



# Tairāwhiti Regional Freshwater Planning Advisory Group – Hui 5

Date: 13 December 2023

Title of report: Water quality and discharges to land and water

- Hazardous substances and contaminated sites
- Unreticulated (on-site) wastewater treatment, storage and disposal

Report no: **1**

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## Purpose of this report

This report provides information to the Advisory Group on:

- **Hazardous substances and contaminated sites**
- **Unreticulated (on-site) wastewater treatment, storage and disposal**

These two topics relate to the 'Water quality and discharges to land and water' section of the Tairāwhiti Resource Management Plan (TRMP).

## Outcomes sought

Members of this Advisory Group:

- understand the matters and key issues relating to **hazardous substances and contaminated sites** and **unreticulated (on-site) wastewater treatment, storage and disposal**
- reflect on their experience and knowledge to build a collective understanding of the issues associated with the activities in Tairāwhiti
- consider and discuss different approaches and options for managing these activities and associated effects to provide guidance for the future plan provisions.

## Getting ready for the hui

Please consider the questions in this report ahead of the hui. These questions will also be discussed at the hui.

### **What are contaminated sites?**

Contaminated sites are land that has a hazardous substance in or on it that has, or is likely to have, a significant adverse effect on the environment (including people). They arise because of past land use, particularly industrial land uses that handle or store hazardous substances, or where hazardous substances and other material have been disposed of, for example historical landfills.

### **What is non-reticulated wastewater storage, treatment and disposal?**

Non-reticulated wastewater storage, treatment and disposal covers a range of activities that treat and dispose of human effluent in areas outside of the reticulated public network. These include septic tanks and advanced wastewater treatment systems, greywater, septage disposal and related activities.

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## Summary

This report focuses on two sub-sections of Section C6.2 *Water quality and discharges to land and water* of the Tairāwhiti Resource Management Plan (TRMP) - **hazardous substances and contaminated sites** (C6.2.13- 6.2.16), **unreticulated wastewater treatment, storage and disposal** (C6.2.17 – 6.2.19).

### **Hazardous substances and contaminated sites**

- agrichemicals (generally permitted – also controlled in C1.5.4, Discharges to Air)
- contaminated land (discharges to the environment – requires consent)
- discharges of hazardous substances (requires consent/prohibited).

It is common for most regional plans to permit the use of agrichemicals, subject to controls. However, when agrichemicals are poorly/excessively applied, stored or disposed of they can lead to contamination of land and water. Similarly, the misuse and poor storage and disposal of hazardous substances can lead to contamination of land and water.

All councils have sites within their jurisdiction that have been contaminated because of past land-use practices. A key issue is understanding where these sites are and whether they are releasing (discharging) contaminants to the environment. There is a National Environmental Standard for assessing and managing contaminants in soil for human health (NES-CS) but, as the title indicates, this is only focused on effects on human health and not discharges to the natural environment. In addition, the NES-CF is triggered by changing land use and development, and as such does not address on-going discharges from contaminated land.

### **Unreticulated wastewater treatment, storage and disposal**

- wastewater from septic tanks and advanced wastewater systems (generally permitted)
- wastewater (other systems – such as trenches, wetlands, compost systems – generally permitted or require consent in some circumstances)
- greywater and septage (permitted/requires consent depending on circumstances).

Given its large rural area and relatively small (reticulated) urban area, Tairāwhiti has a large proportion of on-site wastewater disposal systems. These are often widely dispersed, and hence unlikely to give rise to significant adverse effects. However, negative effects on surface and groundwater can occur in settlement areas where:

- there is a concentration of on-site systems in a relatively small area
- ground conditions are not suitable for on-site wastewater disposal
- there are poorly performing or maintained systems.

This report provides an overview of the current provisions, discusses some issues and considerations to think about, suggests potential options and approaches, and includes some questions for members to consider when giving feedback.

## Questions for the Advisory Group to consider

### **Agrichemicals**

- What is the group's experience/familiarity with the use of agrichemicals?
  - Are agrichemicals being used by trained operators in a proper and responsible manner that follows good practices?
  - Do the operators know about the training and notification requirements set out in the TRMP - rule C1.5.4.1?
- What option/approach do you think is best (see paper for more detail)?
  - update the status quo
  - more stringent/rigorous requirements
- If a more stringent option/approach, what aspects are the most important to manage?
  - maximum areas of spraying (as a permitted activity)
  - larger buffer distances
  - greater control in sensitive areas
  - are there other issues?
- Are there alternative options we haven't considered?

