

# Annual Report for WIL Nutrient Discharge Consent 2017

Waimakariri Irrigation Limited

# Annual Report for WIL Nutrient Discharge Consent: 2017

✦ Prepared for

Waimakariri Irrigation Limited

✦ November 2017



PATTLE DELAMORE PARTNERS LTD  
295 Blenheim Road  
Upper Riccarton, Christchurch 8041  
PO Box 389, Christchurch 8140, New Zealand

Tel +64 3 345 7100  
Website <http://www.pdp.co.nz>  
Auckland Tauranga Wellington Christchurch



**solutions** for your environment

## Quality Control Sheet

TITLE Annual Report for WIL Nutrient Discharge Consent: 2017

CLIENT Waimakariri Irrigation Limited

VERSION Final

ISSUE DATE 30 November 2017

JOB REFERENCE CJ49511

SOURCE FILE(S) CJ49511\_Annual\_Report\_Nutrient\_2017.docx

### DOCUMENT CONTRIBUTORS

Prepared by

SIGNATURE



Jeremy Sanson & Paul Reese

Reviewed and approved by

SIGNATURE



Peter Callander

### Limitations:

This report has been prepared on the basis of information provided by Waimakariri Irrigation Limited. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Waimakariri Irrigation Limited for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

## Table of Contents

SECTION	PAGE
<b>1.0 Introduction</b>	<b>1</b>
<b>2.0 Consent Requirements</b>	<b>1</b>
<b>3.0 Irrigated Land</b>	<b>1</b>
<b>4.0 Results from Audited Self-Management Programme</b>	<b>2</b>
4.1 ASM Reporting Requirements	2
4.2 FEP Auditors	3
4.3 Summary of FEP Audit Grades	3
4.4 Reasons for C or D Grades	4
4.5 Actions Taken to Address C or D Grades	7
4.6 Farms that have Repeatedly Received C or D Grades	9
4.7 Progress Achieved for Previously Identified Issues	9
<b>5.0 Annual Nitrogen Loss</b>	<b>9</b>
5.1 Schedule A Properties	9
5.2 Schedule B Properties	10

## Appendices

Appendix A: Figure

Appendix B: Audited Self-Management Programme

Appendix C: Nitrogen Loss Tables

## 1.0 Introduction

Waimakariri Irrigation Ltd (WIL) operates an irrigation scheme between the Waimakariri and Ashley Rivers, as shown in Figure 1 (Appendix A). WIL were granted consent CRC142754 on 10 February 2016 to discharge nutrients from farming activities occurring within the WIL scheme.

Condition 8 of CRC142754 requires an annual report to be prepared by 30 November each year. This report has been prepared by Pattle Delamore Partners (PDP) and Paul Reese from Irricon on behalf of WIL to fulfil the reporting requirements of consent CRC142754.

## 2.0 Consent Requirements

The reporting requirements for consent CRC142754 are outlined below.

### Condition 8

*The consent holder shall:*

- a. Prepare an annual report which describes:*
  - i. The number of properties and the total area of irrigated land and unirrigated land of those properties listed in the Schedules;*
  - ii. The results of the ASM, which includes the audits that have been undertaken each year in accordance with condition 7;*
  - iii. A record of the annual loss of nitrogen for the preceding 12-month period (being from the 01 August until the following 31 July) for all properties listed in the Schedules;*
  - iv. Any incidence of non-compliance with the requirements set out within the individual Farm Environment Plans;*
  - v. The actions taken by both the consent holder and (as necessary) the land owner(s) in the Schedule to remedy or mitigate non-compliance identified in accordance with condition 7.*
- b. Provide a copy of the report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager by the 30 November every year.*

## 3.0 Irrigated Land

Table 1 below shows the irrigated and unirrigated land within the WIL scheme. The irrigated and total farm areas were obtained from the individual farm environment plans (FEPs). Table 1 shows that there are 206 properties within Schedule CRC142754A (Schedule A) with a combined irrigated area of 23,699 ha and a combined total farm area of 33,396 ha. The five properties in Schedule

CRC142754B (Schedule B) hold their own resource consents specifying a nitrogen discharge allowance.

**Table 1: Irrigated area within WIL scheme as at November 2017**

	No of properties	Irrigated area (ha)	Unirrigated area (ha)	Total area (ha)
Schedule A	206	23,699	9,697	33,396
Schedule B	5	1,335	128	1,463
<b>Total</b>	<b>211</b>	<b>25,034</b>	<b>9,825</b>	<b>34,859</b>

## 4.0 Results from Audited Self-Management Programme

Condition 7 of CRC142754 requires WIL to implement and adhere to an audited self-management (ASM) programme. The ASM document was developed by PDP and WIL and was submitted to ECan on 1 July 2016. A copy of the ASM document is included in Appendix B.

### 4.1 ASM Reporting Requirements

The ASM reporting requirements are outlined in Condition 7e of CRC142754, as follows:

#### Condition 7e

- e. *The consent holder shall prepare an annual report describing the results of the ASM programme and the audits that have been conducted each year. The report shall include:*
  - i. *The name of the FEP auditor(s);*
  - ii. *A summary of the audit performance grading;*
  - iii. *A summary of the reasons for any farm receiving a C or D grade;*
  - iv. *A summary of the actions taken to address C or D grades;*
  - v. *A summary of farms that repeatedly received a C or D grade;*
  - vi. *The progress achieved for previously identified issues, if applicable;*
  - vii. *The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.*

- viii. *The annual average nitrogen loss to water for each property listed in Schedule CRC142754A and Schedule CRC142754B, as calculated in accordance with Appendix CRC142754.*

## 4.2 FEP Auditors

The WIL farm environment plans (FEPs) were audited by four auditors, as listed in Table 2. All of these auditors are Certified Farm Environment Plan Auditors.

**Table 2: FEP auditors**

Name	Organisation	Certification
Paul Reese	Irricon Resource Solutions	ECan certified
Dugald McLean	Irricon Resource Solutions	ECan certified
Ben Howden	Irricon Resource Solutions	ECan certified
Nicky Watt	Irricon Resource Solutions	ECan certified

## 4.3 Summary of FEP Audit Grades

There are 108 FEPs being managed through the WIL consent. This includes seven Ngai Tahu dairy platform properties; only three of which receive WIL water. For ease of management, the other four properties have been included into and are being managed according to the WIL ASM program.

