land application system
4. Notify Waterflow NZ of any issues

Inspection Checklist:

When checking the system operation, take particular note of;

1. Wormorator build-up. Six monthly level should be no higher than 200mm below inlet pipe (simple observation through lid adequate).
2. Field performance, particularly looking for any undue odours or effluent breakout (flush field lines 2–3 monthly).
3. All electrical parts (if applicable). *Ensure all pump* alarms are working.
4. Check Grey Water and Dose tank outlet filter for any build-up.
5. Check Aerating Bio-Filter charge tank (1200 pump) for correct operation (simple observation through lid adequate) and that the plants themselves look healthy and lush (these can be trimmed if desired to keep looking tidy).

Did you know...

...that as a homeowner you're responsible to make sure your wastewater system gets the required maintenance needed to protect the investment in your home? This guide will help you care for your wastewater system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work efficiently.

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• Caring For Your Wastewater And Sewage System

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Components of Your Complete Wastewater Septic System

A typical wastewater septic system has two main components: a Wastewater and Sewage Treatment System and a Land Application System (or disposal field)

The NaturalFlow System treats and reduces the solid content of the wastewater by up to 95%. The wastewater liquid then flows to the disposal field, where it percolates into the soil, and microbes provide final treatment by removing harmful bacteria, viruses, and nutrients before it eventually reaches the groundwater ecosystem, and the cycle begins again.

Efficient Water Use – 'it does make a difference'

Average indoor water use in the typical single-family home is approximately 180ltrs per person per day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the wastewater system and reduce any risk of disposal field overload.

High-efficiency toilets

Toilet use accounts for 25 to 30 percent of household water use.
Do you know how many litres of water your toilet uses to flush? Most older homes have toilets with 11+ litre reservoirs, while newer high-efficiency dual flush toilets use 6.3/5.5ltrs or down to 4.5/3ltrs of water per flush. **N.B.** Did you know leaky toilets can waste as much as 700ltrs each day.

Consider reducing the volume of water in the toilet tank with a volume displacer (fancy name for a brick, stone etc!) if you don't have a high-efficiency model, or replacing your existing toilets with high-efficiency models.
Check to make sure your toilet's reservoir isn't leaking into the bowl. Add five drops of liquid food colouring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking and repairs are needed.

Water fixtures

A small drip from a faucet may add many litres of unnecessary water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water travelling to your septic system each day from that little leak.

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Faucet aerators and high efficiency showerheads

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads also reduce water use.



Washing machines

By selecting the proper load size, you'll reduce wastewater. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry. **N.B.** A new Energy Star washing machine uses 35 percent less energy and 50 percent less water than a standard model.

Watch your drains!

What goes down the drain can have a major impact on how well your wastewater system works.

What shouldn't you flush down your toilet?

Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, cat litter, and other kitchen and bathroom items that can clog and potentially damage septic system components if they become trapped. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can also stress or destroy the biological treatment taking place in the system or might contaminate surface or ground waters.

Care for your Land Application System

Your land appliaction system is an important part of your wastewater system. Here are a few things you should do to maintain it:

- Flush driplines regularly – every 3 months recommended
- Plant only recommended wetland plants over and near your wastewater system. Roots from nearby trees or shrubs might clog and damage the drainfield
- Don't drive or park vehicles on any part of your wastewater system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components
- Do not build any structures over it or seal it with concrete, asphalt etc
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drainfield. Flooding the drainfield with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up
- Trees with very aggressive roots, such as willows, should be kept well away from the disposal system, see page 11 for list of recommended plantings
- A soggy drainfield won't absorb and neutralize liquid waste. Plan landscaping, roof gutters and foundation drains so that excess water is diverted away from the Land Application System

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eco-wastewater & sewage systems

HOME OWNERS CARE GUIDE

• In A 'Nutshell'...

DO...

- If your system requires power supply make sure this remains on continuously, unless system is being serviced
- Check faucets and toilets for leaks; make repairs if necessary
- Use low flush toilets where possible
- Use a 'displacer' to reduce the amount of water needed to flush older toilets
- Use aerators on faucets and flow reducer nozzles on showers to help lower water consumption
- Reduce water levels for small loads of laundry
- Wait until the dishwasher is full to run it
- Densely plant your field to maximise transpiration
- Perform regular monthly visual checks of your system and field
- Grass should be mowed or trimmed regularly to optimize growth and prevent the grass from becoming rank
- Use signs, fences and/or plantings to prevent any vehicle or stock access
- Keep records of all maintenance undertaken on the wastewater systems
- Monitor and care for your Wastewater System as per instructions in the home owner's manual
- You are welcome to install a Waste Master in your kitchen sink. The worms love it!!

DO NOT...

- Switch off power unless servicing
- Use chlorine based disinfectant & cleaning products in the toilets or kitchen sink (Cleaners high in chlorine, phosphorous or ammonia must not be used)
- Over use heavy cleaners that kill beneficial bacteria in the septic system
- Pour any toxic/strong chemicals (paint, oil, grease, paint thinners or pesticides) down any drains
- Flush down your toilet – Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, cat litter, and other kitchen and bathroom items
- Discard any drugs down the sink or toilet
- Empty rubbish bags into Wormorator
- Alter or add any part of your system without Waterflow NZ LTD's approval

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0800 628 356 www.naturalflow.co.nz

• Household Cleaning Chemicals

Effects on Wastewater and Disposal System Receiving Environments

Use of many cleaning chemicals in facilities served by on-site disposal systems, can result in high concentrations of the constituents in those cleaning agents being discharged into the receiving soils. These chemicals and constituents can have a massive impact on the quality and condition of the receiving soils over time.

Many of the chemicals can disrupt soil structure and decrease hydraulic conductivity while others can act as bactericides, destroying the essential micro-organisms required to achieve the high level of biodegradation in the treatment and disposal systems.

The following matters need to be considered when using cleaning agents in a domestic situation:

- Laundry powders are often extremely high in sodium which will destroy the salt balance in the soils. Check the labels for low sodium and phosphorous contents.
- Wastewater flow from dishwashing machines can have an impact on wastewater treatment systems, in terms of the strong cleaning chemicals used, so check labels for low sodium products
- Highly corrosive cleaners (such as toilet and drain cleaners) that have precautionary labels warning users to minimise direct contact, are an indication that they can adversely affect the wastewater treatment system. Up to 1 cup of bactericides such as bleach can be sufficient to impact on all the microorganisms/bugs in a septic system.

Recommended Cleaning Brands:

eco STORE

earthwise
caring for your world

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• Cleaning Substitutes

Substitutes For Household Cleaning Chemicals (Ref TP58)

Use of the following readily biodegradable substitutes for common potentially harmful household cleaning chemicals will reduce the stress on any wastewater system, significantly enhance the performance of the whole system and increase the life of the land application system, while reducing the potential effects of the receiving soils.

General Cleaners

Use soft soap cleaners and bio-degradable cleaners and those low in chlorine levels.

Ammonia-Based Cleaners

Instead sprinkle baking soda on a damp sponge. For windows, use a solution of 2-Tbs white vinegar to 1-litre of water. Place the mixture into a spray bottle.