### **Hazardous substances and contaminated sites**

- What option/approach do you think is best (see paper for more detail)?
  - update the status quo
  - stronger emphasis on prevention
  - better enable/facilitate remediation/management
  - more investigation/prioritisation and then management
- What direction should the plan take to remediating/managing contaminated land?
  - do you agree with an emphasis on trying to manage/retain contamination on-site rather than dig material up and put it somewhere else (including a landfill)?
  - should the TRMP take the lead on this or let this be driven nationally?
- Should Tairāwhiti be self-sufficient – signal that Tairāwhiti should deal with its own generated waste – and that a landfill is necessary?

### **On-site wastewater treatment and disposal**

- What do we do about existing poor performing on-site wastewater systems?
  - nothing – unless there is a demonstrated problem
  - greater emphasis on compliance/regular maintenance (with associated costs)
- If there is a greater emphasis on compliance and maintenance:
  - should this be everywhere or in problem areas/areas with lots of in-site septic tanks?
  - what is the likely impact on individuals and communities?
  - how do we balance cost vs better environmental outcomes?
- Should the plan require a higher standard of on-site system? For example
  - remove rules allowing very basic systems (trenches/bores) but retain septic tanks in rural areas?

- require a higher standard of treatment system (advanced) in areas where on-site systems are concentrated?
- Should the plan (or RPS) be directing towards more reticulation in some areas – ie small treatment plants – with the trade-off that they will require consents to discharge treated wastewater?
  - what approach is preferable – enabling on-site systems vs a preference for communal systems?
  - at what point should communal (reticulated wastewater + treatment plant) systems be considered?

## 1 Background and context

The 'Water quality and discharges to land and water' section (discharges section) covers a range of discharge activities that may affect freshwater quality and other freshwater values.

Due to the range of activities and issues it covers, the discharges section is being discussed across three Advisory Group hui.

The first hui back in September focused on point source discharges and discharges to groundwater and bedrock. This was followed in October with diffuse discharges and fertilisers and solid discharges.

This December hui will focus on the last sub-sections of Chapter 6.2 Water Quality and discharges to land and water - being:

- **hazardous substances and contaminated sites**
- **unreticulated wastewater treatment, storage and disposal**

### 1.1 Hazardous substances and contaminated sites (C6.2.13- 6.2.16)

The rules in this section cover activities associated with the storage and use of chemical and hazardous substances and contaminated sites, as summarized in Table 1.

It is common for regional plans to permit agrichemical use and require a resource consent for discharges from contaminated land. Similarly, most plans prohibit the unauthorised disposal of hazardous substances.

Agrichemical (and other hazardous substances) can also be regulated by the Environmental Protection Authority (EPA) and meeting any requirements of EPA approvals or other guidelines/standards is a requirement of the rules. Section C1.5.4 (Discharges to Air) of the TRMP also incorporates requirements relating to the management and application of agrichemicals, including minimum training requirements as listed in Appendix H18 of the TRMP, and notification of other parties of agrichemical use.

In addition to the TRMP rules, contaminated land is also regulated by the National Environmental Standard for assessing and managing contaminants in soil for human health (NES-CS). As the title indicates, these regulations are focused on managing effects on human health and not discharges to the natural environment and are triggered by changing land use and development. As such, the regulations do not directly address on-going discharges from contaminated land (including old landfills).

**Table 1: Diffuse discharge activities currently managed in the TRMP**

Type of discharge	Comments
Discharge of agrichemicals	Permitted, subject to conditions of the storage and use
Discharge from contaminated land	Consent required
Use of clean oil for dust suppression	Consent required
Disposal of hazardous substances (other than to an authorized landfill)	Prohibited

## 1.2 Unreticulated wastewater treatment, storage and disposal (C6.2.18 – 20)

This set of provisions, which is summarised in Table 2, relates to the storage, treatment and disposal of human wastewater to land or water. The provisions cover a range of treatment system types from very basic to advanced; and different types of wastewater – including sewage, greywater and septage (material removed from a septic tank or similar system).

The provisions reference, and are supported by, Council's Guidelines for On-site Wastewater Management 2014 and appendices that contain on-site wastewater system design criteria. Advanced proprietary on-site wastewater systems have been previously subject to testing and certification (producer statements) at an independent testing facility. However, this testing facility has recently closed.