There have been 100 FEPs audited in the period between 1 September 2016 and 30 September 2017. The remaining eight FEPs have not been audited for the reasons described in Table 3 below.

**Table 3: Reasons for no FEP audit**

Reason	Number
Designated FEP implementer unavailable to carry out audit (overseas at time of notification and proposed audit toward end of period). These are in the process of being audited pre 2018.	3
FEP being audited through other approved ASM programme (Synlait Lead with Pride programme). Lead with Pride audit date scheduled for 18 December 2017.	1
In farm sale process. Audit date has been signalled verbally to new owners for the beginning of the 2017/18 irrigation season.	1
In farm purchase and development phase from dryland to irrigated. Once water is being delivered the audit will be completed.	1
Property recently been included into the WIL ASM program and the FEP and NB are being prepared in readiness for an audit.	1
Two FEPs (dairy platform and runoff block) mistakenly incorporated into one audit report.	1

The 100 audit results are shown in Table 4 below.

**Table 4: Audit results**

Grade	Number
A	4
B	63
C	29
D	4
<b>Total</b>	<b>100</b>

#### 4.4 Reasons for C or D Grades

Typically there was no one single reason for a farm receiving a C or D grade but rather a combination of factors.

##### 4.4.1 C Grades

The following information was taken from the 29 C grade audit reports.

To have an indicative measure of the main issues for C grades, the number of lows (confidence levels as assessed through the audit process) against the targets used to meet the objectives for each management area has been used.



The themes that have come from an analysis of the audit results suggest three management areas of Irrigation, Nutrient and Waterbody are the main contributors to C grades.

Although not as dominant as the previous three management areas (over all of the 29 C grades), in some instances, poor effluent management and infrastructure contributed to particular C grades.

### ***Irrigation Management***

**Table 5: Irrigation management issues contributing to C grades**

Target	Description	Number	%
1	New irrigation infrastructure is designed, installed and operated in accordance with industry best practice standard.	0	0
2	Existing irrigation systems are maintained, calibrated, and operated to apply irrigation water at the optimal efficiency.	3	10
3 & 4	All applications of irrigation water are justified on the basis of soil moisture data, climatic information and crop requirements.	13	45
5	Staff are trained in the operation, maintenance and use of irrigation systems.	0	0

From these results the key issues for irrigation management are:

1. Scheduling of irrigation events using information from soil moisture and weather data.
2. Maintenance, calibration and operation of equipment.

## Nutrient Management

**Table 6: Nutrient management issues contributing to C grades**

Target	Description	Number	%
1	Nitrogen losses from farming activities are minimised.	8	28
2	Phosphorus and sediment losses from farming activities are minimised.	4	14
3	The amount and rate of fertiliser applied do not exceed the agronomic requirements of the crop.	1	3
Note: 1 - As the scheme operates under a collective discharge consent and the management of the N loss is not carried out via a specified N loss allocation per property, this target wording has been altered with the approval of ECan (Ian Brown: Pers comm and emails 27/4/17)			

From these results, the key issues for nutrient management are:

1. The management of nitrogen. This includes the use of N fertiliser (volume and timing) and the integration of effluent application and N fertiliser management.
2. Phosphorus and soil management.

## Waterbody Management

**Table 7: Waterbody management issues contributing to C grades**

Target	Description	Number	%
1	Stock is excluded from waterbodies in accordance with regional council rules or any granted resource consent.	3	10
2	Vegetated riparian margins are maintained to minimise nutrient, sediment and microbial pathogen losses to waterbodies are minimised.	5	17
3	Farm tracks, gateways, water troughs, self-feeding areas, stock camps wallows and other sources of sediment, nutrient and microbial loss are located so as to minimise the risks to surface water quality.	8	28

From these results, the key issues for waterbody management are:

1. Infrastructure in and around waterbodies needs to be well designed to enable good management.
2. Riparian margins need to be of sufficient setback and quality.

#### 4.4.2 D Grades

Table 8 below discusses the main contributing reasons why the four farms received a D grade.

Table 8: Reasons for D grade	
Farm	Main contributing reasons
#1	Irrigation practices particularly operation and maintenance, and scheduling. Waterbody management (stock Water race access and drinker management) and grazing management around waterways.
#2	Irrigation practices particularly operation and maintenance, and scheduling. Management of effluent point source. Waterbody management and grazing management around waterways.
#3	Irrigation practices particularly operation and maintenance, and scheduling. Management of effluent point source. Inadequate or no fencing and poorly maintained fencing along waterways.
#4	Irrigation practices particularly operation and maintenance, and scheduling. Management of effluent point source. Waterbody management.

### 4.5 Actions Taken to Address C or D Grades

#### 4.5.1 C Grades

The actions taken are a 3-pronged approach of:

1. Scheme wide data collection and irrigation management decision advice service

The WIL scheme has embarked on a leading project NEWMS (Nutrient, Environmental and Water Management System) requiring all shareholders to invest in on-farm data collection of water use and soil moisture monitoring and providing weather information from a network of climate stations across the scheme. These data streams are then used to provide up to date and accurate irrigation scheduling advice for each shareholder through a Smart phone app provided by REGEN. This has been installed for the first tranche of shareholders for the 2017/18 season.

2. Providing training opportunities targeting specific areas recognised as issues

Table 9 below shows the workshops and field days organised by WIL. The first three workshops have already occurred, with the remaining three still to come.

**Table 9: WIL workshops and field days**

<b>Workshops / field days</b>	<b>Date</b>
Irrigation calibration operation and maintenance	Nov 2016
Nitrogen management and information	Aug 2017
Audit expectations and information	Nov 2017
IrrigationNZ irrigation manager training	Jan/Feb 2018
Irrigation calibration operation and maintenance	Feb 2018
Waterbody riparian planting	Autumn 2018

Note that actions 1 and 2 are equally available to all shareholders.

