

# Healthy Rivers Wai Ora

## Plan Change 1.

### Regulatory Implementation Implications

Client Report for: Waikato Regional Council  
Prepared by: Rob Dragten  
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## Disclaimer

This report documents a high level “back of the envelope” assessment of the implications for implementing the Healthy Rivers Plan change. A considerable degree of expert judgement has been applied in the absence of final decisions on many issues in order to derive the content of this report. There is much still to be finalised regarding the form and content of the plan change, and the implementation methods that will be adopted. The overall assessment can therefore only be indicative in nature, subject to, and highly dependent on, a large number of assumptions that may or may not eventuate.

## 1. Executive Summary

This document has been written to assist with understanding the regulatory implementation implications of Waikato Regional Plan Change 1, relating to the Waikato and Waipa Rivers.

It has been written to gain a better understanding of how many properties are likely to be subject to the landuse and activity controls that are being considered to address the water quality issues in the Waikato and Waipa catchments, and the likely costs that the Waikato Regional Council may incur in implementing the draft rules set out in plan change 1. The assessment only includes the cost of staff and direct costs to implement each of the rules. The implementation costs represent a “back of the envelope” calculation to inform the s32, and does not pre-empt the findings of the full implementation plan which is being developed by WRC, and which will be delivered by December 1 2016.

This report does not make any assessment of the costs that Waikato Regional Council may incur to:

- a. Build the IT infrastructure to support implementation (e.g. the web portal).
- b. Develop the sub catchment plans anticipated by the policy document.
- c. Develop auditing processes (external costs).
- d. Develop certification systems for industry schemes and certified advisors (external costs)
- e. Undertake state of the environment monitoring.
- f. comply with the rules that might apply to Councils functions or activities.
- g. Collect the data to inform future plan changes (other than data required to be submitted to Council as part of a resource consent or a rule).

### 1.1. Data

Agribase® was used to derive property metrics for the catchment. The Agribase® database holds information about all types of rural properties in New Zealand. Agribase® registration is voluntary, and data held in Agribase® is self-reported by landowners. Given the voluntary self-reported nature of the data, the data is subject to quality limitations. These data limitations mean that the summary statistics of property numbers in this report are not intended to be precise predictions of exact property numbers, despite being presented with some precision. However, the data can be considered as broadly indicative, which is sufficient for high level implementation planning.

### 1.2. General Property Statistics

The Agribase® database reports 13991 properties in the Waikato-Waipā catchment. Collectively these properties account for 955,000 ha of land in the catchment, which is 86% of the total catchment land area of 1,103,461 ha.

**Table 1: Property numbers by landuse and property size**

Landuse	< 4.1ha	4.1-10ha	10-20ha	20-50ha	50-100ha	100-250ha	250-500ha	> 500ha	Grand Total
Dairy	12	8	15	198	868	1057	227	47	2432
Mixed SnB	21	32	56	107	62	185	154	116	733
Beef	205	332	284	423	205	166	49	16	1680
Dairy grazing	12	16	35	85	50	47	10	3	258
Sheep	20	30	16	26	16	15	9	1	133
Deer	7	15	12	33	13	20	3	6	109

Landuse	< 4.1ha	4.1-10ha	10-20ha	20-50ha	50-100ha	100-250ha	250-500ha	> 500ha	Grand Total
Grazing	109	140	103	141	63	33	13		602
Horses	37	65	43	39	11	9	1		205
Vegetables	20	23	17	21	9	6			96
Arable/ seed	8	25	36	51	25	14	1		160
Horticulture	64	68	27	11	5	2			177
Other farmed	73	61	36	56	29	17	7	1	280
Other not farmed	42	32	15	20	10	6	3	2	130
Lifestyle	5143	1354	211	83	6	5			6802
Forest	18	22	32	39	24	12	18	29	194
Grand Total	5791	2223	938	1333	1396	1594	495	221	13991

### 1.3. Property Numbers affected by Healthy Rivers Wai Ora Rules

A detailed analysis of the number of properties likely to be captured by each of the current draft rules has been completed. The result of this analysis are presented in Table 2 below.

**Table 2: Number of Properties likely to be affected by each rule**

Rule	Rule description	Rule Status	Critical thresholds	Estimated number of properties affected
3.11.5.1	Registration	Permitted Activity	Property over 2ha	~10,000
3.11.5.2	Nitrogen Reference Point	Permitted Activity	Properties over 20 ha	~5000 <ul style="list-style-type: none"> <li>• 2400 dairy,</li> <li>• 2400 drystock,</li> <li>• 100 commercial vegetable growing</li> </ul>
3.11.5.3	Stock exclusion	Permitted Activity	All properties that graze stock	~13000
3.11.5.4	Land Use Change	Non Complying Activity	Any forest changing to dairy, drystock or vegetables Any drystock or cropping changing to dairy or vegetables Any dairy farm changing to vegetables	~200  ~4000  ~2400
3.11.5.5	Existing Commercial Vegetable Production	Controlled Activity	Existing commercial vegetable production	~100
3.11.5.6	Small and Low Intensity Farming	Permitted Activity	Less than 4.1 ha, not in commercial vegetable production	~5700
3.11.5.7	Low Risk Farming	Permitted Activity	>4.1 ha but <20 ha	~3000
3.11.5.8	Farming with a Farm Environment Plan, within a Certified Industry Scheme	Permitted Activity	Assume a dairy scheme is created Any dairy farm that opts in.	~2400
3.11.5.9	Farming with a Farm Environment Plan, not in a Certified Industry Scheme	Controlled activity	All commercial farming over 20 ha except dairying	~2400
3.11.5.10	Farming	Restricted Discretionary Activity	All other farms that don't fit in any of the other categories	<20

#### **1.4. Key Implementation assumptions**

It has been assumed that:

1. Agribase® data represents the actual property numbers and landuses in the Waikato and Waipa Catchments.
2. Land owners will be made aware of the effect the draft rules will have on their property in sufficient time that they have the opportunity to make a submission to the plan change, and that this awareness raising will happen through the Policy/Plan development first schedule process, rather than through the implementation process.
3. The Council will not be directly involved in preparing any farm environment plans or calculating nitrogen reference points on individual properties, but this function will be undertaken by independent 3<sup>rd</sup> parties, either as part of a certified industry scheme, or under a resource consent under the plan.

### 1.5. Implementation Resourcing

Implementation resourcing has been calculated based on the assumptions above, and the more detailed assumptions listed in the body of this document and are listed in Table 3 below. It is noted that the implementation is highly dependent upon the final form of the plan document, which is still subject to change. Any change in the plan document has the potential to have significant effects on the implementation costs and required resources.

Staff resources have been costed based on a burdened labour rate of \$120,000 per annum per FTE, and a direct costs allocation of \$35k per FTE per year. In addition, additional direct costs have been estimated for activities not related to labour.

**Table 3: Estimate of regulatory costs to implement plan change 1.**

Activity	YE 2017	YE 2026
	FTE	FTE
Communications	0.5	05
Supporting Farm Planning	1	2
Certification systems	1	0.5
Auditing of 3 <sup>rd</sup> party activities	1	2.5
Resource Consent Processing	1	3
Complaint Response	1	3
Compliance Monitoring	1	4
Investigation and Enforcement	1	1
Direct costs	762,500	977,500
Annual Cost	\$1,662,500	\$2,957,500

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## 2. Introduction

This document is intended to provide a preliminary indication of the size and scale of implementing the Waikato Regional Council's Healthy Rivers Wai Ora plan change 1.

The Regional Council is about to commence a detailed implementation planning process due for completion in December 2016. This document is not intended to pre-empt that plan. The Council needs implementation information to inform its section 32 (RMA 1991) analysis prior to notifying the plan change. Therefore, this document is intended to provide high level indicative guidance to inform the Section 32, while a more detailed assessment of resourcing needs and costs will be undertaken as part of developing the implementation plan.

### 2.1. Assumptions

This indicative guidance is based upon the version of the rules approved by the CSG at their June 7 2016 meeting. The size and scale of implementation activities is driven by the form of the rules being implemented. Given the first schedule process is likely to result in changes to the current rules, it is expected the size and scale of implementation activities will also change in response.

The Plan Change anticipates broad stakeholder involvement in implementation activities, and the size, span and scale of the Councils implementation activities will be significantly affected by decisions that are yet to be made about the involvement of industry sectors in implementation activities. For the purposes of this document, it has been assumed that independent third parties will undertake the Nitrogen Reference Point (NRP) assessments, and will develop the farm environment plans (FEPs) (including stream fencing plans). This is important, as the delivery mechanism for NRP assessments and FEPs will significantly influence the implementation resources required by the Council.

The follow assumptions have been made and underpin the commentary made through this document

1. Agribase® has been used as the source of property data. It is assumed that the data in Agribase® represents a reasonable representation of actual landuse in the Waikato-Waipā Catchment.
2. The effectiveness of the implementation activities is significantly dependent on land owner's awareness of the plan change process, and the potential implications on their current landuse activities. It is assumed that the policy development process will effectively engage with and address the concerns of affected property owners. If contact with the implementers ends up being the first point of contact an affected land owner has with the Council regarding the Plan Change, the implementation will be significantly more challenging.
3. It is assumed that the preparation of the key instruments in the draft plan (such as Farm Environment Plans, and Nitrogen Reference points) will be largely undertaken by independent third parties (certified farm environment planners, certified farm nutrient advisors), and Councils role will be largely one of communication and education, auditing, compliance monitoring, resource consent processing, responding to complaints about non-compliance and enforcement where compliance does not occur.