**Table 2: Unreticulated wastewater treatment, storage and disposal**

Type of discharge	Comment
Discharges into land – systems include: <ul style="list-style-type: none"> <li>• Septic tanks</li> <li>• Advanced systems</li> <li>• Greywater</li> <li>• Pit latrines (temporary)</li> <li>• Septage (originating from the same property)</li> <li>• Soakage pits/bores</li> </ul>	Permitted subject to compliance with design and performance requirements specific to the type of system. Advanced systems are required to be in accordance with a Producer Statement verifying performance. Where conditions (for example sizing/flow rates) are not met, then resource consent is required as a controlled activity (must be granted)
Untreated or treated wastewater to holding tank/authorised discharge point	Permitted subject to standards, including that disposal must be to an authorized point
Human waste composting system	Consent is required (as a controlled activity - must be granted)
Septage (from other properties) Greywater (onto land) Treated wastewater/greywater to water	Consent is required (as a discretionary activity)
On-site discharges to land where a sewer network is available	Consent is required (as a non-complying activity)

## 1.3 How well is the TRMP managing these discharges and what are the key issues?

### Agrichemicals

The plan rules for agrichemical use require application to be undertaken in accordance with the manufacturer's recommendations and any approvals by the EPA. In addition, commercial operators are required to comply with NZS8409:2004 – The Code of Practice for the Management of Agrichemicals. Additionally, section C1.5.4 includes significant requirements for agrichemical use including training, notification and other requirements.

As the majority of agrichemical use is undertaken as a permitted activity, there is little information on the extent of agrichemical usage and compliance with the TRMP requirements. There is potentially widespread and concentrated use of agrichemicals in horticultural areas and Council monitoring has, on occasion, indicated evidence of agrichemicals in



groundwater on the Poverty Bay flats on occasion. Drainage systems such as tile drains are also likely to provide a conduit for chemicals to waterways.

### **Hazardous substances**

Similarly, the extent of the use and disposal of hazardous substances is not well known. The rules for hazardous substances in this section are primarily designed to prevent (prohibit) the illegal disposal of hazardous material. These rules need to be considered in conjunction with other rules that are more targeted at the management of the use and disposal of hazardous substances – for example the rules related to industrial and trade sites and farm dumps.

Council's environmental monitoring programmes are indicating an increase in '*emerging contaminants*'. This term refers to a range of chemicals that come from everyday products such as medicines and hormones, fire retardants, personal care and household cleaning products. Some of these chemicals can give rise to ecosystem effects at very low levels.

An integrated approach is required to ensure the effective management of the use of hazardous substances and to prevent the inappropriate disposal of residual chemicals.

### **Contaminated land**

The issue of contaminated land – land that has been contaminated by past land uses – is one that is faced by all councils. Land can become contaminated by a range of activities, with typical examples being timber treatment, hydrocarbon storage and use (such as petrol stations and fuel stops), other industrial activities and old landfills.

Council monitoring and other information indicates that contaminated sites are contributing to degraded water quality – for example urban rivers such as the Waikanae and Kopuawhakatapa Streams where historical landfilling has occurred – and in other areas where old landfills are located.

Council has a programme to identify contaminated land and prioritise those sites that may be discharging so that resource consents can be set in place to ensure management and remediation. However, a consequence of the NES-CS is a focus on implementing these regulations – more-so than finding and managing/mitigating the on-going discharges from contaminated land.

One issue that has been identified through the review of the TRMP is the lack of a rule enabling the management or remediation of contaminated sites (from a discharge perspective). Management/remediation is addressed in the NES-CS, but experience nationally is that these regulations lead to a 'dig and dump' approach – removing contaminated soil and these disposing of it elsewhere – for example a landfill that is authorized to take this material. There is a national focus on developing a 'circular soil economy' that encompasses a greater focus on the on-site management of contaminants and the productive reuse of low-level contaminated soil – and this approach could be promoted in the TRMP in the future.

### **On-site wastewater treatment and disposal**

Tairāwhiti has a high proportion of households serviced by an on-site wastewater system. Based on Council's records, which are likely to under-estimate the number of on-site systems (as many may be old and not on Council's records), about one third of Tairāwhiti's households are serviced by an on-site system. As shown in Figure 1 (attached), these are distributed across the region, but with concentrations in settlements (for example in Wainui Beach – see Figure 2). Almost all the approximately 5,000 on-site systems are authorised as permitted activities (managed through the building consent process) and only a small proportion (about 200)

have been required to have a resource consent.