3. One on one, on-farm consultations to address each individual farm's shortcomings

These meetings are scheduled during this 2017/18 season and individually timed to coincide prior to the 12 month audit interval to provide the opportunity for shareholders to improve their practices. Each farmer and relevant staff as part of the annual review of the FEP will have an individual consultation with the Scheme environmental manager (EM) to ensure that the issues raised in the audit report are being understood and actions identified are being undertaken.

#### 4.5.2 D Grades

The actions being undertaken for D grade farms are as follows:

- ✧ Each farmer and relevant staff has had an individual consultation with the Scheme EM to ensure that the issues raised in the audit report are being understood and actions identified are being undertaken (3 of 4 consultations have been undertaken).
- ✧ They are being encouraged to attend all field days and training opportunities and upskill themselves and their staff.
- ✧ If they are not involved in the first tranche of the NEWMS project, they are being fast tracked to have this monitoring equipment installed, data collected and used.
- ✧ Particular actions and plans are being formulated for each area of concern.
- ✧ Regular communications with the scheme EM are ongoing.
- ✧ Where necessary, shareholders are getting costed plans for irrigation infrastructure upgrades.

- ✧ Fencing plans and grazing policies are being formulated.

#### 4.6 Farms that have Repeatedly Received C or D Grades

None to date.

#### 4.7 Progress Achieved for Previously Identified Issues

The FEP and audit program for 2017 has recently been completed. As this is the first year of audits for all shareholders, a full analysis is underway from the information collected to identify the issues across the scheme. Resources will then be targeted for farmer support and training to make progress addressing the problems.

The NEWMS project has been the response to the issue of poor scheduling information identified through the FEP development phase. This project has been initiated during the latter half of 2017. All shareholder properties between the Eyre and Waimakariri rivers have been targeted in the first tranche of the rollout of this project. From the progress report from the project managers dated 10 November 2017, all except two properties of the 55 farms (including all Ngai Tahu properties) have had an on-farm assessment completed identifying the hardware and install of equipment needed. Signed contracts for installs have been confirmed for 39 of 55 farms and installs are underway.

### 5.0 Annual Nitrogen Loss

#### 5.1 Schedule A Properties

Table C1 (Appendix C) shows the annual nitrogen loss for the period 1 August 2016 – 31 July 2017 for all properties listed in Schedule A of consent CRC142754.

Table 10 below provides a summary of the nitrogen losses for properties listed in Schedule A for each of the three nutrient allocation zones (NAZs). As shown in Table 10, the current nitrogen losses are less than the consented limits for the Ashley-Waimakariri (red), Ashley (orange) and Waimakariri (green) zones.

**Table 10: Summary of nitrogen losses for Schedule A for the period 1 August 2016 – 31 July 2017**

	Nutrient Allocation Zone		
	Ashley-Waimakariri	Ashley	Waimakariri
Consented limit (kg/yr)	3,005,932	196,695	9,210
Aug 2016 - Jul 2017 (kg/yr)	2,508,873	170,342	7,335
% of limit	83%	87%	80%