Disinfectants

In preference use Borax (sold in most Bin Inn stores): ½ cup in 4-litres of water.

Drain De-Cloggers

Avoid using de-clogging chemicals. Instead use a plunger or metal snake, or remove and clean trap.

Scouring Cleaners and Powders

Instead sprinkle baking soda on a damp sponge or add 4-Tbs baking soda to 1-Litre warm water. It's cheaper and won't scratch.

Toilet Cleaners

Sprinkle on baking soda, then scrub with toilet brush.

Laundry Detergent

Choose one with a zero phosphate content and low in alkaline salts (in particular, a low sodium level) and no chlorine.

Oven Cleaners

Sprinkle salt on drips, then scrub. Use baking soda and scouring pads on older spills.

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HOME OWNERS CARE GUIDE

• Water Tolerant Plants Suitable For On-Site Wastewater Disposal Systems

Plantings that will soon have your field looking magnificent!
Below are the most common of native and other plant species that are tolerant or fond of moist conditions, such as those associated with wastewater disposal fields.



Cordyline australis



Apodasmia similis



Alocasia nigrescens



Carexx secta

- **Alocasia nigrescens** (Black Taro)
- **Apodasmia similis** (Oioi)
- **Arthropodium Matapouri Bay** (Rengarenga Lily)
- **Carex dispacea**
- **Carex dissita**
- **Carex maorica**
- **Carex secta**
- **Carex tenuiculmis**
- **Carex virgata**
- **Cordyline australis** (Cabbage Tree)
- **Cordyline Midnight Star**
- **Leptospermum Burgundy Queen** (Flowering Ti Tree)
- **Lomandra Tanika**
- **Phomium Surfer**

Note: For a full range of plants and their descriptions please see our website:
www.naturalflow.co.nz

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by Waterflow NZ Ltd

"We do it simpler"



Call us today to discuss your needs

0800 628 356

Or for more information www.naturalflow.co.nz







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E mailroom@wdc.govt.nz www.wdc.govt.nz

Form 7

Code Compliance Certificate BC2000074

Section 95, Building Act 2004

Issued: 25 August 2021

The Building

Street address of building:	122 Old School Road Whangarei 0178
Legal description of land where building is located:	LOT 7 DP 207955 LLP: 102521
Building name:	N/A
Location of building within site/block number:	N/A
Level unit number:	N/A
Current, lawfully established use:	Detached Dwelling
Year first constructed:	2020

The Owner

T L Pasco
J W Kaiser
PO Box 80
Maungakaramea 0178

Phone number:	N/A
Mobile number:	0211404719
Facsimile number:	N/A
Email address:	john@kaiserconstruction.co.nz
Website	N/A
Street address/registered office:	122 Old School Road Whangarei 0178

First point of contact for communications with the building consent authority: Owner

Building Work

New Dwelling

Building Consent Number: BC2000074

Issued by: Whangarei District Council

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that -

(a) The building work complies with the building consent.



Jessica Tyler-Whiteman
Support Assistant – Building Processing
On behalf of Whangarei District Council

25 August 2021
Date

Operative District Plan - Area Specific Matters

Whangarei District Council



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4 November 2026

Scale 1:1,500

Operative District Plan – Map Legend

Whangarei District Council

District-Wide Matters

Energy, Infrastructure and Transport

- National Grid Tower
- Northpower Tower CEL-Cat1
- National Grid Line
- Northpower Overhead Critical Line Cel-Cat1
- Northpower Critical Overhead Lines CEL
- Northpower Critical Underground Lines CEL
- Airport Runway
- Indicative Road
- National Road
- Regional Road
- Arterial Road
- Primary Collector Road
- Secondary Collector Road
- Low Volume Road
- Access Road
- Strategic Road Protection Area
- Strategic Railway Protection Line

Hazards and Risks

- Coastal Hazard Area 1
- Coastal Hazard Area 2
- Flood Susceptible Areas
- Mining Hazard Area 1
- Mining Hazard Area 2
- Mining Hazard Area 3

Historical and Cultural Values

- Notable Tree Overlay
- Heritage Item Overlay
- Sites of Significance to Maori
- Heritage Area Overlay
- Areas of Significance to Maori

Natural Environment Values

- Esplanade Priority Area
- Coastal Marine Area (CMA) boundary
- Goat Control Areas
- Outstanding Natural Feature
- Outstanding Natural Landscape

General District-Wide Matters

- Airport Noise Boundary
- Outer Control Boundary
- Helicopter Hovering Area
- Noise Control Boundary Overlay
- Rail noise alert area
- Rail vibration alert area
- QRA Quarrying Resource Area
- QRA Mining Area
- QRA Buffer Area
- QRA 500m Indicative Setback
- Coastal Environment Overlay
- Outstanding Natural Character Area
- High Natural Character Area

Area Specific Matters

- Designation
- Precinct
- Development Area

Residential Zones

- Large Lot Residential Zone
- Low Density Residential Zone
- General Residential Zone
- Medium Density Residential Zone

Rural Zones

- Rural Production Zone
- Rural Lifestyle Zone
- Settlement Zone Residential Sub-Zone
- Settlement Zone Centre Sub-Zone
- Settlement Zone Industry Sub-Zone

Commercial and Mixed Use Zones

- Local Centre Zone
- Neighbourhood Centre Zone
- Commercial Zone
- Mixed Use Zone
- Town Centre Zone
- City Centre Zone

Industrial Zones

- Light Industrial Zone
- Heavy Industrial Zone

Open Space and Recreation Zones

- Natural Open Space Zone
- Open Space Zone
- Sport and Active Recreation Zone

Special Purpose Zones

- Airport Zone
- Future Urban Zone
- Fonterra Kauri Milk Processing SRIZ – Ancillary Irrigation Farms
- Hospital Zone
- Port Zone
- Ruakaka Equine Zone
- Shopping Centre Zone
- Strategic Rural Industries Zone
- Waterfront Zone

The information displayed is schematic only and serves as a guide.
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The Whangarei District Council district plan GIS data was created at a specific point in time.
Land parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service. The LINZ land parcel information may be updated by LINZ at any time from that time, which may result in misalignments with Whangarei District Council information.

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Section 87BA of the Resource Management Act 1991
Written Notice of Deemed Permitted Boundary Activity

IN THE MATTER of an application under Section 87BA of the Resource Management Act 1991 by John Walter Kaiser

To John Walter Kaiser,

Application

Application Number: PB2000010

Property Id:102521

Site

Address:	**Old School Road, Whangarei 0178**
Legal Description:	**Lot 7 DP 207955**
Relevant Interests:	**Land Covenant in Transfer 5712564.6**
Environment:	**Rural Production Environment**
Resource Notations:	**Effluent Unsuitability - Medium**
Plan Changes:	**N/A**

Activity

Description of Activity:
A residential unit is proposed to be located 3m from the southern boundary of the subject site. A retaining wall (with a maximum height of 2m) is proposed between the proposed residential unit and Old School Road, and between the proposed residential unit and the southern boundary of the subject site.