### 2.2. Data Source

The data used to derive property numbers is sourced from the AgriBase® database. AgriBase® is a database comprised of 5 components developed and owned byASUREQuality New Zealand (previously

AgriQuality) that provides a central index of farm type, ownership, location and management in New Zealand.

### *2.2.1. Data Quality*

A number of quality assurance procedures (including statistical, SQL query, visual/spatial inspection) have been developed by AsureQuality New Zealand Ltd to verify the incoming data. Waikato Regional Council does not routinely quality check the attributes of the data supplied from AsureQuality New Zealand Ltd.

A check of the farm areas as reported in AgriBase<sup>®</sup> versus the area of the farm calculated from the GIS shows discrepancies. This is thought to be because some farms are missing parcels and because farmers report farm area in different ways ie effective pastoral area vs total farm area. Some farms also have no stock recorded.

The sum of property areas reported from AgriBase<sup>®</sup> properties in the Waikato and Waipa catchments accounts for 86% of the catchment area of the Waikato Waipa catchment calculated by GIS. Registration with AgriBase<sup>®</sup> is voluntary and as a result, AgriBase<sup>®</sup> does not contain a complete record. A proportion of the discrepancy is expected to arise from the cadastral cutout of rivers, roads and non-farming land such as urban.

Landuse type is self-reported by the owner of the property. Allocation of landuse type is therefore not consistently applied. This in part may explain the presence in the database of 4.1ha dairy farms, and 100-250ha lifestyle blocks. In addition, the landuse reported is the dominant landuse. Many farms may undertake multiple landuses on the property, which could fall under other landuse classifications. For example, a farm reported as having a dominant landuse of dairy could also undertake forestry, cropping and grazing activities. Landuse descriptions must therefore be interpreted with caution.

These data issues mean that the summary statistics in this report are not purported to be precise predictions of property numbers, even when the numbers are presented with some apparent precision. Despite this, the data can be considered as broadly indicative, which is sufficient for high level implementation planning.

### *2.2.2. Data aggregation*

To simplify the data tables, a number of data classes reported in AgriBase<sup>®</sup> with smaller or less frequent numbers of properties have been aggregated into generic classes. A key identifying the AgriBase<sup>®</sup> classes that have been combined into the generic classes used in this analysis is provided in Appendix 1.

### *2.2.3. Sub Catchments*

Property numbers were calculated for each sub-catchment, using the same sub-catchment boundaries developed by the Technical Leaders Group who developed the prioritisation advice for the Collaborative Stakeholder Group.

On occasions, properties span sub-catchment boundaries. In this instance, the property is reported as being present in each sub-catchment. In order to avoid double counting properties, each property that spans multiple sub-catchments have been assigned a "count value" of one divided by the number of catchments it spans. For example, a property that spans three catchments will be recorded as 1/3 of a property in each catchment. For ease of display, data in the tables have been rounded to the nearest round number. Entries in the data table of "0" therefore represent presence of a property in that catchment which spans multiple catchments, where the proportion is less than 0.5.

This method of counting leads to a potential underestimation of property numbers at a sub-catchment level. For example, where a property spans the boundary of sub-catchment A and sub-catchment B, it will be recorded as 0.5 of a property in A, and 0.5 in B. If two properties span the catchment boundary, both will be recorded as 0.5 in each catchment. The net result is that for either A or B, two properties will be represented as one property when looking at just the individual catchment. An initial analysis of this issue suggests it may lead to a 10-12% underestimation in some sub-catchments. Of course this underestimation is only important when viewing the data at a sub catchment level.

Properties that span the catchment boundary (ie are partly outside of the Waikato and Waipa Catchments) have been counted in the sub-catchment/s where they appear. However, reported property areas relate only to that portion of the property that is within the Waikato and Waipa Catchment. As a result, large properties mostly outside the catchment will be reported as being a small property, according to how much land is present in the relevant sub-catchment.

### **2.3. Implementation Costing**

Implementation costings recorded in this document are based on the following assumptions.

1. A full time equivalent (FTE) staff member represents 1400 hours of labour per year, after hours for leave entitlements, and management time have been deducted.
2. A burdened labour cost of \$120,000 per FTE has been used to calculate costs unless otherwise specified.
3. It is assumed that each FTE will require direct costs of \$35k to cover staff related costs such as vehicles, mobile phones, and IT equipment. This amount does not account for the direct costs associated with implementation activities such as specific data collection costs, communications resources, wide scale correspondence requirements, or monitoring and sample analysis costs.

### **2.4. Exclusions**

This document only gives indicative costings for the direct implementation of the rules.

The following costs to implement the plan change are anticipated, but not yet costed.

- Development of IT infrastructure to support implementation (eg the web portal).
- The development of the sub catchment plans anticipated by the policy document.
- The external costs of developing auditing processes.
- The external costs of developing and administering certification systems for industry schemes and certified advisors and planners.
- State of the environment monitoring.
- The cost of Council complying with the rules that might apply to Councils functions or activities.
- The collection of data to inform future plan changes (other than data required to be submitted to Council as part of a resource consent or a rule).

### 3. Summary Information.

The total area of the Waikato Waipa Catchment is **1,103.461 ha**

The total area of properties within the catchment recorded in AGRIBASE® is **955,521 ha**, or **86%** of the Catchment area.

There are **13991** properties recorded in Agribase® within the catchment. A “property” in this report simply means an area of land reported by its owner as being a property, and recorded as being a single property in the Agribase® database. The property may be a single parcel, or multiple parcels, either contiguous or discontiguous.

**Table 4 The landuse and size of catchment properties (see appendix 1):**

Landuse	< 4.1ha	4.1-10ha	10-20ha	20-50ha	50-100ha	100-250ha	250-500ha	> 500ha	Grand Total
Dairy	12	8	15	198	868	1,057	227	47	2,432
Mixed SnB	21	32	56	107	62	185	154	116	733
Beef	205	332	284	423	205	166	49	16	1,680
Dairy grazing	12	16	35	85	50	47	10	3	258
Sheep	20	30	16	26	16	15	9	1	133
Deer	7	15	12	33	13	20	3	6	109
Grazing	109	140	103	141	63	33	13		602
Horses	37	65	43	39	11	9	1		205
Vegetables	20	23	17	21	9	6			96
Arable/ seed	8	25	36	51	25	14	1		160
Horticulture	64	68	27	11	5	2			177
Other farmed	73	61	36	56	29	17	7	1	280
Other not farmed	42	32	15	20	10	6	3	2	130
Lifestyle	5,143	1,354	211	83	6	5			6,802
Forest	18	22	32	39	24	12	18	29	194
Grand Total	5,791	2,223	938	1,333	1,396	1,594	495	221	13,991

## **4. Implementation approach**

The implementation of the Healthy Rivers Wai Ora Plan Change 1 represents a major change for the predominantly farming land owners who will be required to operate under it.

The plan change sets out a range of new requirements that will take time for farmers to understand, and implement on their properties. While some changes may be relatively simple and straight forward to implement, others will require fundamental changes to existing farming system in order to accommodate the plan change requirements. This will be complex and time consuming. The Plan change document recognises this challenge, and acknowledges that achieving the vision and strategy for the Waikato River will take the next 80 years.

As a result, the implementation is intended to have a relatively soft start, with extensive use of awareness raising, education and promotion in the first instance. Escalation processes will be used to encourage farmers to embrace the adoption of the Plan Change requirements, with enforcement actions generally only being used (at least initially) in situations of blatant or wilful disregard of the plan requirements. The Council has an existing and well established procedure for making decisions about when enforcement action is appropriate.

As time goes on, and as the understanding and knowledge of the plan change requirements grows, Council intends to gradually take a stronger position on enforcing the requirements of plan change 1. This approach is entirely consistent with Councils enforcement approach on other matters.

## 5. Numbers of landowners affected by each Rule

A detailed analysis has been undertaken using Agribase® and the rule framework approved by CSG on 6 June to estimate the number of properties likely to be affected by each of the rules. Table 5 below summarises the findings of that analysis. The number of properties is very dependent on the thresholds that exist between rules, and any future changes to the rules have the potential to significantly change the indicated numbers.

**Table 5: Number of Properties likely to be affected by each rule.**

Rule	Rule description	Rule Status	Critical thresholds	Estimated number of properties affected
3.11.5.1	Registration	Permitted Activity	Property over 2ha	~10,000
3.11.5.2	Nitrogen Reference Point	Permitted Activity	Properties over 20 ha	~5000 <ul style="list-style-type: none"> <li>• 2400 dairy,</li> <li>• 2400 drystock,</li> <li>• 100 commercial vegetable growing</li> </ul>
3.11.5.3	Stock exclusion	Permitted Activity	All properties that graze stock	~13000
3.11.5.4	Land Use Change	Non Complying Activity	Any forest changing to dairy, drystock or vegetables Any drystock or cropping changing to dairy or vegetables Any dairy farm changing to vegetables	~200  ~4000  ~2400
3.11.5.5	Existing Commercial Vegetable Production	Controlled Activity	Existing commercial vegetable production	~100
3.11.5.6	Small and Low Intensity Farming	Permitted Activity	Less than 4.1 ha, not in commercial vegetable production	~5700
3.11.5.7	Low Risk Farming	Permitted Activity	>4.1 ha but <20 ha	~3000
3.11.5.8	Farming with a Farm Environment Plan, within a Certified Industry Scheme	Permitted Activity	Assume a dairy scheme is created Any dairy farm that opts in.	~2400
3.11.5.9	Farming with a Farm Environment Plan, not in a Certified Industry Scheme	Controlled activity	All commercial farming over 20 ha except dairying	~2400
3.11.5.10	Farming	Restricted Discretionary Activity	All other farms that don't fit in any of the other categories	<20



## 6. Rules

In this section, the key assumptions made for implementation planning are set out, along with the implementation implications. A possible approach to implementation is also proposed.