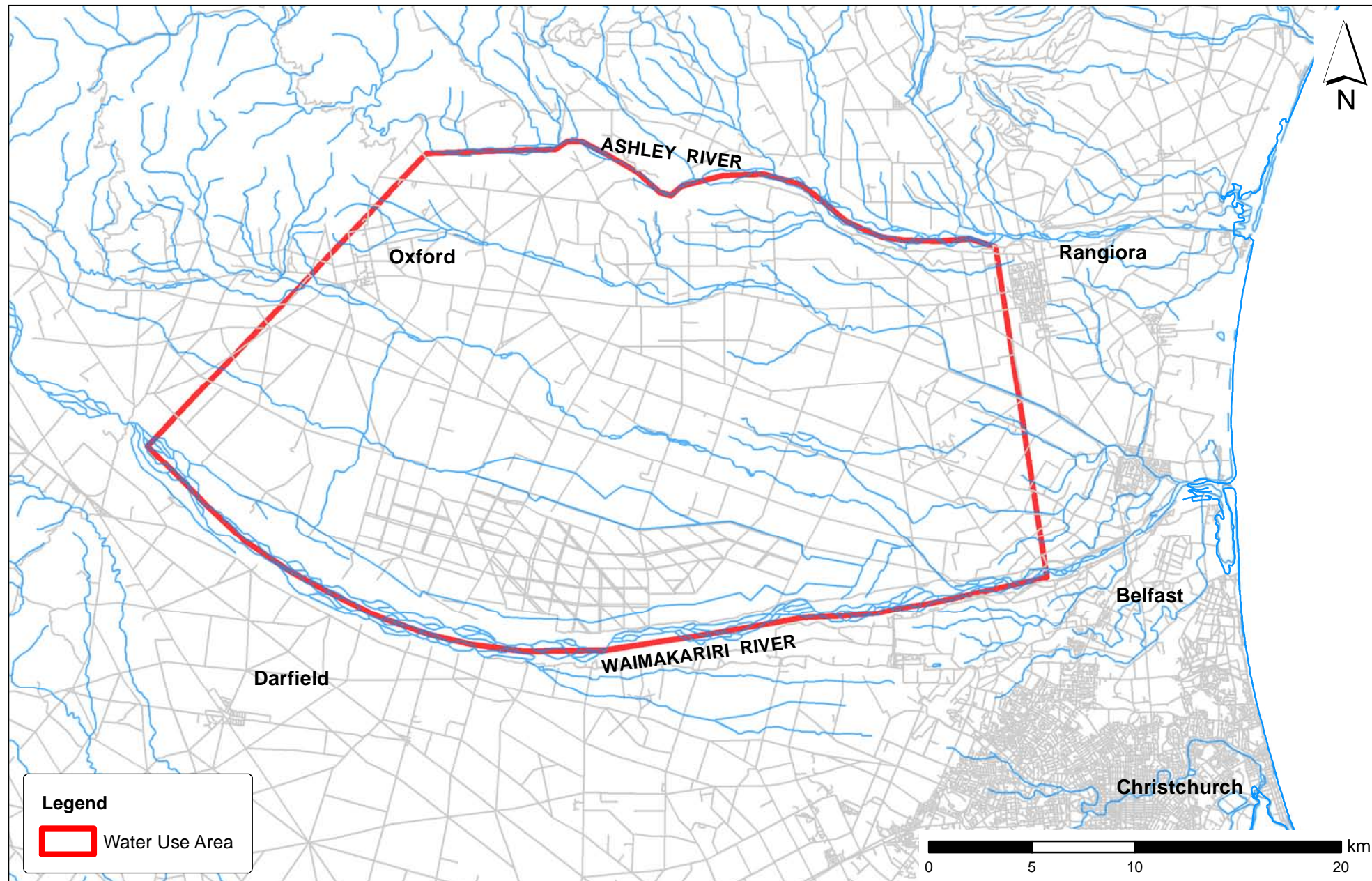
## 5.2 Schedule B Properties

At present there are five properties in Schedule CRC142754B (Schedule B). Details of these consents are shown in Table 11 below.

Table 11: Summary of consents in Schedule B		
Consent Holder	Resource Consent Specifying NDA	NDA (kg N/ha)
Eyrewell Dairy Limited	CRC160478	91 (6.2.0)
Keswick Farm Dairies Limited	CRC169538	Red: 54; Orange: 67 (6.2.1)
Carleton Dairies Limited	CRC174943	105 (6.2.3)
Beauhill Trustee Limited	CRC175785	40 (6.2.3)
Schouten Dairies Limited	CRC180289	49 (6.2.3)







**Figure 1: Area Within Which WIL Water May be Used**



**Appendix B**

Audited Self-Management Programme

# Waimakariri Irrigation Limited

## Audited Self-Management Programme

### 1.0 Introduction

#### 1.1 Resource Consent

This Audited Self-Management Programme (ASM) has been prepared to satisfy the requirements of WIL's consent CRC142754 (condition 7).

The requirements for the ASM are as follows:

*An Audited Self Management Programme (ASM) shall be implemented as follows:*

- a. *Prior to 1 July 2016 the consent holder shall implement and adhere to an audited self-management programme (ASM), which is developed by a suitably qualified person and approved by the Canterbury Regional Council. The ASM document shall include but not be limited to:*
  - i. *Environmental targets and objectives for the scheme and its shareholders;*
  - ii. *The proposed monitoring and reporting regime including but not limited to a description of the:*
    - a. *FEP audit process and the frequency used to assess individual on-farm progress with the content of any FEP and Appendix CRC142754;*
    - b. *Methods used to follow up with shareholders who are not achieving the environmental objectives identified during individual on-farm audits;*
    - c. *The proposed data to be collected and reported to the Canterbury Regional Council;*
    - d. *Independent annual review of the FEP audit process;*
    - e. *How nutrients from all land subject to the scheme or principal water supplier will be accounted for;*
- b. *The consent holder shall provide a report to the Canterbury Regional Council describing the performance of the scheme in meeting its environmental targets and objectives by 30 November each year.*
- c. *Any significant changes to the ASM document shall be implemented only after approval confirmed in writing by the Canterbury Regional Council.*
- d. *FEP audits shall be undertaken by a suitably qualified person at the frequency determined by Appendix CRC142754, with the exception of the first audit, which shall be completed in accordance with conditions 7(d)(i) and 4(d)(ii);*
  - i. *All FEPs prepared prior to 1 September 2016 shall be audited by 1 September 2017.*
  - ii. *All FEPs prepared after 1 September 2016 shall be audited within 12 months of being completed.*
- e. *The consent holder shall prepare an annual report describing the results of the ASM programme and the audits that have been conducted each year. The report shall include:*
  - i. *The name of the FEP auditor(s);*
  - ii. *A summary of the audit performance grading;*
  - iii. *A summary of the reasons for any farm receiving a C or D grade;*

- iv. *A summary of the actions taken to address C or D grades;*
- v. *A summary of farms that repeatedly received a C or D grade;*
- vi. *The progress achieved for previously identified issues, if applicable;*
- vii. *The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.*
- viii. *The annual average nitrogen loss to water for each property listed in Schedule CRC142754A and Schedule CRC142754B, as calculated in accordance with Appendix CRC142754;*
- f. *A copy of the annual report shall be provided to the Canterbury Regional Council, by 30 November each year;*
- g. *The FEP audit records and reports for each property undertaken in accordance with condition 6. shall be kept and supplied to the Canterbury Regional Council upon request.*
- h. *The consent holder shall notify Canterbury Regional Council within 20 working days of any exclusion of a shareholder(s) from the ASM programme.*

Figure 1 (Appendix A) shows the extent of the Scheme.

## 2.0 Environmental Targets

WIL's primary environmental target (in regards to this ASM document) is:

- All shareholders will be at GMP by 1 September 2020

To achieve this target, all farms supplied with WIL water will have an initial FEP by 1 September 2016. By 1 September 2017 the FEPs will include definitive timelines as to how individual farms will be at GMP by 1 September 2020.

Some further environmental targets are:

- All FEPs prepared prior to 1 September 2016 will be audited by 1 September 2017
- All FEPs prepared after 1 September 2016 will be audited within 12 months of being completed
- There will be no D grade audits by 1 September 2018
- There will be no C grade audits by 1 September 2019

## 3.0 Farm Environment Plans

Farm Environment Plans (FEPs) are the principal tool for the delivery of the good management practice (GMP) outcomes, combined with an auditing process that encourages implementation of GMP measures.

WIL are using two ECan approved FEP templates:

1. All properties larger than 20 ha will complete the WIL online FEP.
2. For properties less than 20 ha in size<sup>1</sup> the ECan developed 'Lifestyle Block Management Plan' (LBMP) is being used. Although discretion is being used if the property warrants a full FEP due to the intensification of land use.