Site Description:
The subject site is 4834m² and is located in the Rural Production Environment near the village of Maungakaramea. There subject site is rural in character. There is an existing residential unit on the land immediately to the north but is otherwise predominantly surrounded by pastoral land. The subject site is accessed from Old School Road, which has been sealed.

Rule Infringements:

WDC Operative District Plan
The proposal breaches rule RPE.2.3.4.b of the Operative Whangarei District Plan because the proposed setback for the residential unit is less than 8m from the southern boundary of the subject site.

Plan Numbers:

Plans titled: - Proposed House for Mr J Kaiser and MS T Pasco

- "Location Plan" – Drawing No: D-897 Sheet: 1
- "Site Plan" – Drawing No: D-897 Sheet: 2
- "Floor Plan" – Drawing No: D-897 Sheet: 3
- "Loft Floor Plan" – Drawing No: D-897 Sheet: 4
- "North-West South-East Elevation" – Drawing No: D-897 Sheet: 5
- "North-East South-West Elevation" – Drawing No: D-897 Sheet: 6

All plans drawn by Ross Craven Draughting and dated 29/01/2020

Owners of Infringed Boundary:

Address	Legal Description	Name	Written Approval Obtained & Plans Signed
136 Old School Road, Maungakaramea	Lot 2 DP370887	Thomas Leonard O'Shea	Yes
136 Old School Road, Maungakaramea	Lot 2 DP370887	Cherie Alaine O'Shea	Yes

The subject site is shown below bounded in orange and black. The lot affected by the infringed boundary is denoted with a black star.



Boundary Activity is Permitted

Discussion

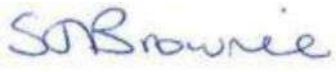
The proposal is considered to be a Discretionary Activity under RPE 2.3.4.b, however, the proposal can meet the criteria for a Permitted Boundary Activity as it complies with all other relevant bulk and location requirements of the Rural Production Environment.

Determination

That the Team Leader (RMA Consents) of the Whangarei District Council acting under powers delegated by Council pursuant to Section 34A of the Resource Management Act 1991 (the Act) is satisfied that the proposed activity described above meets the requirements of Section 87AAB and 87BA of the Act and is therefore a Permitted Activity under Section 87BA(1) of the Act.

Advice Note

1. This notice will lapse 5 years after the date it is given unless the activity permitted by this notice is undertaken.
2. A certificate of compliance (under Section 139 of the Act) cannot be applied for in respect of this activity.
3. This notice is valid only for the activity described. If the activity changes, a resource consent may be required.
4. The Team Leader RMA Approvals and Compliance shall be notified at least five (5) working days prior to activities commencing on the subject site.



Sarah Brownie,
Intermediate Planner – RMA Consents

23 March 2020
Date



Kaylee Kolkman,
Team Leader – RMA Consents

26 March 2020
Date

Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 30/01/2020
Signed
Kevin Brown
CPEng 140404

LAUTREC CONSULTING ENGINEERS

SITE CONDITIONS

WIND ZONE = VERY HIGH
DURABILITY ZONE = C

NOTES

CHECK ALL DIMENSIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION AND SPECIFIC DESIGN

TIMBER CONSTRUCTION SHALL COMPLY WITH NZS 3604: 2011

WINDOWS SHALL BE DOUBLE GLAZED WITH CLEAR OR TINTED GLASS

ALL GLAZING SHALL COMPLY WITH NZS 4223

TIMBER TREATMENT SHALL BE TO NZS 3602: 2003

EXTERIOR FRAMING SHALL BE MSG8, H1.2 TREATED UNLESS NOTED OTHERWISE

EXPOSED TIMBER SHALL BE H3.2 TREATED U.N.O.

TIMBER REVEALS TO WINDOWS SHALL BE H3.1 TREATED

EXPOSED METAL PLATES, BRACKETS AND BOLTS SHALL BE STAINLESS STEEL

LINEA CLADDING FASTENINGS SHALL BE HD GALV. CEDAR CLADDING FASTENINGS SHALL BE STAINLESS STEEL

ROOF UNDERLAY SHALL BE THERMAKRAFT 215 (OR EQUAL)

BUILDING WRAP SHALL BE WATERGATE PLUS 295 (OR EQUAL)

CLADDING, LINING AND ROOFING SHALL BE FIXED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS

REFER TO SPECIFICATION FOR ADDITIONAL DETAILS OF CLADDING INSTALLATION AND WINDOW FIXING AND FLASHING

REFER TO LUMBERLOK FIXINGS CHART IN SPECIFICATION FOR LINTEL AND TOP PLATE FIXING DETAILS

DETAIL ROOF TRUSS DESIGN IS PROVIDED BY TRUSS THE MANUFACTURER

"WET" TIMBER BEAMS & LINTELS SHALL BE PROPPED AT MID SPAN UNTIL DRY. i.e. MOISTURE CONTENT < 18%

LINTELS AND BEAMS SPECIFIED AS 90 WIDE MAY BE LAMINATED FROM 2/45 WIDE BEAMS OF THE SAME DEPTH NAILED TOGETHER IN ACCORD WITH NZS 3604, Cl. 2.4.4.7

BRACING

WALL BRACING IS DENOTED XX-X~XXm

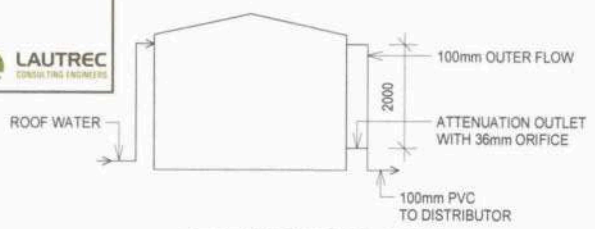
BRACING TYPE — BRACING LENGTH (IN METERS)