### 6.1. Registration under Rule 3.11.5.1 (a.k.a Rule 0)

#### 6.1.1. Key Criteria

- All rural properties over 2 ha.

#### 6.1.2. Assumptions

1. An online portal capable of collecting the information required in the registration rule is created and operative by 1 September 2018.
2. Registrations will occur using Councils online portal
3. Most property owners will register as a result of promotional activities or correspondence from the Council or a 3<sup>rd</sup> party (ie without requiring a site visit/follow-up from Council staff).
4. Some property owners will want to register but will require technical assistance to register using the online portal, as a result of not having a computer/internet access, or not being capable of using the technology.
5. A very small number of property owners will require a manual (paper based) registration process.
6. A small number of property owners will need a personal phone call in response to non-registration.
7. A very small number of property owners will need a staff member to visit them in response to non-registration.
8. Less than 1% of properties will require enforcement action in response to non-registration.

#### 6.1.3. Implications

There are 10,000 properties listed in Agribase® within the Waikato Waipa Catchment that have property areas of greater than 2.0 ha.

The registration period runs from 1 September 2018 to 31 March 2019. This equates to 212 days, or 30 weeks. To complete 10,000 registrations in this period, the registration rate will have to average approximately 50 per day. Assuming registration occurs over 12 hours each day, 50 registrations per day equates to approximately 4 registrations per hour.

However, it is expected that registrations will peak towards the end of the registration period. If 80% of registrations occur in the last month, that equates to 8000 registrations in 31 days or 260 per day. It is expected that registrations will not occur evenly throughout the day, but rather will be concentrated in evenings and weekends. Assuming 80% of daily registrations take place over a 3-hour period between 7 pm and 10 pm, registration numbers could peak at a number in the order of 70 per hour.

#### 6.1.4. Possible implementation approach:

1. Promote the need to register through plan change publicity, and through community forums.
2. Use rates notice mail outs to remind all property owners of land over 2 hectares to register.

3. Run monthly queries of registration data to track progress, and identify which properties have and have not registered.
4. Respond to initial non-registration initially by physical correspondence (for most properties we will not have phone or email details). On average, assume that property owners will need three reminders before they complete the registration process.
5. Continued non-registration after physical correspondence is followed up initially by a phone call (complete registration over the phone with a staff member populating the owner's responses to registration questions).
6. Continued non-registration following a phone call is followed up by a site inspection, and registration via a staff members disconnected device.
7. Refusal to register is responded to initially by an abatement notice, followed by an infringement notice, followed by prosecution if warranted and appropriate.

## **6.2. Nitrogen Reference Point under Rule 3.11.5.2 (a.k.a Rule 7)**

### *6.2.1. Key Criteria*

The use of land for farming:

- Properties over 20 ha (Choice of 2014-15, or 2015-16)
- Any properties used for commercial vegetable production
- Nitrogen Reference Point assessments will be undertaken by Certified Farm Nutrient Advisors.

### *6.2.2. Assumptions*

- No low intensity properties will need a Nitrogen Reference Point.
- No properties under 20 ha will need a Nitrogen Reference Point.
- "Vegetable growing" excludes the arable and horticulture sector
- The nitrogen reference point assessment for each farm will be calculated by 31/3/2019.
- External parties will choose to become certified farm nutrient advisors

### *6.2.3. Implications*

There are 4840 pastoral farming properties over 20 ha in size that will need to obtain a nitrogen reference point.

Of these, 2397 are dairy farms, and 2443 are various pastoral and horticulture/arable operations such as beef, mixed sheep and beef, horses, and grazing.

There are 96 vegetable growing properties that will need to obtain a nitrogen reference point.

### *6.2.4. Possible implementation approach:*

1. Promote the need to get an NRP through plan change publicity, and through community forums.
2. Promote and facilitate training opportunities for external parties to become certified (eg Bring Massey course to Hamilton)
3. Work with providers (such as NZIPIM) to develop process and templates for NRP creation.
4. Publish and maintain lists of certified farm nutrient advisors on WRC website.
5. Develop portal to allow online submission of data, as well as electronic model files.
6. Use rates notice mail outs to remind all property owners of land over 20 hectares to obtain an NRP.

7. Run monthly queries of NRP submission data to track progress, and identify which properties have and have not submitted NRP data.
8. Respond to initial non-submission initially by physical correspondence (for most properties we will not have phone or email details). On average, assume that property owners will need three reminders before they complete the submission process.
9. Continued non-submission after physical correspondence is followed up initially by a phone call (put landowner in contact with a certified farm nutrient advisor).
10. Continued non-submission of data after a phone call is followed up by a site inspection.
11. Refusal to submit NRP data is responded to initially by an abatement notice, followed by an infringement notice, followed by prosecution if warranted and appropriate.
12. Calculating a nitrogen reference point is estimated to cost the land owner between \$500 and \$2000 per property, depending on its complexity, range of blocks, and variation in management practise.
13. Seek funding to gather background data to assist farm planning, such as seeking detail catchment slope information (eg from Lidar) and improve the soils database information (eg the completion of sMap for the catchment).

### 6.3. Stock exclusion under rule 3.11.5.3 (a.k.a Rule 1)

#### 6.3.1. Key criteria

- Land used for livestock grazing
- The presence or absence of streams, drains, wetlands and lakes.
  - Data is not available, unable to be determined with current data.
- Key dates – by relevant tranche end date, unless different date specified in FEP.

**Table 6: The number of properties of various sizes with landuses that might typically graze livestock.**

Area class	Property Numbers
< 4.1ha	5623
4.1-10ha	2053
10-20ha	811
20-50ha	1191
50-100ha	1323
100-250ha	1554
250-500ha	473
> 500ha	190
<b>Total</b>	13218

#### 6.3.2. Assumptions:

- “Vegetable”, “arable/seed”, “horticulture”, “Forest” and “Other not farmed” properties have no grazing animals.
- “Lifestyle” properties graze livestock.

- All other farms graze livestock.

### 6.3.3. *Implications:*

The stock exclusion rule is expected to apply to just over 13000 properties. There are 4700 properties over 20 ha which graze livestock that are expected to require a farm plan under rule 5 or 6. The remaining 8500 grazing properties that are less than 20 ha in size are expected to generally be permitted under rule 3, or 4.

There is currently insufficient information available to estimate how many of these 13000 properties are likely to contain streams, lakes, wetlands, or drains within them. Personal comment from staff involved with the dairy industry's stream fencing initiatives suggested that around 20% of dairy farms have no watercourses, although this is highly variable depending on local land morphology.

The dairy industry has advised that 96% of accord waterways on dairy farms (>1 metre wide and >30 cm deep) are already fenced. The stock exclusion rule is expected to require more waterways to be fenced on dairy farms (any waterway that continually contains water) than the Dairying accord currently requires.

The largest amount of stream fencing to be done is on drystock farms, which have typically also been considered to be the most challenging to fence. It is expected that decisions about mitigation actions (such as fencing, and the associated provision of water supplies) for the drystock farms over 20 ha will be made through the process of farm environment plan preparation. However, it is noted there are some 8500 properties which are less than 20 ha, a large proportion of which are likely to graze livestock, but mostly in a non-commercial, or only semi commercial context.

### 6.3.4. *Possible implementation approach:*

1. Initial mail out to all properties, along with extensive media to raise the profile of the rule.
2. Site by site implementation likely to occur at the same time as the implementation of the farm environment plans for those sites that require them.
3. For the remaining sites, a risk based implementation programme would be developed, using the information provided about fencing and streams at the time of registration.

## 6.4. Landuse Change under Rule 3.11.5.4 (a.k.a. rule 2a)

### Key Criteria

- Current Landuse, derived from AGRIBASE® analysis
  - Indigenous or Plantation Forest
  - Drystock farming
  - Commercial vegetable production

#### 6.4.1. *Assumptions*

- Lifestyle farms are not considered to be “drystock”, as lifestyle blocks converting to dairy is considered to be unlikely.
- Dairy Companies will advise the Council of new suppliers, and of increased production associated with increasing land area of the dairy platform.

#### 6.4.2. *Implications*

1. There are 194 “forest” properties (including both native bush and plantation forest) that will need to comply with rule 2(a).

2. There are 4000 “drystock” properties that will need to comply with rule 2a.
3. There are 96 “vegetable” growing properties that will need to comply with rule 2b.
4. There are 2400 dairy farms that will need to comply with rule 2a.
5. There are 7269 other landuse properties (mostly lifestyle blocks) which are not captured by rule 2a or 2b.