---

<sup>1</sup> This approach has been endorsed and approved by ECan (see correspondence with PDP and ECan April 2016) as a pragmatic implementation of consent conditions

### 3.1 WIL Online Template

- The FEP template that is being used is a joint venture between Opuha Water Ltd (OWL) and WIL and a third party technical provider. WIL and OWL jointly own the IP and each scheme have individual access to their program.
- It is an online version that has been approved by ECan for the delivery of the FEPs for the WIL Scheme. All Scheme FEPs must use this template to guarantee consistency.
- It is accessible through the WIL website <http://www.wil.co.nz>
- Each shareholder/farmer is given a unique username and password to be able to access and manage the FEP for themselves. It is a facilitated process controlled by the Scheme environmental manager or contractor to firstly draft and then finalise the FEP. The final versions are held centrally and will be updated at each audit.
- Copies of all farm plans will be held on file including future iterations of plans to enable monitoring of progress made on individual farms and across the Scheme area as a whole.

### 3.2 Lifestyle Block Management Plan (LBMP)

- This is an ECan developed template for small scale, low intensity properties that are required to complete a Farm Environment Plan.
- It is available through the ECan website <http://ecan.govt.nz/publications/Plans/Lifestyle-block-management-plan-Mar2015.pdf> or on request from WIL

WIL have set themselves a target of having all shareholder farms operating at GMP by 1 September 2020. The implementation of this progression towards GMP will be implemented through the FEPs.

### 3.3 FEP Process

#### 3.3.1 Existing shareholdings

#### **Step 1**

Identify the properties where WIL water is used.

#### **Step 2**

Categorise the landholding for plan type (FEP or LBMP)

#### **Step 3**

Complete a FEP or LBMP - to complete the plan there is no specific requirement as to who carries this out; either land manager, owner, consultant, or with Scheme support. However it must involve the land manager or the person who is designated as the person responsible for implementing the plan.

It must be accompanied by:

- a. An “actual” nutrient budget (Overseer® or ECan approved alternative) for the previous production year
- b. Farm map in accordance with ECan LWRP Schedule 7

All FEPs and LBMPs must include:

- a. All land owned, leased or managed, that is associated with the farming operation both dryland and irrigated. Blocks that are not contiguous and within the WIL command area must also be included
- b. All water entitlements associated with any land associated with the operation. For properties that have both WIL water and other consented water takes (groundwater and

surface takes), the WIL FEP must include all land area and water sources associated with the property using WIL water whether it is dryland, irrigated via consented water or irrigated by WIL water.

#### **Step 4**

Submit the final<sup>2</sup> FEP/LBMP to WIL

### 3.3.2 New shareholdings or inclusion of new land area or properties into CRC142752 Schedule A

Before any water movement or transaction is approved by the WIL board of directors, they must first be satisfied the inclusion of new land area and the intended land use and management does not risk making the consents non-compliant.

#### **Step 1**

Identify the properties where WIL water is used

#### **Step 2**

Categorise the landholding for plan type (FEP or LBMP)

#### **Step 3**

Complete a FEP or LBMP (prior to submitting the proposal to the WIL board)

The FEP must include:

- a. Provide a predictive nutrient budget (Overseer® or ECan approved alternative) to demonstrate their N losses will be within modelled expectations of the nutrient loss below the root zone.
- b. An explanation and management plan of how management practices are going to meet GMP

#### **Step 4**

Submit the final FEP/LBMP to WIL

### 3.4 Overseer Modelling

All shareholders must do annual Overseer modelling, except for properties less than 20 ha in size.

### 3.5 FEP Review

At the completion of a FEP audit the FEP will be reviewed to monitor progress and ensure improvement towards, or beyond GMP. The reviewed and altered document will be submitted to WIL for recording and reporting purposes. The review is under the expectation that measurable steps are being taken to meet GMP and they will be included into the FEP under the continuous improvement objective.

### 3.6 Variations

1. When any 'significant'<sup>3</sup> changes are made on-farm, the FEP must be updated within three months of the change. All 'significant' changes must be notified to the Scheme.

---

<sup>2</sup> As at 10<sup>th</sup> February 2016 all existing shareholdings and associated properties must have a completed FEP or LBMP before 1<sup>st</sup> September 2016.

2. All water movements whether it is leased, sold, bought or changed use locations must be notified to the Scheme. All new areas must have a new FEP or be included into an existing FEP within three months of change.
3. Those properties less than 20 ha completing a LBMP will not be required to complete a nutrient budget<sup>4</sup> (unless they are associated with a larger operation or by discretion on a case by case basis dependent on land use intensification).

### 3.7 Guarantees

Shareholders will agree, by signing a commitment statement, that the actions and management practices contained within the FEP suit the nature of their property and land uses, to give a high confidence of achieving the specified objective within an agreed timescale.

## 4.0 Auditing

### 4.1 Auditors

WIL will select auditors who meet the definition of a 'Certified Farm Environment Plan Auditor' in proposed Plan Change 5 of the LWRP, which is as follows:

*means a person that either (a) is approved by the Chief Executive of Environment Canterbury as meeting the following criteria and is registered on the Environment Canterbury website as a Certified Farm Environment Plan Auditor or (b) is a member of an International Standards Organisation accredited audit programme that has been approved by the Chief Executive of Environment Canterbury as including audit criteria equivalent to that set out in Part C of Schedule 7; and*

1. *has at least 5 years' professional experience in the management of pastoral, horticulture or arable farm systems; and*
  - a. *holds a Certificate of Completion in Advanced Sustainable Nutrient Management in New Zealand Agriculture from Massey University; or*
  - b. *holds a Certificate of Completion in Sustainable Nutrient Management in New Zealand Agriculture from Massey University; or*
  - c. *holds a tertiary qualification in agricultural science or demonstrates an equivalent level of knowledge and experience; and*
2. *is a current member of a Professional Institute that requires members to subscribe to a Code of Ethics and has a procedure in place for dealing with complaints made against members; and*
3. *demonstrates, to Environment Canterbury, proficiency in the auditing of Farm Environment Plans against the matters set out in Part C of Schedule 7.*

### 4.2 Auditing of Lifestyle Blocks

The Scheme recognises that all land associated with the use of Scheme water needs to be treated equally with the same GMP expectations.

---

<sup>3</sup> "Significant" changes definition includes change in management personnel, land use, increase in irrigated area, infrastructure upgrades.