GS1-N = 10mm GIBBOARD TO ONE FACE

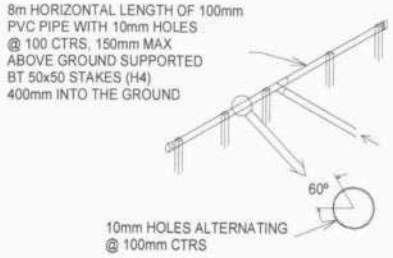
GS2-N = 10mm GIBBOARD TO BOTH FACES

BL1-H = GIB BRACELINE TO ONE FACE, HOLD DOWN TO BOTH WALL END STUDS

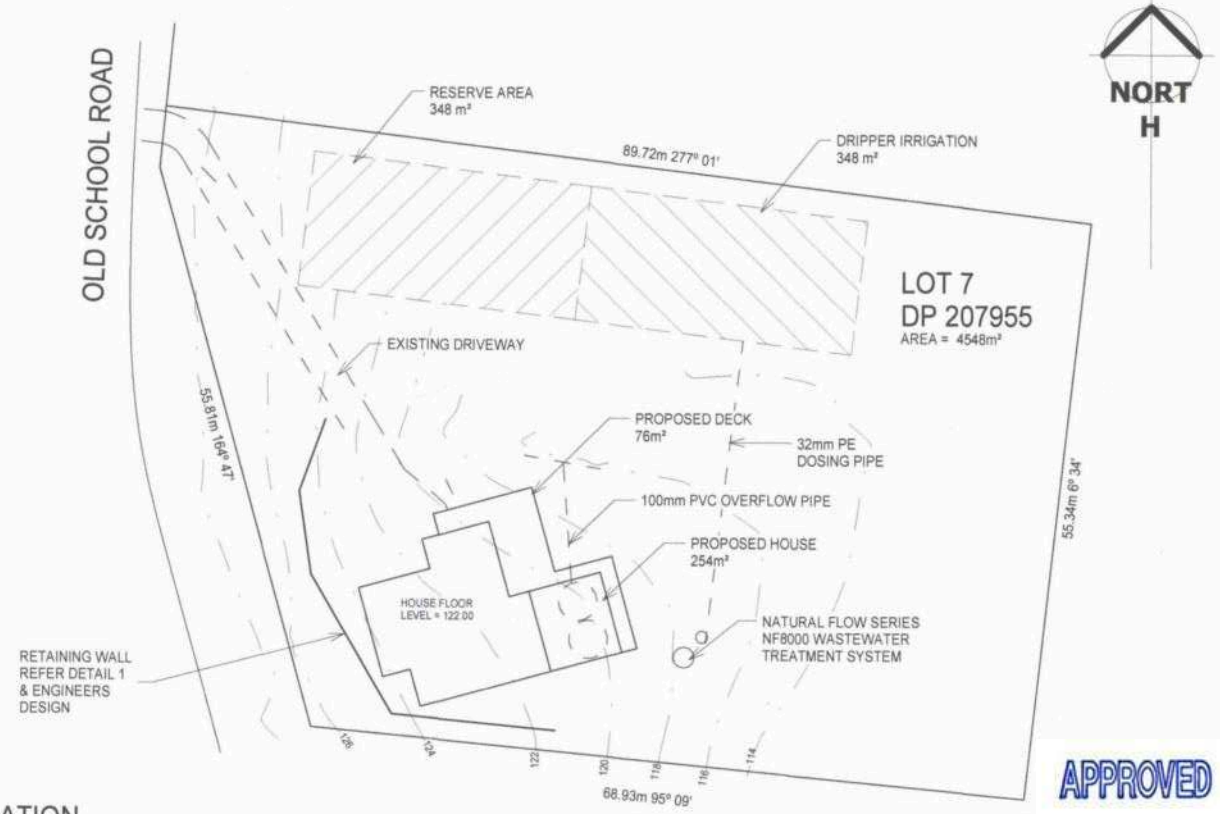
BLP-H = 10mm GIB BRACELINE TO ONE FACE, 7mm STRUCTURAL PLYWOOD TO OTHER, HOLD DOWN TO BOTH WALL END STUDS



ATTENUATION TANK DETAIL



STORM WATER DISTRIBUTOR DETAIL



LOCATION PLAN

INSULATION

WALLS = R2.2 BATTS (OR EQUAL)

CEILING/ROOF = R3.2 BATTS (OR EQUAL)

TIMBER FLOOR = R1.4 EXPOL (OR EQUAL)

CONCRETE FLOOR = RIBRAFT

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PB2000010

26/03/2020

ROSS CRAVEN DRAUGHTING
ARCHITECTURAL & INDUSTRIAL C.A.D. DESIGN & DRAUGHTING
431 Crane Road
RD1 Kamo
Whangarei
Ph 09 435 0737
rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

LOCATION PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1:500	
Status: FOR CONSENT	
Revision No: A	Revision Date: 29/01/2020
Revision No:	Revision Date:
Revision No:	Revision Date:
Drawn By: TC	Sheet No: 01
Checked By: RHC	

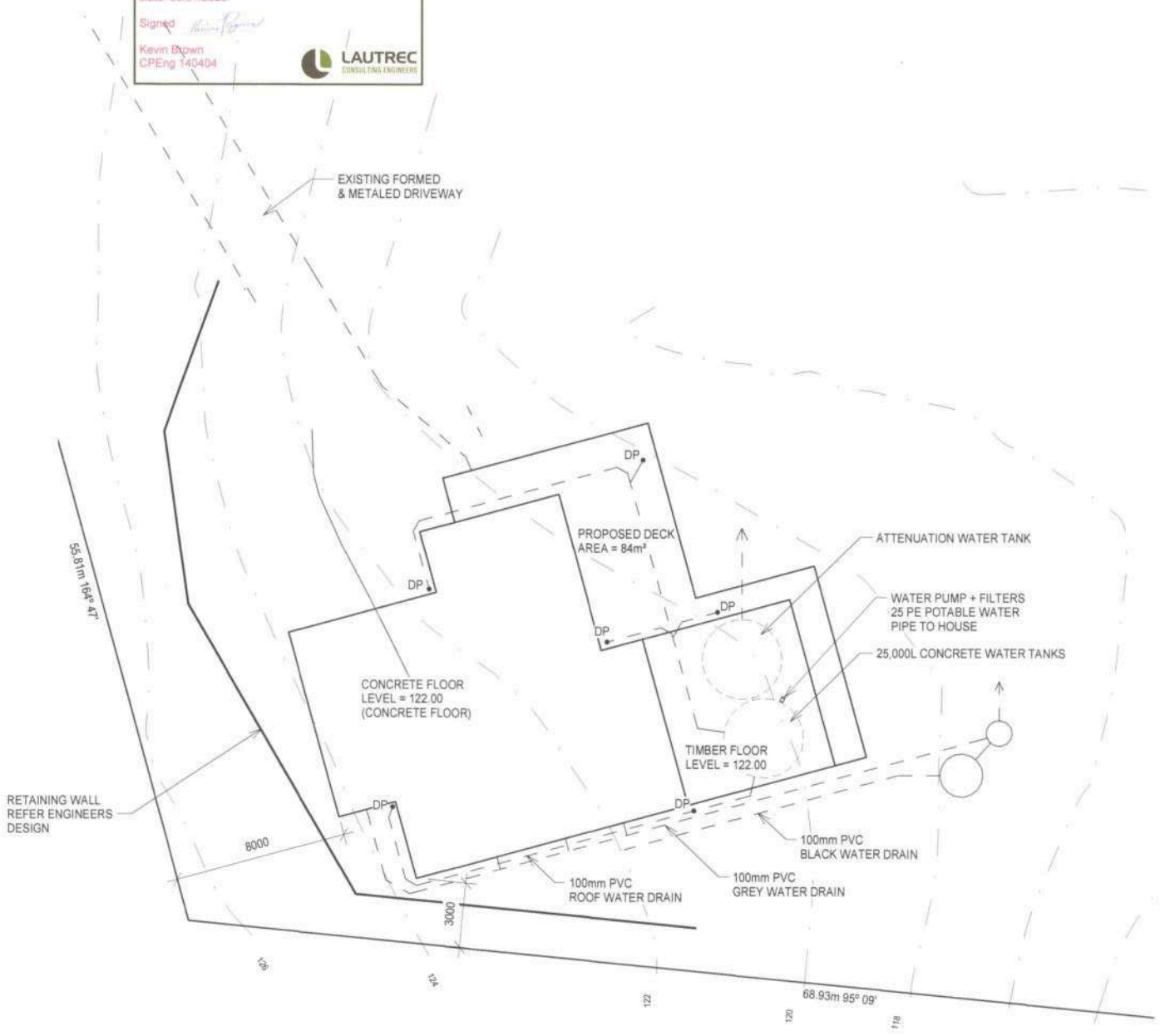
Only the extent of work stated in the issued producer statement has been checked for compliance with the NZ Building Code, Clause B1 Structure