Due to the extensive, and often remote, use of on-site systems it is difficult to determine how effective the TRMP has been in managing the potential adverse effects of on-site wastewater disposal. Additionally, the long-term performance of on-site disposal systems is dependent on the type of system, natural ground conditions (soils and water tables) and maintenance (including regular pump outs of septic tanks). However, the following is concluded:

- Very basic disposal systems (for example trenches, bores, pit latrines) provide minimal effluent treatment and potentially direct pathways to freshwater may give rise to effects on water quality – primarily in relation to microbiological (E.coli) quality. However, these are likely to be more common in remote areas and effects are likely to be localized rather than widespread.
- Basic systems such as septic tanks are similarly likely to perform satisfactorily in many areas, but less so in areas where ground conditions are less suitable (such as poor soils or a high water table) or in areas where there is a concentration of on-site systems.
- Advanced systems are likely to achieve a significantly higher level of wastewater treatment. However, these require an electricity supply to operate and come with a greater requirement for care and maintenance.
- Council monitoring has indicated that some waterways (for example Wainui Stream), show elevated E.coli levels that are human-sourced in origin. This suggests that surface and groundwater quality may be negatively impacted in areas where there is extensive and concentrated use of on-site systems.
- The proprietary treatment device testing facility has closed, such that an alternative to this method of certification/approval for new systems is required.

#### 1.4 Summary of key issues/considerations

Considering the discussion above, the key issues/considerations for each of these sub-topics are summarised below.

##### **Agrichemicals**

- There is potentially widespread use of agrichemicals in some areas, particularly associated with the horticulture industry.
- Council's monitoring has indicated occasional 'hits' (elevated levels) of some agrichemicals in groundwater on the Poverty Bay flats.
- Best practice for the use of chemicals has been updated and the standard currently referenced into the TRMP has been replaced by NZS 8409:2021 Management of Agrichemicals.
- Section C1.5.4 of the TRMP includes significant training, notification and other requirements for agrichemical use. The extent to which these are complied with and integrated with the discharge provisions is unknown.

##### **Hazardous substances**

- A key focus for the management of hazardous substance is to prevent contamination from occurring – for example through the rules for industrial and trade activities and farm dumps.

- Updating these rules, and an on-going focus on compliance, is required to ensure risks and potential effects are minimised and mitigated.
- Further assessment is required to understand the pathways for emerging contaminants to enter the environment and consider how these contaminants can best be addressed.

### **Contaminated land**

- Discharges from historically contaminated sites can be difficult to identify and manage. While the TRMP includes a list of contaminated sites, it is likely that there will be more sites; however, not all sites will be actively discharging.
- The TRMP rules for the management of contaminated land can be updated to align with best practice management/remediation of contaminated land. However, critical to improving outcomes is implementing the rules in practice – identifying sites that have active discharges to the environment and then requiring resource consents that provide for ongoing management and mitigation of effects.
- The management/remediation of contaminated sites may be promoted by a specific rule enabling this to occur.

### **On-site wastewater**

- About 5,000 households in Tairāwhiti rely on an on-site wastewater system, of which some 200 have resource consents. These are distributed across the region and are concentrated in small townships and some coastal areas. Approximately 100 new systems are installed/upgraded each year.
- On-site wastewater systems are often located in lower socio-economic areas where cost is a major driver, such that an increase in maintenance requirements or the installation of more advanced systems may not be affordable.
- There is evidence of wastewater in groundwater and surface water in some areas – particularly where there is intensive use of systems (cumulative effects), poor ground conditions and high water tables. Additionally, in-fill/sub-division in settlement areas has the potential to increase the number of on-site wastewater systems and has the potential to increase existing adverse effects.
- The third-party testing/certification facility for proprietary treatment systems has closed, necessitating the consideration of alternatives, including refining/updating guidelines and requirements.
- Maintenance of systems is important but difficult to enforce in practice, particularly in remote areas. Maintenance/upgrade costs can be high, and advanced systems require power and greater management and maintenance – with associated cost implications.

## **2 Possible approaches for discussion**

The following provide some options to enhance the current provisions and address the issues identified above. These are presented below, together with some questions for the Advisory Group to consider and comment on from their understanding and experience.

### **Agrichemicals**

*Option/Approach 1: Status quo and update and enhance current provisions*

- Update provisions to reference the updated NZ standard.

- Provide greater linkage to/recognition of the agrichemical use standards in C1.5.4.1 of the TRMP.
- Education and enforcement to ensure agrichemical users are aware of the requirements.