<sup>4</sup> Nutrient losses from the smaller properties will be accounted for in WIL reporting to ECan based on a predetermined categorisation.

Due to the predominantly low intensity nature of the lifestyle blocks they pose a significantly lower risk to the environment than a commercial property. There are however some small blocks that are farmed more intensively.

WIL therefore reserves the right to consider what level of investigation is appropriate on a case by case basis.

### **Requirements**

To have an on-site inspection of the property at least once every four years on a rotation. The investigation will look specifically (but not exclusively) at:

- Irrigation management
- Grazing management
- Fertiliser management

This will be carried out by the WIL Environmental Manager or appointed person. The inspection will provide a grade A to D similar to the FEP grading based on a Level of Confidence (LOC) approach.

The LOC approach involves an assessment of the likelihood that each objective and associated targets have been met based on:

- Information provided at the time of audit (actual data, photographs, records, reports)
- Stated practice, provided it can be reasonably justified with other information or evidence
- Observation of actual GMPs
- Stated GMPs supported by evidence
- Nutrient budgets
- Field observation

All grades other than an 'A' will trigger some advice and support from WIL to rectify the issues identified.

This direct approach recognises that often the owners of the lifestyle blocks do not have the skills or knowledge of how to fix a problem or who to ask to help. The expectation will be that once advice is given on how to fix or who to ask for support the owner will follow it up independently of the Scheme.

## **4.3 Auditing of Other WIL Shareholders (Excluding Lifestyle Blocks)**

### **Requirements**

Audits must be undertaken by a suitably qualified person, as defined in section 4.1 of this ASM document.

Audits must be undertaken in accordance with the most recent version of the 'Canterbury Certified Farm Environment Plan (FEP) Auditor Manual'. They will be given a grade A to D based on a Level of Confidence (LOC) approach.

The LOC approach involves an assessment of the likelihood that each objective and associated targets have been met based on:

- Information provided at the time of audit (actual data, photographs, records, reports)
- Stated practice, provided it can be reasonably justified with other information or evidence
- Observation of actual GMPs
- Stated GMPs supported by evidence
- Nutrient budgets
- Field observation

Figure 2 (Appendix A) shows a flow chart of the audit process.

All new FEPs will be audited within one year of completion.

In the subsequent years depending on the grade achieved in the audit the interval between audits shall be no greater than four years. Figure 3 (Appendix A) shows a diagram of the audit interval.

Audit grade	Audit Return interval
<b>A</b>	4 years
<b>B</b>	2 years
<b>C</b>	12 months
<b>D</b>	6 months

For A and B grade audit results, the interval will revert to within 12 months if there is a change in management or a significant change in farm systems. A significant change in farm systems is defined as: “a change in the farm system means whole farm operation conversions, including but not limited to, converting between dairy support, dairy platform, sheep & beef and cropping; and also any introduction of a new stock type to the farm, e.g. deer or wintering dairy cows. Changes such as, varying the type of crop grown or varying the relative proportions of stock types do not constitute a farm system change.”

Audit reports must be submitted to WIL within 14 days of completion.

Following the initial audit round finishing on 1 September 2017, the Scheme will select ¼ of ‘A’ grades and ½ of ‘B’ grades to begin the next round of audits. The selection of the properties each year until 2020 will be at the discretion of the Scheme and will form the basis of the audit rotation for the following years. This will ensure that all FEPs are reviewed at least twice before the expiry of consent CRC142754.

To determine the selection priority the following criteria may be considered:

- Ability of current infrastructure to meet targets
- Costs and time required to meet GMP
- Staff turnover and training
- Robustness of current management systems
- Current nutrient losses
- Areas of high environmental risk

#### 4.4 Independent Annual Review of the FEP Audit Process

An independent review of the FEP audit process will occur annually.

## 5.0 Post Audit Process

Following each audit the shareholder/land manager will receive an audit report culminating in a grade. This report will record progress against FEP actions. It can highlight areas where progress against identified actions has not been made and identify any new operational risks that were not



recorded in the original FEP or have developed over the preceding time. The audit report will set out any problems that must be acted upon within a specific timescale.

All audit reports and updated FEPs will be kept on file and made available to the shareholder/land manager. These must be retained by the shareholder/land manager and will be used as the basis of future inspections.

The FEP and Audit report will be assessed by the Scheme. Depending on the grade the following responses will occur.

### 5.1 Farms Achieving 'A' Grade

Shareholders/land managers whose farms that have achieved an 'A' grade will be recorded as making excellent progress toward, or have met, GMP.

Farms in this category will be scheduled for the next audit in four years following the audit, unless there has been a change in management or a significant change in farm systems, in which case the interval will revert to within 12 months.

### 5.2 Farms Achieving 'B' Grade

Shareholders whose farms have achieved a 'B' grade will be recorded as making good progress.

For those environmental management areas where there is medium level of confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The assessment on the above criteria will provide a second check and balance to the audit. The Scheme will provide a 'high' 'medium' or 'low' confidence rating that the subsequent audit grade will improve. No further action will be taken but the shareholder /land manager will be recorded as being 'on track', 'static' or 'deteriorating' to achieve the objectives in the FEP.

They will be scheduled for the next audit in two years, unless there has been a change in management or a significant change in farm systems, in which case the interval will revert to within 12 months.

### 5.3 Farms Achieving 'C' Grade

Shareholders whose farms have achieved a 'C' grade will be recorded as making some progress.

For those environmental management areas where there is moderate confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The assessment on the above criteria will provide a second check and balance to the audit. The Scheme will provide a 'high' 'medium' or 'low' confidence rating that the subsequent audit grade will improve.

The Scheme will work with or facilitate the shareholder/land manager to identify what improvements can be made toward meeting the objectives in the FEP. They will be required to formulate a management plan within 2 months of the audit with clear timelines and actions they will undertake to meet the FEP objectives and move the audit grade into a 'B' category.

They will be scheduled for a further farm inspection within 12 months.

#### 5.4 Farms Achieving 'D' Grade

A 'D' grade is unacceptable to the Scheme.

Shareholders whose farms have achieved a 'D' grade will be recorded as making poor progress.