*6.4.3. Possible implementation approach:*

1. Monitor using periodic remote sensing approach: For example, using the New Zealand Land Cover database to look for changes in vegetation from forest to pasture, analysis of aerial photographs etc, to target on the ground monitoring inspections.
2. Use notification from Dairy Companies that a new supplier has started to supply, or an existing supplier has significantly increased milk supply. Could also make periodic requests from territorial authorities regarding construction of new dairy sheds.
3. Vegetable growing land areas would be managed through normal compliance monitoring activities under rule 2b.

It may also be possible to manage landuse change on properties that are required to manage their activities through farm environment plans, under rule 5 and 6.

## **6.5. Commercial Vegetable Production under rule 3.11.5.5**

### *6.5.1. Key Criteria*

- Existing commercial vegetable growing at the time the plan is notified
- The overall land area under commercial vegetable growing shall not increase
- Farm Environment Plans shall be developed

### *6.5.2. Assumptions*

- Horticulture NZ will set up an industry scheme to support Commercial vegetable producers to develop Farm Environment Plans
- All commercial vegetable producers will choose to register with the industry scheme
- Nitrogen reference points, and farm environment plans will be developed by certified 3<sup>rd</sup> party advisors rather than by council staff
- Nitrogen reference points and farm environment plans will be submitted to Council as part of the resource consent application under this rule.

### *6.5.3. Implications*

Agribase® reports 96 properties that are used for commercial vegetable production in the Waikato and Waipa Catchment. The dates set for rule 3.11.5.5 to become operative effectively means that commercial vegetable producers will need to do their farm environment plans and calculate their nitrogen reference points in the same period of time as the first tranche of pastoral farms.

### *6.5.4. Possible implementation approach*

- Hort NZ to lodge application to certify industry scheme, and to certify advisors
- Hort NZ to lead the development of Farm Environment Plans and Nitrogen Reference points for growers, with certified advisors.
- FEPS and NRPs to be submitted as part of the resource consent application.
- The Council to include mandatory actions from FEP as conditions of resource consent.
- The Scheme will audit performance of advisors

- The Council will audit scheme performance.
- The Council will respond to complaints about non-compliance
- The Council will respond to non-compliance following appropriate escalation procedures

## **6.6. Small and Low Intensity Farms under rule 3.11.5.6 (a.k.a rule 3)**

### *6.6.1. Key Criteria*

Use of land for farming is permitted for:

- Property size of less than 4.1 ha; or
- Stock density less than 6 SU/ha for grazed land; and
- Commercial vegetable growing and arable cropping is excluded: and
- Does not form part of an enterprise undertaken on more than one property.

### *6.6.2. Assumptions*

- All non-farmed land use is permitted by section 9 RMA
- Lifestyle blocks meet the definition of farming
- Estimates of farm numbers do not account for properties larger than 4.1 ha that might graze stock at > 6 SU/ha (insufficient data to include in analysis)

### *6.6.3. Implications*

See Appendix 1 and Appendix 2 on pages 32 and 33.

There are 13667 properties in the catchment which can be considered to be used for farming, including 6802 lifestyle properties. The remaining 324 properties in the catchment are not used for farming, and would not be captured by the draft land use rules. These include Forestry, Native bush, and commercial activities such as dogs, saleyards, and tourism.

Of the properties used for farming, there are 5731 properties that are less than 4.1 ha in size. However, 20 of the properties less than 4.1 ha are recorded as being used for commercial vegetable growing, which is excluded from rule 3. Consequently 5711 properties of less than 4.1 ha are likely captured by rule 3. This number includes 16 intensive indoor farms on less than 4.1 ha.

Properties over 4.1 ha are able to operate under Rule 3 (3.11.5.6) provided the property stocking rate is less than 6 stock units (SU) per hectare. There was insufficient data available to estimate the number of properties this situation would apply to. For this reason, the estimate of property numbers that would be authorised by rule 3 (3.11.5.6) only include properties of less than 4.1 ha.

This makes a total of 5711 properties that are expected to be permitted by the current rule 3.11.5.6.

### *6.6.4. Possible implementation approach*

It is not expected that any specific proactive implementation activities would be required for properties operating under this rule, other than those implementation activities occurring under the registration and stock exclusion rules.

## **6.7. Low Risk Farms under rule 3.11.5.7 (a.k.a rule 4)**

### *6.7.1. Key Criteria*

Use of land for farming is permitted for:

- Property size of less than 20 ha; and
  - The land is not used for commercial vegetable production: and
  - The use of land does not form part of an enterprise being undertaken on more than one property; and
- Either
- The stocking rate is no greater than the stocking rate of the land at the date of notification; or
  - Diffuse discharges of N, P, SS and Faecal pathogens do not increase from the landuse at the date of notification.

OR

- Property greater than 20 ha; and
- N loss is no more than lesser of the properties NRP or 15 kg N per ha per year; and
- Any land over 15 ° is not cultivated or grazed
- No winter forage crops grazed in situ
- No cultivation within 5 metres of a water body,
- Minimum 3 metre setback on new fences.

#### *6.7.2. Assumptions*

- All properties between 4.1 and 20 ha will operate under this rule
- Insufficient data to estimate how many properties of greater than 20 ha may operate under this rule.

#### *6.7.3. Implications*

See Appendix 1 and Appendix 2 on pages 32 and 33.

There are 3020 properties between 4.1 and 20 ha in size that are likely to operate under this rule. Of this, 2864 properties are expected to graze livestock. The majority of these properties have landuses described by their owners as lifestyle (1600), beef (600), grazing (250) or horses (100).

#### *6.7.4. Possible implementation approach*

It is not expected that any specific proactive implementation activities would be required for properties operating under this rule, other than those implementation activities occurring under the registration and stock exclusion rules.

### **6.8. Farming with a Farm Environment Plan under Rules 3.11.5.8 and 3.11.5.9 (a.k.a rule 6 and rule 5)**

#### *6.8.1. Key Criteria*

Rule 3.11.5.8 - Farming with a Farm Environment Plan under a certified Industry Scheme.

- The use of land for farming where that land is registered to Certified Industry scheme.

Rule 3.11.5.9 - Farming with a Farm Environment Plan outside of an industry scheme.

- The use of land for farming that does not fall within the scope of either rule 3.11.5.6 (Small or low intensity landuse), rule 3.11.5.7 (Low Risk landuse) or rule 3.11.5.8 (Industry Scheme).

- Farm Environment plans for Priority 1 sub-catchments by 1 July 2020
- Farm Environment plans for Priority 2 sub-catchments by 1 July 2023
- Farm Environment plans for Priority 3 catchments by 1 July 2026

#### 6.8.2. Assumptions

- Implementation will be staged according to the prioritisation approach selected by CSG.
- Nitrogen reference point assessment will be completed under Rule 7.
- The Dairy industry will establish a certified Industry Scheme to support dairy farmers implementing the Plan change requirements.
- 100% of dairy farmers in the catchment will register with the industry scheme.
- No other industry schemes will be established.
- Farm environment plans will be developed by 3<sup>rd</sup> party advisors rather than Council staff
- A 3<sup>rd</sup> party assessment programme will monitor the achievement of the mandatory actions identified under the FEP, and report progress to Council.

#### 6.8.3. Implications

There are 4731 pastoral farms and 109 Arable/Horticulture farms that are expected to require farm environment plans, making a total of approximately 5000 farms that will be required to have farm environment plans in the three tranches proposed.

In the TLG's alternative Rank 2 (adopted as the preferred prioritisation approach by the CSG, see table 5), there are 1570 farms in the first tranche, 2023 in the second tranche, and 1343 properties in the third tranche.

In addition, tranche 1 is to include high nitrogen leaching properties (ie those over the dairy 75<sup>th</sup>ile for N leaching losses). While there is insufficient information to predict the exact number of properties that might be affected by this requirement, an estimate can be made using a figure of 25% of the number of dairy farms in the catchment.

Assuming the dairy sector sets up an industry scheme, there are 796 dairy farms in the first tranche, 1062 in the second tranche, and 538 in the third tranche. Assuming the >75<sup>th</sup>ile N leaching farms are evenly spread across the tranches, there would be around 200 farms above the 75<sup>th</sup>ile in the first tranche, 265 in the second tranche, and 135 in the third tranche. If all >75<sup>th</sup>ile farms were to be included in tranche 1, this would have the effect of increasing tranche 1 from 796 to 1197 dairy farms, while decreasing tranche 2 from 1062 to 796 dairy farms, and decreasing tranche 3 from 538 to 403 dairy farms (see Table 7 below).

If all dairy farms opted into the dairy industry scheme, there would be 747, 919, and 538 non-dairy farms and 27, 42 and 27 vegetable farms (or a total of 774, 961, and 565 properties) in each of tranche 1, 2, and 3 respectively that would need to comply with rule 5. Overall this equates to 2300 properties over 10 years (see Table 7 below) These totals would decrease if other industry schemes were set up, and would increase if all dairy farms do not opt to register with the Dairy Industry's certified industry scheme.

A table setting out the number of properties in the three tranches, and in each sub-catchment is presented in Appendix 2.