Purpose: PS1
Date: 30/01/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC CONSULTING ENGINEERS



SITE PLAN

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PB2000010

26/03/2020

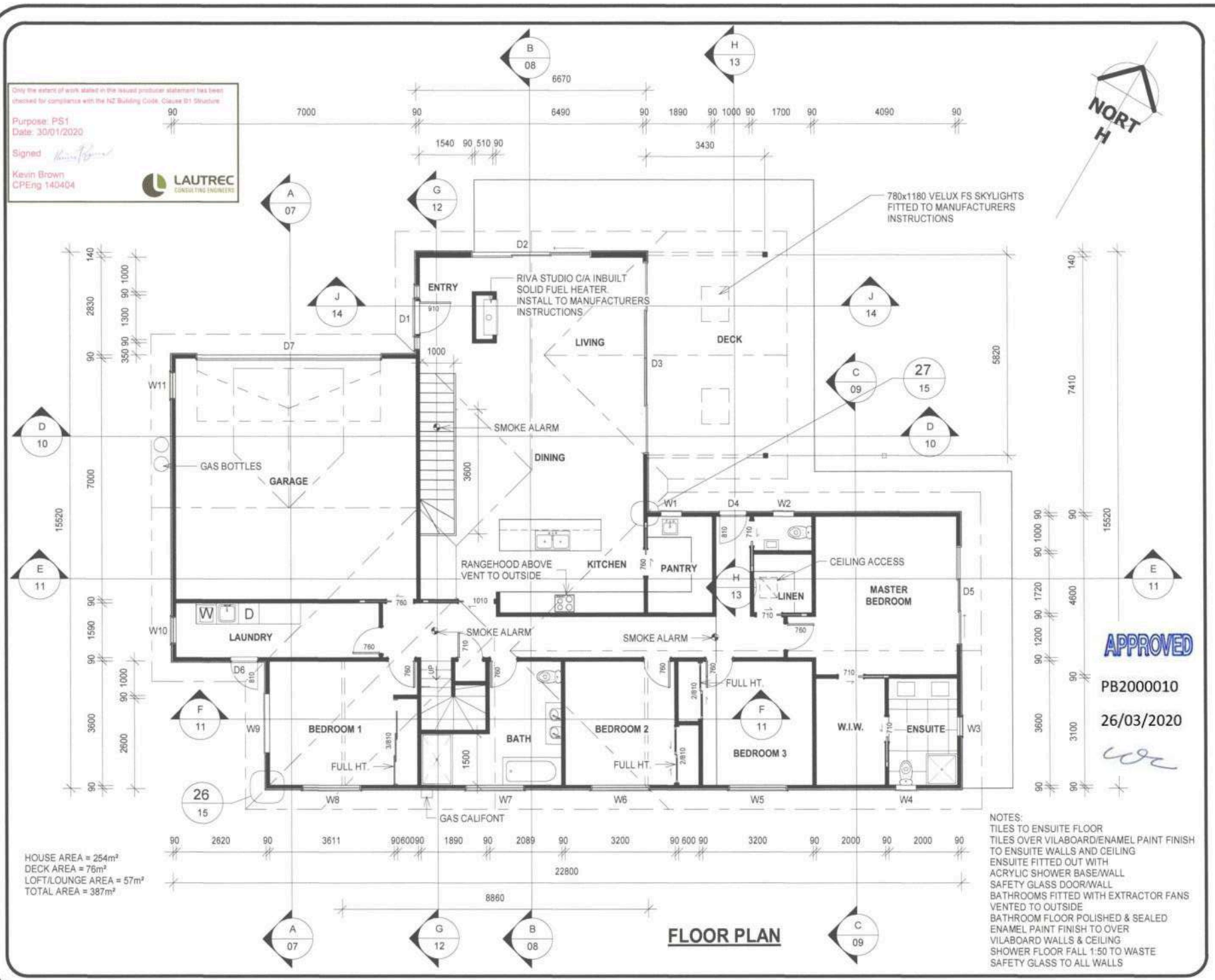
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rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

SITE PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1:200	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No: 02
Checked By: RHC	



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rosscraven4@gmail.com

PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

FLOOR PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No: 03
Checked By: RHC	

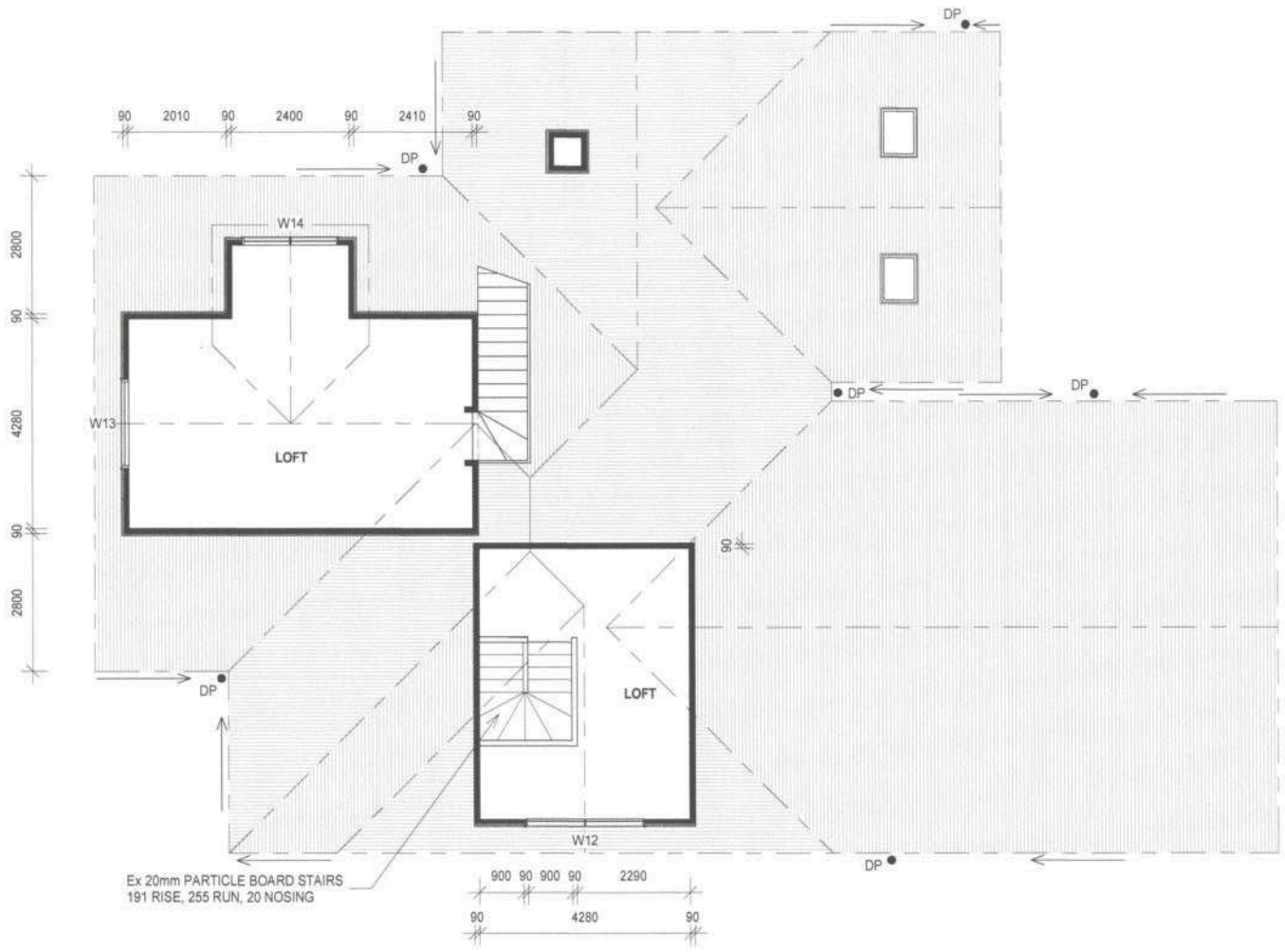
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Purpose: PS1
Date: 30/01/2020