All management areas which record a low confidence that the objective is being met will be highlighted as in need of urgent attention. Action will be required immediately to mitigate the risk.

For those environmental management areas where there is low confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The Scheme will work with or facilitate the shareholder/land manager to identify what improvements can be made toward meeting the objectives in the FEP. They will be required to formulate a management plan within 1 months of the audit with clear timelines and actions they will undertake to meet the FEP objectives and move the audit grade into a 'C' or 'B' category.

They will be scheduled for a further farm inspection within 6 months.

#### 5.5 Repeat 'C' and 'D' Grades

The Scheme wishes to see improvement to be able to meet GMP across all water users. If there are continuous underperforming shareholders/land managers then the following actions will occur.

Discuss and implement constructive options with the shareholders and farm manager to improve performance.

Impose additional charges to recover costs of extra audit management requirements and/or a penalty water charge.

Restrict water supply before other better performing shareholders face restrictions

Longer term water shut off

Terminate Water Supply Agreement

## 6.0 Exclusion from ASM Programme

If exclusion of any shareholder/land manager from the ASM programme occurs for whatever reason the Scheme will notify ECan within 20 working days from the date the exclusion took effect.

## 7.0 Non-cooperation or Non-compliance

Different levels can occur. The different levels need to be recognised with appropriate actions. The examples below do not provide an exhaustive list but gives an indication of the sort of non-cooperation or compliance that could occur and the possible sanctions.

Level	Example	Possible Action
<b>One</b>	Failing to provide information	Request for information
<b>Two</b>	Continued non-provision of information following request	Further request
	Nutrient budget not completed	Request completion
	Partial FEP deterioration within an audit interval	Request management plan to rectify
<b>Three</b>	Repeatedly abstracting more water than allowed	Restrict or cease water supply exclusion from program Terminate WS agreement
	Breach of water supply agreement	Restrict or cease water supply exclusion from program Terminate WS agreement
	Repeat C & D audit grades	Restrict or cease water supply exclusion from program Terminate WS agreement
	continued non-provision of nutrient budget	Restrict or cease water supply exclusion from program Terminate WS agreement

## 8.0 Methods to Assist Environmental Performance Improvements

The Scheme will adopt a pragmatic and supportive approach to enabling improvement. The majority of shareholders/and managers are willing and able to comply with the FEP and audits.

The Scheme and this ASM document place emphasis on improving environmental outcomes through greater resource use efficiency, with the aim of encouraging shareholders/land managers to engage with the Scheme not only for environmental reasons but also to improve the efficiency and economic performance of their businesses.

Being proactive and focusing on the on-farm activities which farmers can control will lead them to being empowered to improve. The compliance aspect will follow as a natural consequence of good practice. Setting up the expectations and making farmers aware of what they need to be doing, recording, working toward, is the first step. Providing information, using good communication to promote awareness of the need and providing accessible templates, guidance and information to enable improvement. Appendix B provides a list of the support being provided.

A successful compliance model is fair, reasonable, consistent and transparent in the process. Where it is appropriately implemented, shareholders/land managers are more likely to make the permanent changes required to consistently perform at a higher standard. There is a fall-back position of sanctions if needed but the preferred approach is to work proactively with shareholders and land managers sympathetically with their businesses.

The aggregation of data and actions needed from the FEPs will provide steer on what management actions need to have resources, support and training developed or sourced to improve the issue.

The Scheme has made ongoing provision and has contracted an environmental manager to manage the delivery of the ASM and the FEP programme. This direct and dedicated contact point has not been available in the past.

## 9.0 Reporting

WIL will prepare an annual report describing the performance of the Scheme in meeting its environmental targets and objectives.

The report shall include:

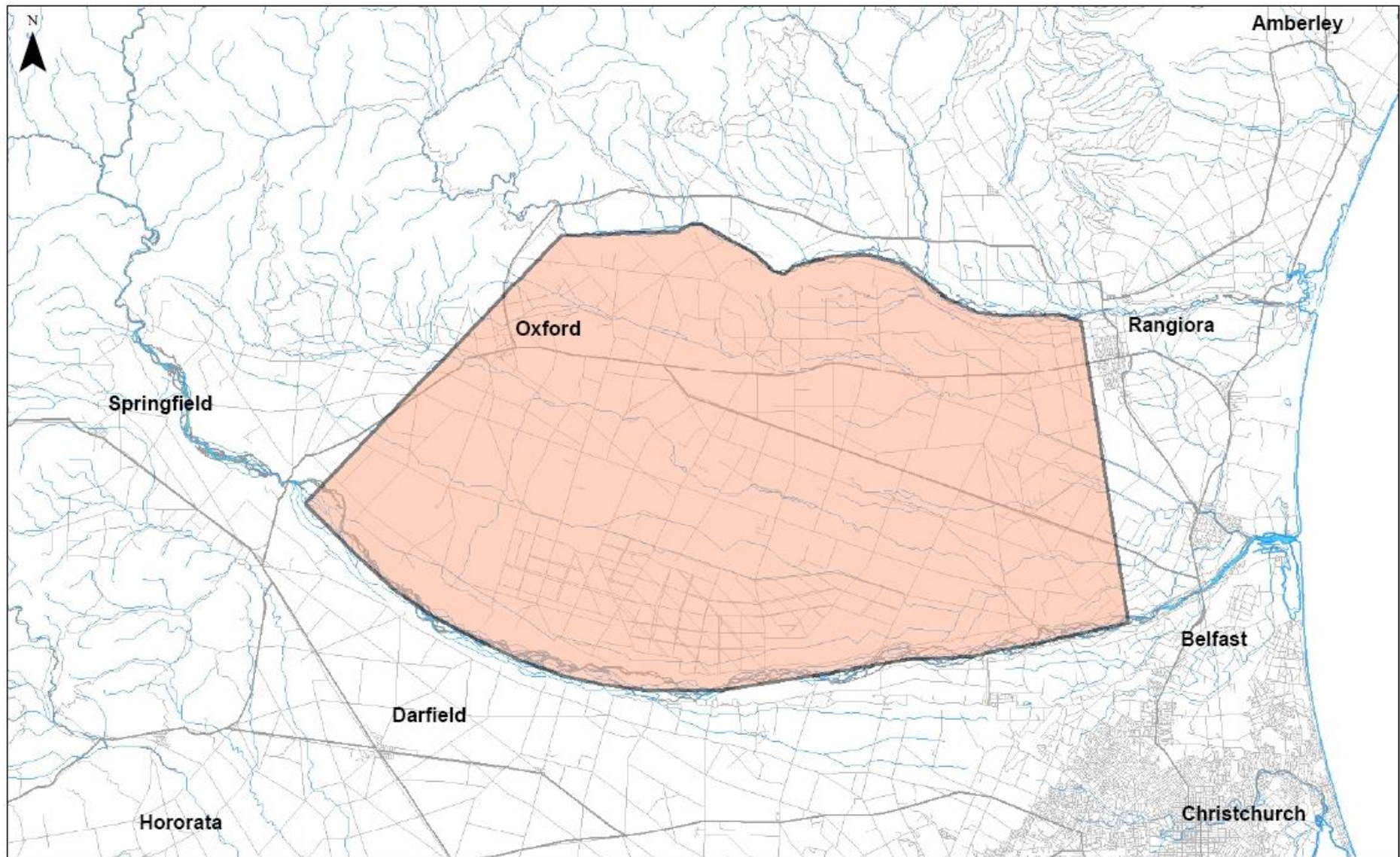
- i. The name of the FEP auditor(s);
- ii. A summary of the audit performance grading;
- iii. A summary of the reasons for any farm receiving a C or D grade;
- iv. A summary of the actions taken to address C or D grades;
- v. A summary of farms that repeatedly received a C or D grade;
- vi. The progress achieved for previously identified issues, if applicable;
- vii. The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.
- viii. The annual average nitrogen loss to water for each property listed in Schedule CRC142754A and Schedule CRC142754B, as calculated in accordance with Appendix CRC142754;