**Table 7 Farm numbers in each tranche that will require a Farm Environment Plan**

Tranche and Landuse	Vegetable (Rule 2b)	Farm (Rule 5/6)	Farm (Rule 5/6) incl. 75%ile farms
Tranche 1	27	1,543	1,944
Dairy		796	1,197
Non-dairy sub total			747
<i>Drystock</i>			703
<i>Cropping</i>			22
<i>Lifestyle</i>			19
<i>Horticulture</i>			3
Vegetables	27		
<b>Tranche 2</b>	<b>42</b>	<b>1,981</b>	<b>1,715</b>
Dairy		1,062	796
Non-dairy sub total		919	919
<i>Drystock</i>			826
<i>Cropping</i>			45
<i>Lifestyle</i>			40
<i>Horticulture</i>			8
Vegetables	42		
<b>Tranche 3</b>	<b>27</b>	<b>1,316</b>	<b>1,181</b>
Dairy		538	403
Non-dairy sub total		778	778
<i>Drystock</i>			711
<i>Cropping</i>			25
<i>Lifestyle</i>			35
<i>Horticulture</i>			7
Vegetables	27		
<b>Grand Total</b>	<b>96</b>	<b>4,840</b>	<b>4,840</b>

#### 6.8.4. Possible implementation approach

##### Farming in an Industry Scheme

- Dairy industry to lodge application to certify industry scheme and to certify scheme advisors.
- Industry scheme to work with members to develop FEPs and NRPs by relevant deadlines in the plan.
- Industry Scheme to submit FEPs and NRPs to Council on farmer's behalf.
- Industry Scheme to assess farmers progress towards achieving mandatory actions in FEP, and adherence to NRP, and to report progress to the Council.
- Industry scheme audits performance of advisors
- Council to audit performance of Industry scheme.

##### Farming outside of an Industry Scheme

- Council to promote need to apply for consent (adopt similar process to farm water consents – encourage batch applications, and batch processing to minimise costs – possibly on a sub catchment basis)
- Independent consultants to lodge applications to be certified advisors.
- Farmers engage advisors to calculate NRPs and develop FEPs, and submit to Council with application for resource consent.
- Council to incorporate mandatory actions from FEP into conditions of resource consent.
- Farmer to engage third party auditor to independently assess progress towards completing mandatory actions required by resource consent.
- Independent auditor to submit report to Council, accepted as proof of compliance.
- Council to undertake auditing role of independent 3<sup>rd</sup> party auditors.

For both industry scheme or non-industry scheme farms

- Council to respond to complaints regarding alleged non-compliance
- Council to respond to non-compliance following appropriate escalation procedures.

## 7. Implementation Resourcing

The resourcing required to implement the plan change is totally dependent on how the plan will be implemented.

The number of farms that will fall under each of the draft rules, and the assumed roles for sector/3<sup>rd</sup> parties, and for the Council are set out in Table 8 below.

**Table 8: Assumed Roles in implementing the Plan Change 1.**

Farm Type and number	Applicable rules	Assumed 3 <sup>rd</sup> Party Role	Assumed Council's Regulatory Role
Dairy Farms (~2400)	<ul style="list-style-type: none"> <li>Registration,</li> <li>Nitrogen Reference point</li> <li>Stock exclusion</li> <li>Farming with farm environment plan in a certified industry scheme</li> <li>Landuse Change</li> </ul>	An Industry Scheme will assist all dairy farmers to register, calculate NRP, develop FEP and action plan, verify progress against action plan, notify progress to Council	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Certification (schemes and advisors)</li> <li>Audit of schemes and advisors</li> <li>Complaint response</li> <li>Compliance/enforcement in response to becoming aware of non-achievement of FEP actions.</li> </ul>
Drystock Farms over 20 ha (~2400)	<ul style="list-style-type: none"> <li>Registration,</li> <li>Nitrogen Reference point</li> <li>Stock exclusion</li> <li>Farming with farm environment plan not in a certified industry scheme</li> <li>Landuse Change</li> </ul>	Farmers will register, but will use 3 <sup>rd</sup> party providers to <ul style="list-style-type: none"> <li>calculate NRP</li> <li>develop FEP and action plan (including stock exclusion)</li> <li>verify progress against action plan.</li> <li>Notify progress to Council</li> </ul>	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Certification (schemes and advisors)</li> <li>Audit of schemes and advisors</li> <li>Complaint response</li> <li>Compliance/enforcement in response to becoming aware of non-achievement of FEP actions.</li> <li>Consent Processing</li> </ul>
Commercial Vege growers (~100)	<ul style="list-style-type: none"> <li>Registration,</li> <li>Nitrogen Reference point</li> <li>Stock exclusion</li> <li>Existing Commercial vegetable production (FEP) rule</li> </ul>	Hort NZ will assist growers to register, calculate NRP, develop FEP and action plan, verify progress against action plan, notify progress to Council	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Certification (schemes and advisors)</li> <li>Audit of schemes and advisors</li> <li>Complaint response</li> <li>Compliance/enforcement in response to becoming aware of non-achievement of FEP actions.</li> <li>Consent processing</li> </ul>
4.1 – 20 ha blocks (~3000)	<ul style="list-style-type: none"> <li>Registration,</li> <li>Stock exclusion</li> <li>Low risk farming</li> <li>Landuse change</li> </ul>	<ul style="list-style-type: none"> <li>Landowner to register, and ensure stock exclusion</li> </ul>	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Complaint response</li> <li>Compliance monitoring</li> <li>Enforcement</li> </ul>
>2 ha but <4.1 ha blocks (~2000)	<ul style="list-style-type: none"> <li>Registration</li> <li>Stock exclusion</li> <li>Small or low intensity farming</li> </ul>	<ul style="list-style-type: none"> <li>Landowner to register, and ensure stock exclusion</li> </ul>	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Complaint response</li> <li>Compliance monitoring</li> <li>Enforcement</li> </ul>
<2.0 ha (~4000)	<ul style="list-style-type: none"> <li>Stock exclusion</li> <li>Small or low intensity farming</li> </ul>	Landowner to ensure stock exclusion	<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Complaint response</li> <li>Compliance monitoring</li> <li>Enforcement</li> </ul>
Forest blocks (~200)	<ul style="list-style-type: none"> <li>Landuse Change</li> </ul>		<ul style="list-style-type: none"> <li>Communication/Education</li> <li>Complaint response</li> <li>Compliance monitoring</li> <li>Enforcement</li> </ul>

The cost of implementation was estimated based on the assumed Council roles set out in Table 8. Implementation costs are expected to vary over the life of the plan, with some activities being completed early in the life of the plan, while other activities will need slowly increasing resources over time (as farm plans and resource consents are processed).

The resourcing estimates presented in this document vary from earlier estimates. The primary reason for this is the assumption in this document that the preparation of farm environment plans and calculation of nitrogen reference points will be undertaken on a commercial basis by third parties within the agricultural support sector. Previous cost estimates have assumed Council staff will be doing some or all of the NRP calculation and the FEP preparation. The Council's involvement with this work significantly increases the number of staff the Council would require. There is concern that if Council was to provide this service, it has the potential to distort the market, reducing the commercial viability of independent third parties entering the market, and potentially undermining the viability of implementation overall.

The estimated resourcing requirements are set out in Table 9 below. In summary, the cost starts at approximately \$1.6M per year, and rise to approximately \$3.0M per year by year 10. Full time equivalent staff numbers increase from 7.5 FTEs in year 1, through to 16.5 FTEs by year 10.

**Table 9: Estimated resources required to implement Plan Change 1, subject to previously set out assumptions**

Implementation Activities	YE_2017	YE_2018	YE_2019	YE_2020	YE_2021	YE_2022	YE_2023	YE_2024	YE_2025	YE_2026	10 year Total
Communication	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Farm Planning · Preparing, trial and final farm plan requirements · Oversee FEP implementation · Provide technical advice to audit, consents and compliance teams re suitability of FEP's	1	1	1	2	2	2	2	2	2	2	
Certification · Develop Certification system · Certify and decertify schemes and Advisors · Manage changes to certification over time · Investigate complaints about schemes and advisors	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Auditing · Develop audit process · Audit Industry Schemes · Audit Certified Advisors · Audit 3rd party auditors	1	1	1.5	1.5	1.5	2	2	2	2.5	2.5	
Consent processing · Receive applications and process them · Impose conditions on resource consents.	1	1	2	3	3	3	3	3	3	3	
Complaint response · Respond to complaints about unlawful landuse · E.g. stock in water, changes of landuse, high intensity landuse on land permitted under rule 3 or 4.	1	2	2	2	2	2.5	2.5	2.5	3	3	
Compliance Monitoring · Follow up on non-achievement of action plans reported by 3rd party providers. · Monitor compliance with resource consents if not subject to 3rd party inspections. · Initial escalation actions in the event of ongoing non-compliance (e.g. abatement and infringement notices.	1	2	2	3	3	3	4	4	4	4	
Enforcement. · Investigate non-compliance, and take appropriate enforcement action.	1	1	1	1	1	1	1	1	1	1	
Total FTE's	7.5	9.5	11	13.5	13.5	14.5	15.5	15.5	16.5	16.5	
Labour cost @120k per FTE	\$900,000	\$1,140,000	\$1,320,000	\$1,620,000	\$1,620,000	\$1,740,000	\$1,860,000	\$1,860,000	\$1,980,000	\$1,980,000	\$16,020,000