*Option/Approach 2: More stringent requirements*

- Put a maximum of the area sprayed at any one time as a permitted activity and require a resource consent to be obtained above this.
- Require larger buffer distances from waterways/wetlands etc.
- Limit the use of agrichemical in sensitive locations, e.g.:
  - Water supply catchments
  - Significant wetlands/areas

**Questions for consideration - agrichemicals**

- What is the group's experience/familiarity with the use of agrichemicals?
  - are agrichemicals being used by trained operators in a proper and responsible manner that follows good practices?
  - do the operators know about the training and notification requirements of the TRMP – Rule C1.5.4.1?
- What option/approach do you think is best (see paper for more detail)?
  - update the status quo
  - more stringent/rigorous requirements
- If a more stringent option/approach, what aspects are the most important to manage?
  - maximum areas of spraying (as a permitted activity)
  - larger buffer distances
  - greater control in sensitive areas
  - are there other issues?
- Are there alternative options we haven't considered?

**Hazardous substances and contaminated sites**

*Option/Approach 1: Status quo + update provisions*

- Largely retain current provisions, but update and refine
- Add rule re management/remediation of contaminated land (see below)

*Option/Approach 2: Stronger emphasis on prevention*

- More stringent requirements for industrial sites and activities that use, transport and store hazardous substances
  - More stringent rules, compliance activities etc
- Add rule for management/remediation of contaminated land (see below)

*Additional approaches*

- Better enable remediation/management of contaminated land – what should the approach be?
  - Manage on site where possible – avoid removing and disposing elsewhere?
- Greater emphasis on closed landfills and other contaminated sites – drive a stronger approach:
  - Prioritise potential sites based on risk to surface water/groundwater
  - Investigate to identify those actively discharging/high levels
  - Consents – management/remediation/monitoring

#### **Questions for consideration – hazardous substances and contaminated sites**

- What option/approach do you think is best (see paper for more detail)?
  - update the status quo
  - stronger emphasis on prevention
  - better enable/facilitate remediation/management
  - more investigation/prioritisation and then management
- What direction should the plan take to remediating/managing contaminated land?
  - do you agree with an emphasis on trying to manage/retain contamination on-site rather than dig material up and put it somewhere else (including a landfill)?
  - should the TRMP take the lead on this or let this be driven nationally?
- Should Tairāwhiti be self-sufficient – signal that Tairāwhiti should deal with its own generated waste – and that a landfill is necessary?

#### **On-site wastewater treatment and disposal**

The provisions for managing on-site wastewater have been in place for some time. Some options/approaches for improving the provisions to achieve better environmental outcomes and give effect to the NPS-FM are provided below. However, it is recognised that some of these come with significant costs and other implications. It should also be noted that the options/approaches are not necessarily alternatives.

##### *Option/approach 1: Status quo*

- Largely retain current approach (with minor improvements)
  - Focus on problems as they arise/become identified

##### *Option/approach 2: Strengthen the requirements for on-site wastewater disposal*

- New systems
  - drive a higher standard of system all round - remove rules allowing basic systems (but retain septic tanks in rural areas)
- Existing systems
  - Stronger requirements for compliance/maintenance:
    - everywhere
    - areas of concentration of systems/smaller sites/general residential zones + lifestyle
    - sensitive (shallow) groundwater areas

- areas with poor soils etc?

*Option/approach 3: New development/intensification*

- More control of intensification/sub-division/additional dwellings in unreticulated in settlement areas – stronger provisions re ensuring wastewater is provided for
- Provisions requiring connection to a public system where one is available (ie strengthen current plan)
  - Restrict significant new development where there is no reticulated wastewater
- Consideration of public reticulation in areas with high numbers of on-site systems
  - small scale treatment plants and local disposal
  - will require consents and costs likely to be substantial

**Questions for consideration – On-site wastewater treatment and disposal**

- What do we do about existing poor performing on-site wastewater systems?
  - nothing – unless there is a demonstrated problem
  - greater emphasis on compliance/regular maintenance (with associated costs)
- If there is a greater emphasis on compliance and maintenance:
  - should this be everywhere or in problem areas/areas with lots of in-site septic tanks?
  - what is the likely impact on individuals and communities?
  - how do we balance cost vs better environmental outcomes?
- Should the plan require a higher standard of on-site system? For example
  - remove rules allowing very basic systems (trenches/bores) but retain septic tanks in rural areas?
  - require a higher standard of treatment system (advanced) in areas where on-site systems are concentrated?
- Should the plan (or RPS) be directing towards more reticulation in some areas – ie small treatment plants – with the trade-off that they will require consents to discharge treated wastewater?
  - what approach is preferable – enabling on-site systems vs a preference for communal systems?
  - at what point should communal (reticulated wastewater + treatment plant) systems be considered?