Signed

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LOFT FLOOR PLAN

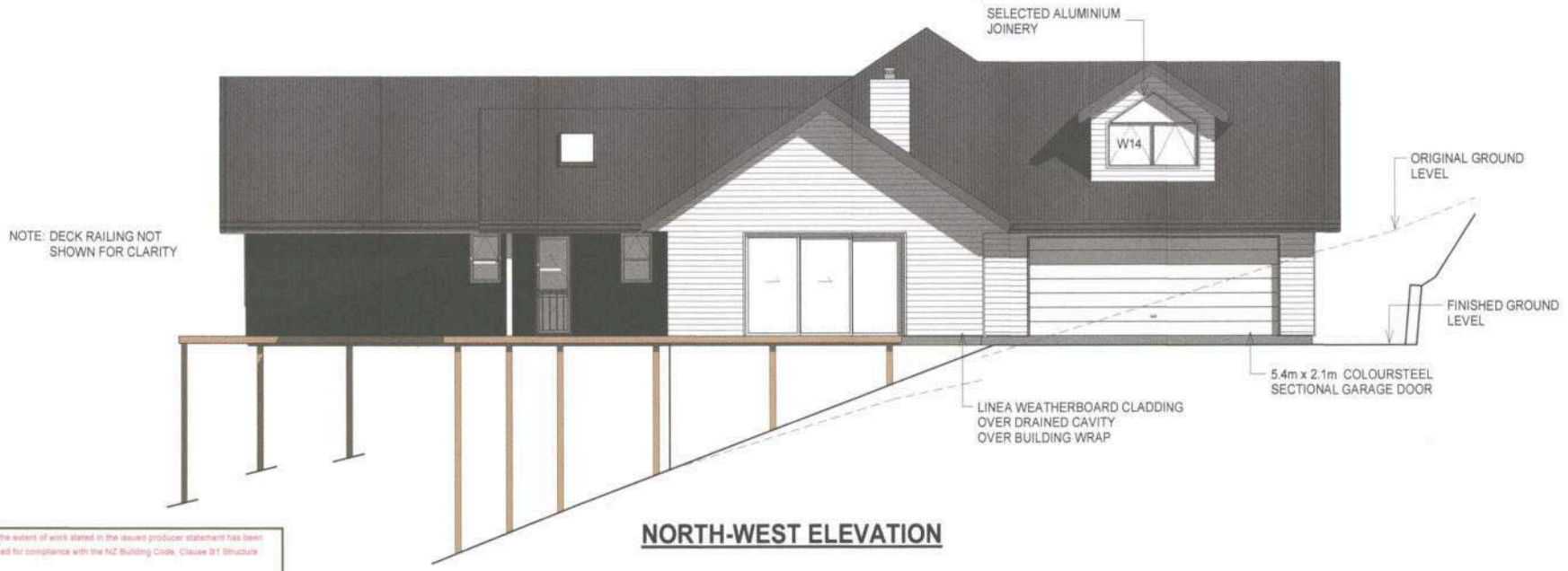
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PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

LOFT FLOOR PLAN

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No: 04
Checked By: RHC	



NORTH-WEST ELEVATION

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Purpose: PS1
Date: 30/01/2020

Signed

Kevin Brown
CPEng 140404

LAUTREC CONSULTING ENGINEERS



SOUTH-EAST ELEVATION

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26/03/2020

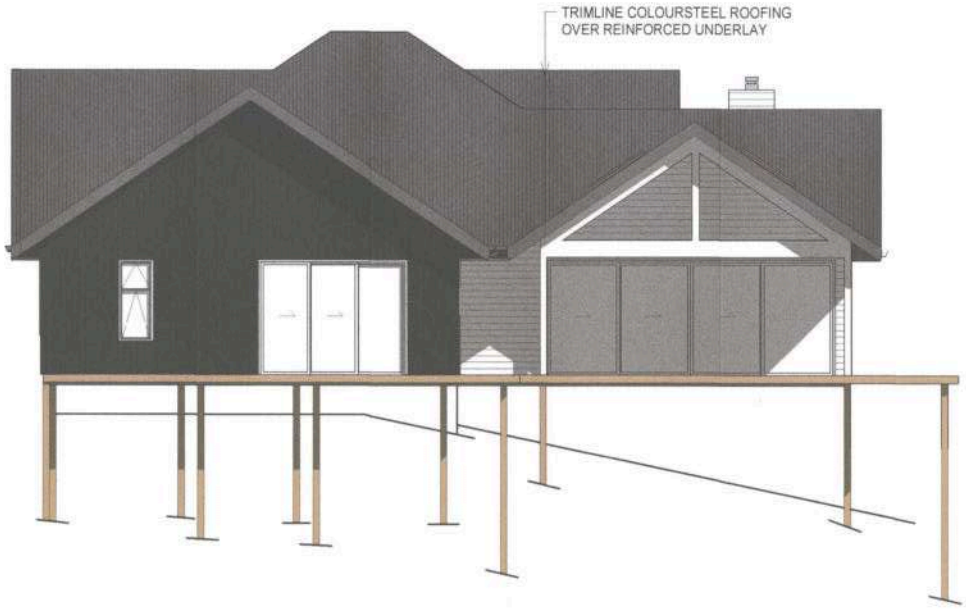
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PROPOSED HOUSE FOR MR J KAISER & MS T PASCO

OLD SCHOOL ROAD
MAUNGAKARAMEA

ELEVATIONS

Drawing No: D-897	Date: 7/02/2017
Scale: 1 : 100	
Status: FOR CONSENT	
Revsion No: A	Revsion Date: 29/01/2020
Revsion No:	Revsion Date:
Revsion No:	Revsion Date:
Drawn By: TC	Sheet No: 05
Checked By: RHC	