Implementation Activities	YE_2017	YE_2018	YE_2019	YE_2020	YE_2021	YE_2022	YE_2023	YE_2024	YE_2025	YE_2026	10 year Total
Direct costs to support labour @35k per FTE	\$262,500	\$332,500	\$385,000	\$472,500	\$472,500	\$507,500	\$542,500	\$542,500	\$577,500	\$577,500	\$4,672,500
Additional direct costs	\$500,000	\$500,000	\$500,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$4,300,000
Estimated Total Cost	\$1,662,500	\$1,972,500	\$2,205,000	\$2,492,500	\$2,492,500	\$2,647,500	\$2,802,500	\$2,802,500	\$2,957,500	\$2,957,500	\$24,992,500

## 8. Appendices

### Appendix 1: Number of farming and non-farming properties by landuse rule and by property size

Row Labels	Not Farming (Section 9 RMA)			Vegetable (Rule 2b)			Small Block (Rule 3)			Low Risk (Rule 4)			Farm (Rule 5/6)			Totals		
	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)
<b>Farming</b>			<b>0%</b>	<b>96</b>	<b>2,608</b>	<b>0%</b>	<b>5711</b>	<b>9,182</b>	<b>1%</b>	<b>3020</b>	<b>25,424</b>	<b>3%</b>	<b>4840</b>	<b>724,041</b>	<b>76%</b>	<b>13667</b>	<b>761,254</b>	<b>80%</b>
Don't Graze Livestock			<b>0%</b>	<b>96</b>	<b>2,608</b>	<b>0%</b>	<b>88</b>	<b>211</b>	<b>0%</b>	<b>156</b>	<b>1,519</b>	<b>0%</b>	<b>109</b>	<b>6,411</b>	<b>1%</b>	<b>449</b>	<b>10,749</b>	<b>1%</b>
< 4.1ha			0%	20	48	0%	88	211	0%			0%			0%	108	260	0%
4.1-10ha			0%	23	146	0%			0%	93	608	0%			0%	116	753	0%
10-20ha			0%	17	244	0%			0%	63	911	0%			0%	80	1,155	0%
20-50ha			0%	21	636	0%			0%			0%	62	1,854	0%	83	2,490	0%
50-100ha			0%	9	649	0%			0%			0%	30	1,979	0%	39	2,628	0%
100-250ha			0%	6	885	0%			0%			0%	16	2,308	0%	22	3,193	0%
250-500ha			0%			0%			0%			0%	1	271	0%	1	271	0%
<b>Does Graze Livestock</b>			<b>0%</b>			<b>0%</b>	<b>5623</b>	<b>8,970</b>	<b>1%</b>	<b>2864</b>	<b>23,905</b>	<b>3%</b>	<b>4731</b>	<b>717,629</b>	<b>75%</b>	<b>13218</b>	<b>750,504</b>	<b>79%</b>
< 4.1ha			0%			0%	5623	8,970	1%			0%			0%	5623	8,970	1%
4.1-10ha			0%			0%			0%	2053	12,254	1%			0%	2053	12,254	1%
10-20ha			0%			0%			0%	811	11,651	1%			0%	811	11,651	1%
20-50ha			0%			0%			0%			0%	1191	37,902	4%	1191	37,902	4%
50-100ha			0%			0%			0%			0%	1323	95,025	10%	1323	95,025	10%
100-250ha			0%			0%			0%			0%	1554	235,414	25%	1554	235,414	25%
250-500ha			0%			0%			0%			0%	473	155,251	16%	473	155,251	16%
> 500ha			0%			0%			0%			0%	190	194,037	20%	190	194,037	20%
<b>Not Farming (Section 9 RMA)</b>	<b>324</b>	<b>194,268</b>	<b>20%</b>			<b>0%</b>			<b>0%</b>			<b>0%</b>			<b>0%</b>	<b>324</b>	<b>194,268</b>	<b>20%</b>
< 4.1ha	60	117	0%			0%			0%			0%			0%	60	117	0%
4.1-10ha	54	329	0%			0%			0%			0%			0%	54	329	0%
10-20ha	47	649	0%			0%			0%			0%			0%	47	649	0%
20-50ha	59	1,864	0%			0%			0%			0%			0%	59	1,864	0%
50-100ha	34	2,230	0%			0%			0%			0%			0%	34	2,230	0%
100-250ha	18	2,737	0%			0%			0%			0%			0%	18	2,737	0%
250-500ha	21	7,070	1%			0%			0%			0%			0%	21	7,070	1%
> 500ha	31	179,271	19%			0%			0%			0%			0%	31	179,271	19%
<b>Grand Total</b>	<b>324</b>	<b>194,268</b>	<b>20%</b>	<b>96</b>	<b>2,608</b>	<b>0%</b>	<b>5711</b>	<b>9,182</b>	<b>1%</b>	<b>3020</b>	<b>25,424</b>	<b>3%</b>	<b>4840</b>	<b>724,041</b>	<b>76%</b>	<b>13991</b>	<b>955,521</b>	<b>100%</b>



## Appendix 2: Application of Plan rules by landuse

Landuse	Not Farmed			Vegetable (Rule 2b)			Small Block (Rule 3) (Farmed, <4.1 ha)			Low Risk (Rule 4) (Farmed, 4.1 – 20 ha)			Farm (Rule 5/6) (Farmed, >20 ha)			Totals		
	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)	Number	area (ha)	area (%)
Farming			0%	96	2,608	0%	5711	9,182	1%	3020	25,424	3%	4840	724,041	76%	13667	761,254	80%
Don't Graze Livestock			0%	96	2,608	0%	88	211	0%	156	1,519	0%	109	6,411	1%	449	10,749	1%
Arable/ seed			0%			0%	8	19	0%	61	692	0%	91	5,583	1%	160	6,294	1%
Horticulture			0%			0%	64	161	0%	95	827	0%	18	828	0%	177	1,815	0%
Vegetables			0%	96	2,608	0%			0%			0%			0%	96	2,608	0%
Other farmed			0%			0%	16	32	0%			0%			0%	16	32	0%
Do Graze Livestock			0%			0%	5623	8,970	1%	2864	23,905	3%	4731	717,629	75%	13218	750,504	79%
Dairy			0%			0%	12	18	0%	23	255	0%	2397	375,940	39%	2432	376,213	39%
Beef			0%			0%	205	498	0%	616	6,317	1%	859	78,660	8%	1680	85,476	9%
Mixed SnB			0%			0%	21	47	0%	88	1,083	0%	624	192,634	20%	733	193,764	20%
Grazing			0%			0%	109	264	0%	243	2,394	0%	250	17,806	2%	602	20,463	2%
Dairy grazing			0%			0%	12	27	0%	51	632	0%	195	17,174	2%	258	17,832	2%
Other farmed			0%			0%	57	125	0%	97	908	0%	110	7,932	1%	264	8,964	1%
Lifestyle			0%			0%	5143	7,812	1%	1565	10,569	1%	94	3,257	0%	6802	21,638	2%
Sheep			0%			0%	20	53	0%	46	418	0%	67	7,738	1%	133	8,209	1%
Deer			0%			0%	7	14	0%	27	275	0%	75	12,850	1%	109	13,140	1%
Horses			0%			0%	37	112	0%	108	1,055	0%	60	3,639	0%	205	4,806	1%
Not Farming (Section 9 RMA)	324	194,268	20%			0%			0%			0%			0%	324	194,268	20%
Forest	194	179,023	19%			0%			0%			0%			0%	194	179,023	19%
Other not farmed	130	15,244	2%			0%			0%			0%			0%	130	15,244	2%
Grand Total	324	194,268	20%	96	2,608	0%	5711	9,182	1%	3020	25,424	3%	4840	724,041	76%	13991	955,521	100%

**Appendix 3: Key to the generic landuse classes used in this reports analysis, and the relationship to defined Agribase landuse classes.**