### 3 Next steps

Following this hui, advice received from the Group will be used to refine potential options and approaches for the new plan. These options will be collated and refined and discussed with members at a future hui (in 2024) to provide more detail and confirm the preferred approach.



Figure 1: Indicative locations of on-site wastewater systems

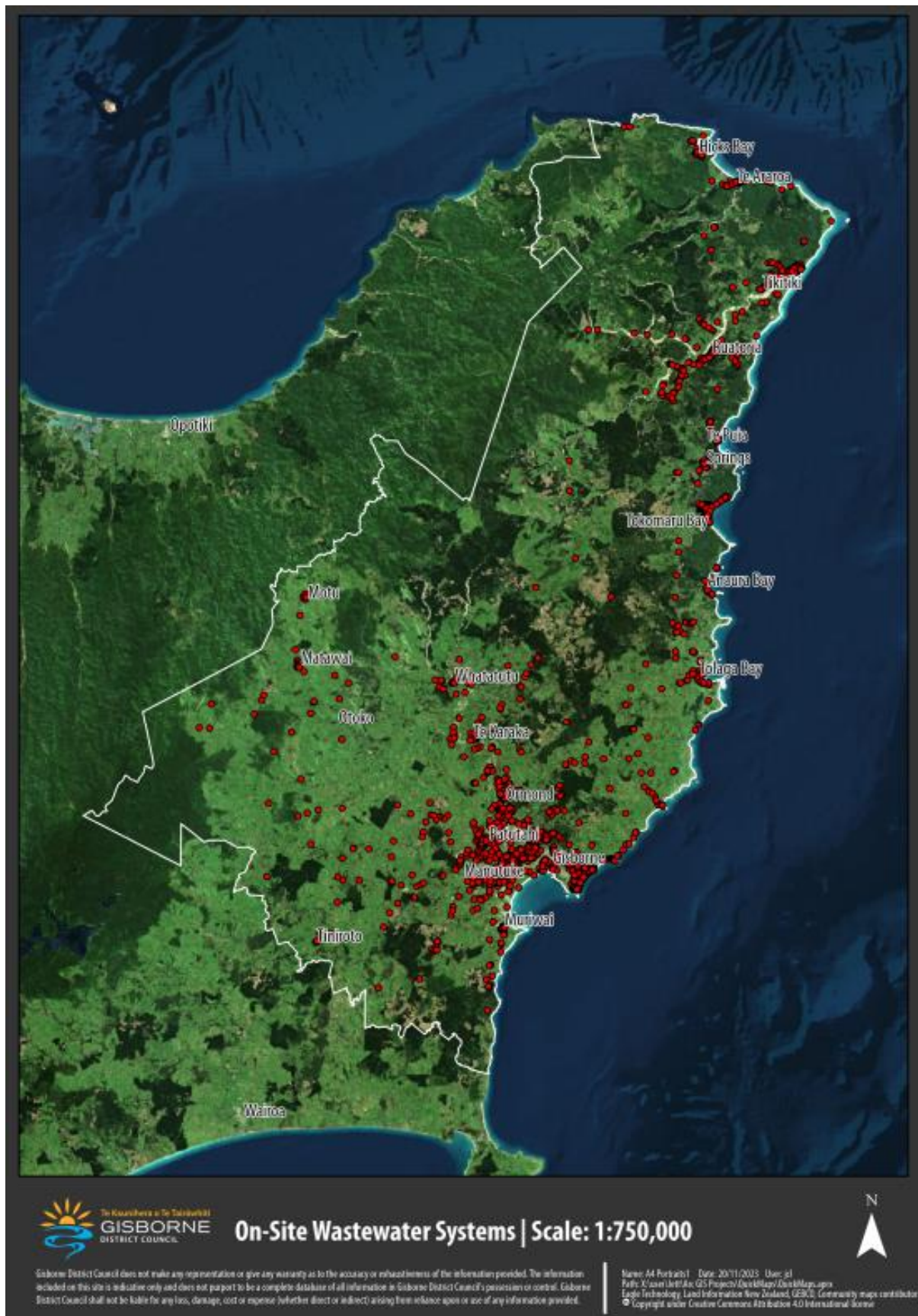


Figure 2: Indicative locations of on-site wastewater systems – Wainui Beach