NORTH-EAST ELEVATION



SOUTH-WEST ELEVATION

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Purpose: PS1
Date: 30/01/2020

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CPEng 140404

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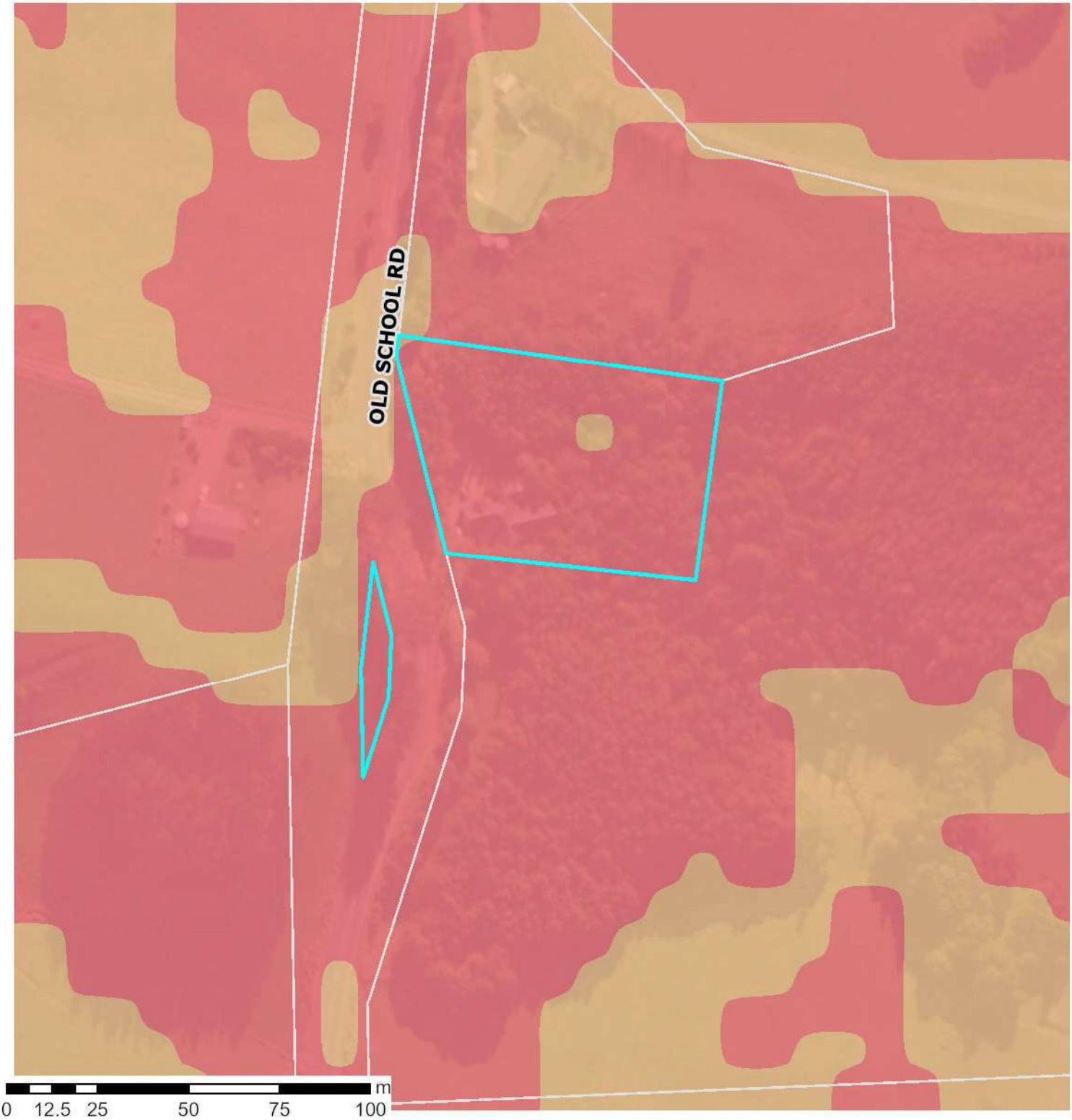
OLD SCHOOL ROAD
MAUNGAKARAMEA

ELEVATIONS

Drawing No:	Date:
D-897	7/02/2017
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Status: FOR CONSENT	
Revision No: A	Revision Date: 29/01/2020
Revision No:	Revision Date:
Revision No:	Revision Date:
Drawn By: TC	Sheet No: 06
Checked By: RHC	

District Plan Change 1 - Natural Hazards
Land Instability

Whangarei District Council



PC1 - Natural Hazards
Land Instability

- High Susceptibility to Land Instability
- Moderate Susceptibility to Land Instability