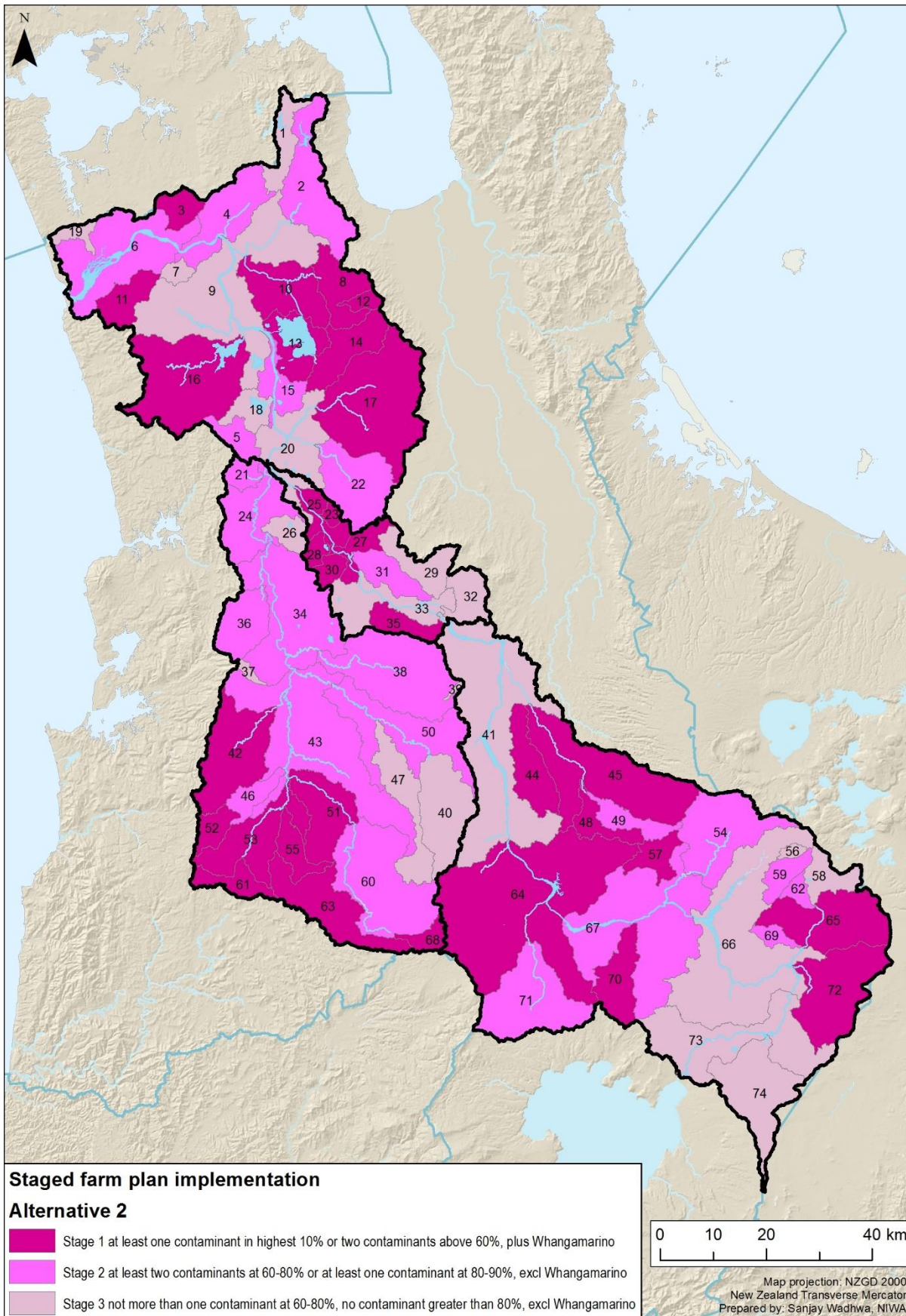
Generic Landuse Class	Agribase Landuse Class
Arable/ seed	Arable cropping or seed production
Beef	Beef cattle farming
Dairy	Dairy cattle farming
Dairy grazing	Dairy dry stock
Deer	Deer farming
Forests	Forestry
	Native Bush
	Other planted types (not covered by other types)
Grazing	Grazing other people's stock
Horses	Horse farming and breeding
Horticulture	Flowers
	Fruit growing
	Plant Nurseries
	Viticulture, grape growing and wine,
Lifestyle	Lifestyle block
Other farmed	Alpaca and/or Llama Breeding
	Emu bird farming
	Goat farming
	Ostrich bird farming
	Other livestock (not covered by other types)
	Pig farming
	Poultry farming
	New Record - Unconfirmed Farm Type
	Unspecified (ie farmer did not give indication)
Other not farmed	Beekeeping and hives
	Dogs
	Enterprises not covered by other classifications
	Fish, Marine fish farming, hatcheries
	Not farmed (ie idle land or non-farm use)
	Sale yards
	Tourism (ie camping ground, motel),
Sheep	Sheep farming
Mixed SnB	Mixed Sheep and Beef farming
Vegetables	Vegetable growing

#### Appendix 4: Names of sub – catchments and WRC Map ID

WRC Map ID <sup>1</sup>	Sub-Catchment	WRC Map ID	Sub-Catchment
1	Mangatawhiri	38	Mangapiko
2	Mangatangi	39	Mangaohoi
3	Whakapipi	40	Puniu at Wharepapa
4	Waikato at Tuakau Br	41	Waikato at Karapiro
5	Awaroa (Rotowaro) at Sansons Br	42	Moakurarua
6	Waikato at Port Waikato	43	Waipa at Pirongia-Ngutunui Rd Br
7	Ohaeroa	44	Little Waipa
8	Whangamarino at Jefferies Rd Br	45	Pokaiwhenua
9	Waikato at Mercer Br	46	Waitomo at SH31 Otorohanga
10	Whangamarino at Island Block Rd	47	Mangatutu
11	Opuatia	48	Mangamingi
12	Waerenga	49	Whakauru
13	Waikare	50	Puniu at Bartons Corner Rd Br
14	Matahuru	51	Waipa at Otorohanga
15	Waikato at Rangiriri	52	Waitomo at Tumutumu Rd
16	Whangape	53	Mangapu
17	Mangawara	54	Tahunaatara
18	Awaroa (Rotowaro) at Harris/Te Ohaki Br	55	Mangarapa
19	Awaroa (Waiuku)	56	Whirinaki
20	Waikato at Huntly-Tainui Br	57	Mangaharakeke
21	Firewood	58	Waiotapu at Campbell
22	Komakorau	59	Otamakokore
23	Kirikiriroa	60	Waipa at Otewa
24	Waipa at Waingaro Rd Br	61	Mangarama
25	Waikato at Horotiu Br	62	Kawaunui
26	Ohote	63	Mangaokewa
27	Waikato at Bridge St Br	64	Waikato at Waipapa
28	Waitawhiriwhiri	65	Waiotapu at Homestead
29	Mangaonua	66	Waikato at Ohakuri
30	Mangakotukutuku	67	Waikato at Whakamaru
31	Mangaone	68	Waipa at Mangaokewa Rd
32	Karapiro	69	Mangakara
33	Waikato at Narrows	70	Waipapa
34	Waipa at SH23 Br Whatawhata	71	Mangakino
35	Mangawhero	72	Torepatutahi
36	Kaniwhaniwha	73	Waikato at Ohaaki
37	Mangauika	74	Pueto

<sup>1</sup> See **Error! Reference source not found.** on Page 28

Appendix 5: Example of a TLG prioritisation map, showing sub-catchments by WRC Map ID number



**Appendix 6: Farms numbers by priority, relevant rule, and sub-catchment for TLG alternative rank 2**

	Not Farming (Section 9 RMA)			Small Block (Rule 3)			Low Risk (Rule 4)			Farm (Rule 5/6)			Vegetable (Rule 2b)			Totals		
Row Labels	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)
Awaroa (Rotowaro) at Harris/Te Ohaki Br	2	577	0.30%	33	51	0.56%	16	134	0.53%	24	2315	0.32%			0.00%	75	3077	0.32%
Awaroa (Rotowaro) at Sansons Br	3	232	0.12%	14	19	0.21%	3	32	0.13%	11	3215	0.44%			0.00%	31	3499	0.37%
Awaroa (Waiuku)	3	42	0.02%	93	188	2.05%	57	421	1.66%	24	1411	0.19%	3	65	2.49%	179	2127	0.22%
Firewood	3	1074	0.55%	41	61	0.67%	23	190	0.75%	13	1791	0.25%			0.00%	80	3117	0.33%
Kaniwhaniwha	3	2410	1.24%	94	130	1.41%	37	364	1.43%	55	6621	0.91%			0.00%	189	9525	1.00%
Karapiro	4	58	0.03%	33	46	0.50%	13	154	0.60%	61	6022	0.83%			0.00%	111	6280	0.66%
Kawaunui			0.00%	4	6	0.07%	1	5	0.02%	7	1912	0.26%			0.00%	12	1923	0.20%
Kirikiroa	2	17	0.01%	18	25	0.27%	5	32	0.12%	4	240	0.03%			0.00%	29	313	0.03%
Komakorau	3	74	0.04%	152	272	2.96%	60	444	1.75%	136	13708	1.89%	2	12	0.45%	353	14509	1.52%
Little Waipa	0	1175	0.60%	6	10	0.11%	4	32	0.13%	44	10374	1.43%			0.00%	54	11591	1.21%
Mangaharakeke	1	1200	0.62%	2	4	0.05%	5	45	0.18%	5	635	0.09%			0.00%	13	1884	0.20%
Mangakara	1	28	0.01%	3	5	0.05%	1	6	0.02%	7	1078	0.15%			0.00%	12	1117	0.12%
Mangakino	2	9999	5.15%	5	12	0.13%	8	65	0.25%	42	11639	1.61%			0.00%	56	21715	2.27%
Mangakotukutuku	3	26	0.01%	41	71	0.77%	21	149	0.59%	16	1677	0.23%	1	4	0.15%	82	1927	0.20%
Mangamingi	0	12	0.01%	49	78	0.85%	11	106	0.42%	28	3202	0.44%			0.00%	88	3399	0.36%
Mangaohoi			0.00%			0.00%	1	4	0.02%	1	114	0.02%			0.00%	2	118	0.01%
Mangaokewa	3	2348	1.21%	29	45	0.49%	19	190	0.75%	46	12303	1.70%			0.00%	96	14886	1.56%
Mangaone	14	127	0.07%	559	947	10.31%	193	1418	5.58%	51	3120	0.43%	7	88	3.37%	824	5700	0.60%
Mangaonua	8	45	0.02%	181	240	2.61%	104	878	3.45%	86	5591	0.77%	6	78	3.00%	384	6832	0.72%

	Not Farming (Section 9 RMA)			Small Block (Rule 3)			Low Risk (Rule 4)			Farm (Rule 5/6)			Vegetable (Rule 2b)			Totals		
Row Labels	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)
Mangapiko	7	718	0.37%	194	294	3.21%	90	847	3.33%	242	23171	3.20%			0.00%	533	25031	2.62%
Mangapu	5	59	0.03%	102	169	1.84%	75	676	2.66%	92	12235	1.69%			0.00%	274	13140	1.38%
Mangarama	0	6	0.00%	9	17	0.19%	7	69	0.27%	27	5638	0.78%			0.00%	43	5731	0.60%
Mangarapa			0.00%	3	3	0.03%	9	98	0.38%	30	5798	0.80%			0.00%	42	5899	0.62%
Mangatangi	5	725	0.37%	36	40	0.44%	35	288	1.13%	78	11947	1.65%	1	6	0.22%	154	13006	1.36%
Mangatawhiri	0	1733	0.89%			0.00%	1	15	0.06%	7	9627	1.33%			0.00%	8	11374	1.19%
Mangatutu	1	81	0.04%	4	5	0.05%	1	6	0.02%	40	6356	0.88%			0.00%	46	6447	0.67%
Mangauika	0	2	0.00%	1	2	0.02%	1	5	0.02%	2	210	0.03%			0.00%	4	218	0.02%
Mangawara	11	2637	1.36%	67	99	1.08%	35	284	1.12%	273	30953	4.27%			0.00%	387	33973	3.56%
Mangawhero	2	3	0.00%	45	84	0.92%	30	276	1.09%	41	4603	0.64%	3	99	3.81%	120	5067	0.53%
Matahuru	1	376	0.19%	11	13	0.15%	3	38	0.15%	53	9999	1.38%			0.00%	68	10426	1.09%
Moakurua	5	3167	1.63%	12	23	0.25%	12	97	0.38%	64	16239	2.24%			0.00%	93	19525	2.04%
Ohaeroa	1	10	0.01%	20	35	0.38%	14	118	0.46%	20	1477	0.20%	1	19	0.71%	55	1658	0.17%
Ohote	3	76	0.04%	165	316	3.44%	93	804	3.16%	35	2035	0.28%			0.00%	295	3231	0.34%
Opuatia	8	886	0.46%	13	26	0.29%	9	91	0.36%	27	5063	0.70%			0.00%	57	6066	0.63%
Otamakokore	0	262	0.13%	18	34	0.37%	7	78	0.31%	22	3784	0.52%			0.00%	47	4159	0.44%
Pokaiwhenua	3	12116	6.24%	92	145	1.58%	31	242	0.95%	117	18456	2.55%			0.00%	242	30959	3.24%
Pueto	4	7748	3.99%	14	36	0.39%	21	145	0.57%	5	25933	3.58%			0.00%	43	33862	3.54%
Puniu at Bartons Corner Rd Br	3	86	0.04%	101	116	1.26%	42	352	1.39%	152	20749	2.87%	1	10	0.40%	299	21313	2.23%
Puniu at Wharepapa	1	205	0.11%	6	10	0.10%	3	38	0.15%	51	15637	2.16%			0.00%	61	15890	1.66%

	Not Farming (Section 9 RMA)			Small Block (Rule 3)			Low Risk (Rule 4)			Farm (Rule 5/6)			Vegetable (Rule 2b)			Totals		
Row Labels	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)
Tahunaatara	5	2509	1.29%	21	32	0.35%	16	168	0.66%	67	12653	1.75%			0.00%	108	15363	1.61%
Torepatutahi	4	2020	1.04%	12	19	0.20%	4	38	0.15%	58	9670	1.34%			0.00%	77	11747	1.23%
Waerenga			0.00%	1	1	0.01%	1	16	0.06%	5	1621	0.22%			0.00%	7	1638	0.17%
Waikare	2	4416	2.27%	15	21	0.23%	13	130	0.51%	35	4419	0.61%			0.00%	65	8985	0.94%
Waikato at Bridge St Br	5	26	0.01%	280	542	5.90%	96	647	2.54%	35	2579	0.36%	6	39	1.48%	422	3833	0.40%
Waikato at Horotiu Br	4	37	0.02%	102	149	1.63%	22	161	0.63%	12	1103	0.15%			0.00%	139	1451	0.15%
Waikato at Huntly-Tainui Br	7	1742	0.90%	285	398	4.34%	81	659	2.59%	108	11848	1.64%			0.00%	481	14647	1.53%
Waikato at Karapiro	4	13388	6.89%	135	180	1.96%	70	650	2.55%	283	38602	5.33%	1	44	1.67%	493	52862	5.53%
Waikato at Mercer Br	17	2174	1.12%	140	258	2.81%	150	1337	5.26%	208	30879	4.26%	9	337	12.92%	524	34985	3.66%
Waikato at Narrows	6	333	0.17%	363	609	6.64%	159	1424	5.60%	112	7848	1.08%	9	233	8.93%	648	10447	1.09%
Waikato at Ohaaki	24	4018	2.07%	115	274	2.98%	194	1227	4.83%	90	13383	1.85%			0.00%	423	18902	1.98%
Waikato at Ohakuri	13	3723	1.92%	80	166	1.81%	75	579	2.28%	146	32709	4.52%			0.00%	314	37176	3.89%
Waikato at Port Waikato	27	1527	0.79%	301	467	5.09%	197	1749	6.88%	179	15181	2.10%	18	613	23.51%	722	19537	2.04%
Waikato at Rangiriri	2	350	0.18%	51	68	0.75%	15	183	0.72%	28	3449	0.48%			0.00%	96	4050	0.42%
Waikato at Tuakau Br	12	1110	0.57%	155	285	3.10%	90	694	2.73%	103	7206	1.00%	9	466	17.87%	370	9761	1.02%
Waikato at Waipapa	5	57544	29.62%	16	38	0.42%	31	280	1.10%	77	29764	4.11%			0.00%	128	87625	9.17%
Waikato at Whakamaru	5	9655	4.97%	15	39	0.43%	15	160	0.63%	69	14981	2.07%			0.00%	104	24836	2.60%
Waiotapu at Campbell	2	476	0.24%	4	12	0.13%	3	17	0.07%	11	2032	0.28%			0.00%	21	2536	0.27%
Waiotapu at Homestead	1	15205	7.83%	10	21	0.22%	6	57	0.22%	54	7987	1.10%			0.00%	70	23269	2.44%
Waipa at Mangaokewa Rd	0	22	0.01%			0.00%			0.00%	1	16	0.00%			0.00%	1	39	0.00%

	Not Farming (Section 9 RMA)			Small Block (Rule 3)			Low Risk (Rule 4)			Farm (Rule 5/6)			Vegetable (Rule 2b)			Totals		
Row Labels	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)	Number	Area (ha)	Area (%)
Waipa at Otewa	9	5528	2.85%	1	0	0.01%			0.00%	25	15322	2.12%			0.00%	35	20850	2.18%
Waipa at Otorohanga	1	41	0.02%	43	77	0.84%	28	191	0.75%	91	12300	1.70%			0.00%	163	12609	1.32%
Waipa at Pirongia-Ngutunui Rd Br	12	3433	1.77%	172	276	3.00%	83	826	3.25%	305	36770	5.08%			0.00%	571	41304	4.32%
Waipa at SH23 Br Whatawhata	8	2155	1.11%	478	670	7.30%	236	1891	7.44%	261	22255	3.07%	2	52	1.98%	985	27023	2.83%
Waipa at Waingaro Rd Br	8	1836	0.95%	308	400	4.36%	139	1229	4.83%	87	10753	1.49%	2	7	0.26%	543	14224	1.49%
Waipapa	2	9	0.00%	2	8	0.09%	7	52	0.20%	20	9466	1.31%			0.00%	30	9535	1.00%
Waitawhiriwhiri	2	6	0.00%	9	24	0.26%	5	42	0.17%	10	670	0.09%			0.00%	26	743	0.08%
Waitomo at SH31 Otorohanga	5	259	0.13%	17	27	0.30%	6	54	0.21%	27	2712	0.37%			0.00%	54	3052	0.32%
Waitomo at Tumutumu Rd	1	643	0.33%	6	10	0.11%	2	21	0.08%	12	3424	0.47%			0.00%	21	4099	0.43%
Whakapipi	5	66	0.03%	125	204	2.22%	107	961	3.78%	27	1013	0.14%	16	377	14.46%	281	2621	0.27%
Whakauru	0	315	0.16%	60	63	0.69%	10	87	0.34%	15	2433	0.34%			0.00%	85	2898	0.30%
Whangamarino at Island Block Rd	2	4778	2.46%	72	90	0.98%	34	384	1.51%	55	8110	1.12%			0.00%	163	13362	1.40%
Whangamarino at Jefferies Rd Br	1	2415	1.24%	19	24	0.26%	3	35	0.14%	49	6825	0.94%	1	61	2.32%	72	9360	0.98%
Whangape	7	2166	1.11%	30	44	0.48%	30	239	0.94%	137	26663	3.68%			0.00%	204	29111	3.05%
Whirinaki			0.00%	2	6	0.07%			0.00%	3	517	0.07%			0.00%	5	523	0.05%
Grand Total	324	194268	100%	5711	9182	100%	3020	25424	100%	4840	724041	100%	96	2608	100%	13991	955521	100%