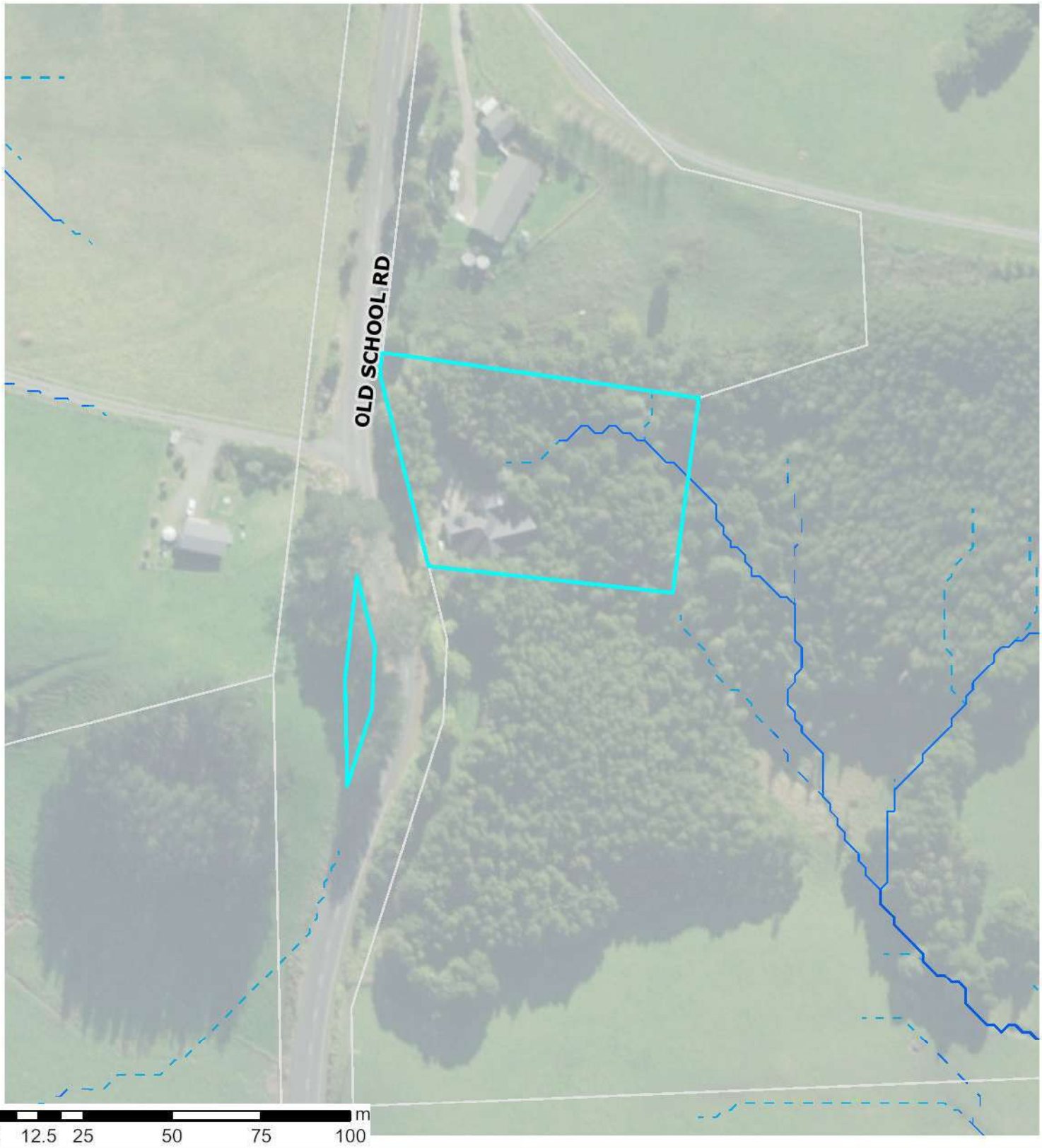
4 November 2026
Scale 1:1,500

Information provided on this map forms part of Plan Change 1 – Natural Hazards.
To view the maps and see how the changes may affect the property please visit:
https://www.wdc.govt.nz/Services/Planning/District-Plan-changes/Current-plan-changes.

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Stormwater Catchment and Flood Management

Whangarei District Council



Overland Flow Paths 2021

Modelled Catchment Flowpaths 2021

- 0.2 ha to 0.4 ha
- 0.4 ha to 1.0 ha
- 1.0 ha to 3.0 ha
- 3.0 ha to 100.0 ha
- 100.0 ha and above

Surface Depression Ponding Areas 2021

- 0.200000 - 0.600000 m
- 0.600001 - 1.200000 m
- 1.200001 - 2.000000 m
- 2.000001 - 4.000000 m
- 4.000001 - 9.910000 m

Overland Flow Paths 2017

Catchment Area 2017

- 0.2 - 1.0 Ha
- 1.0 - 2.0 Ha
- 2.0 - 5.0 Ha
- > 5.0 Ha

Depression Storage Areas 2017

- Depression Storage Areas

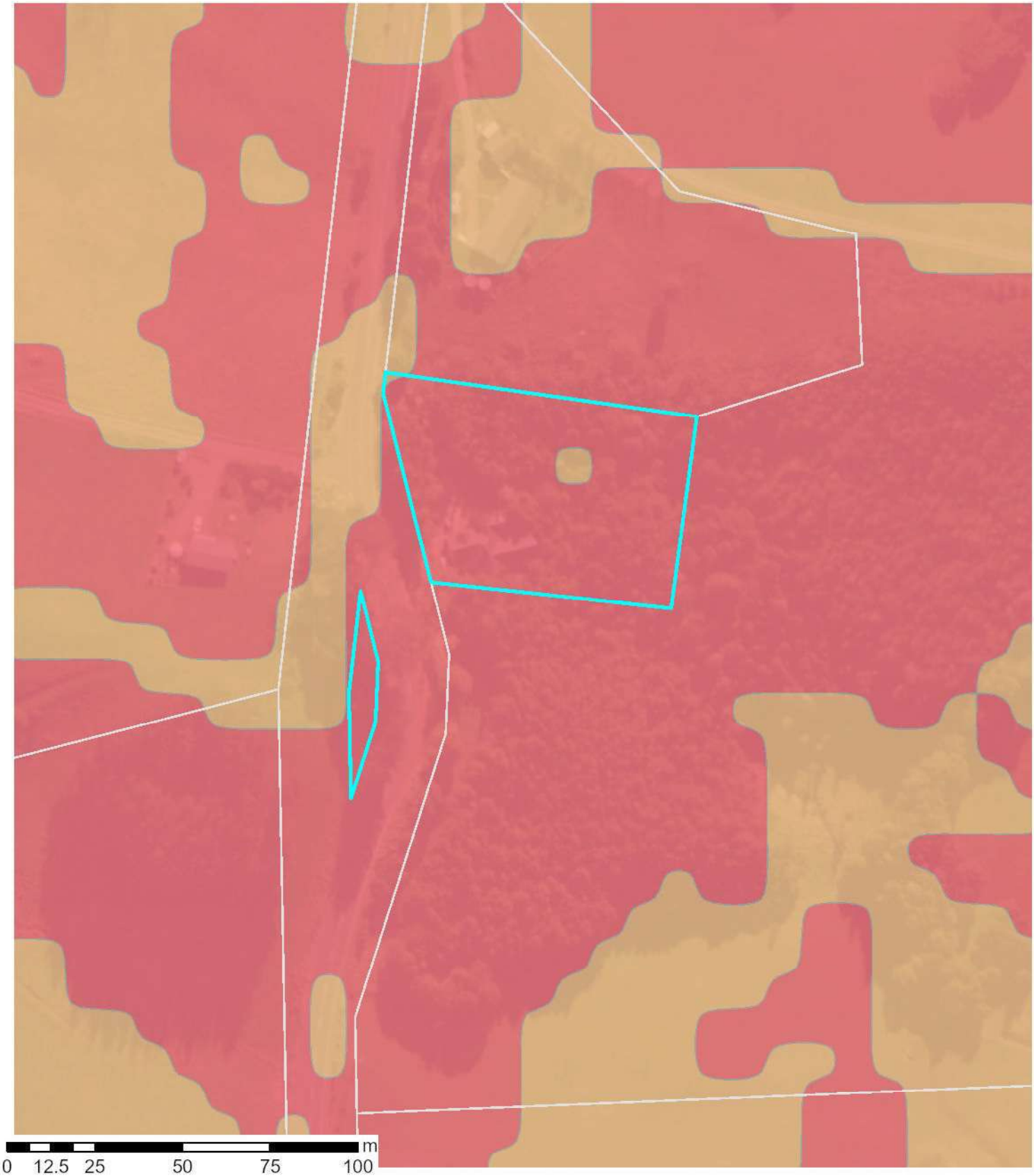
4 November 2026

Scale 1:1,500

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Land Instability

Whangarei District Council



Landslide Susceptibility Zone

- High
- Moderate
- Low

1 November 2026

Scale 1:1,500

Whangārei District Council holds indicative information on land stability hazard for Whangārei. The Whangarei District Council may require site-specific investigations before granting future subdivision or building consent for the property, depending on the level of stability risk of the area the property is in. Tonkin + Taylor Ltd Landslide Susceptibility assessment report: https://www.wdc.govt.nz/files/assets/public/v/2/documents/council/reports/hazard-reports/land-stability/landslide-susceptibility-technical-report.pdf

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