This report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by the 30 November each year.

## 10.0 Changes to this ASM Document

Any significant changes to this ASM document shall only be implemented after approval confirmed in writing by the Canterbury Regional Council.

## Appendix A: Figures



**Figure 1: Waimakariri Irrigation Scheme**



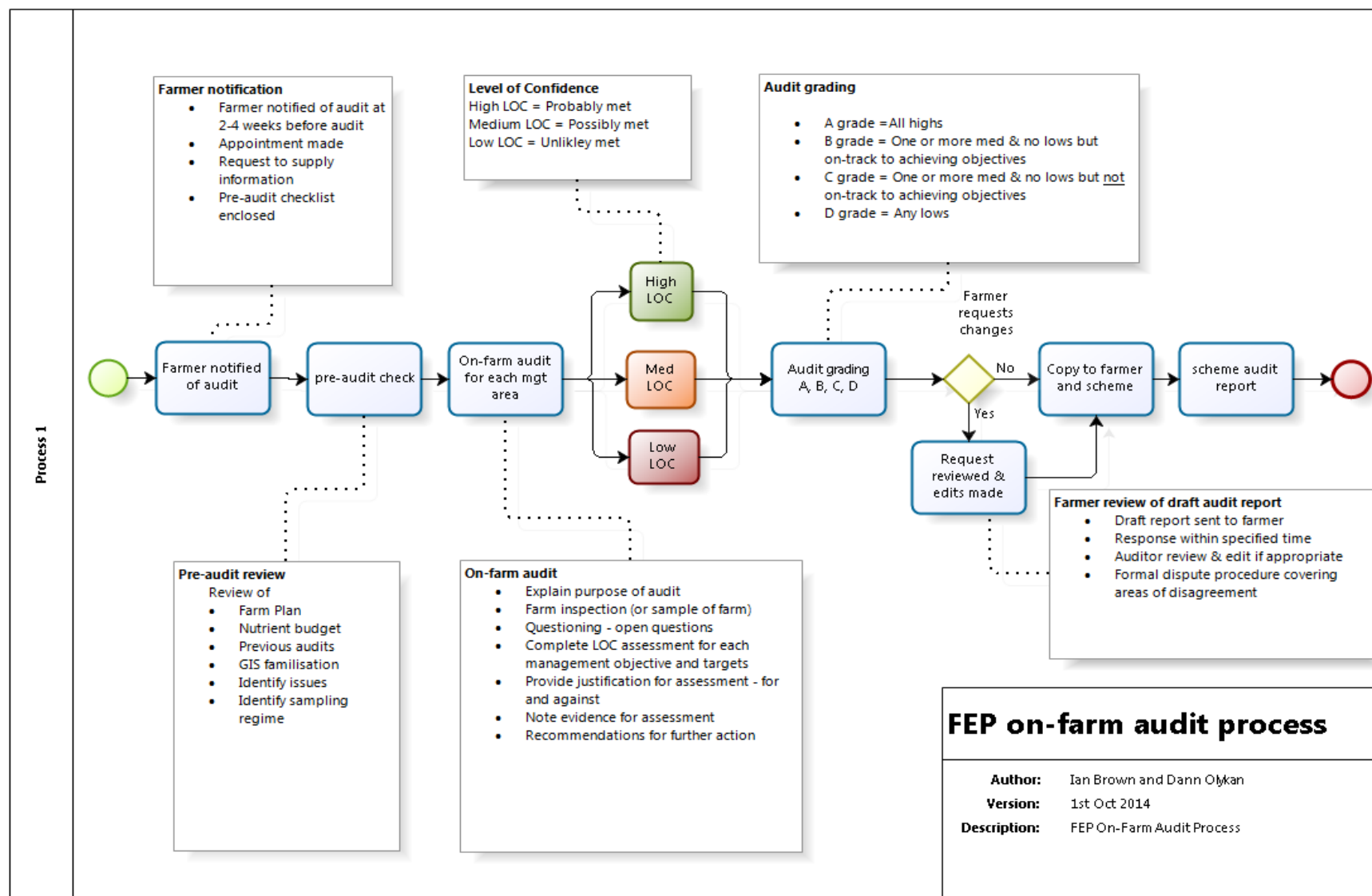


Figure 2: FEP on-farm audit process



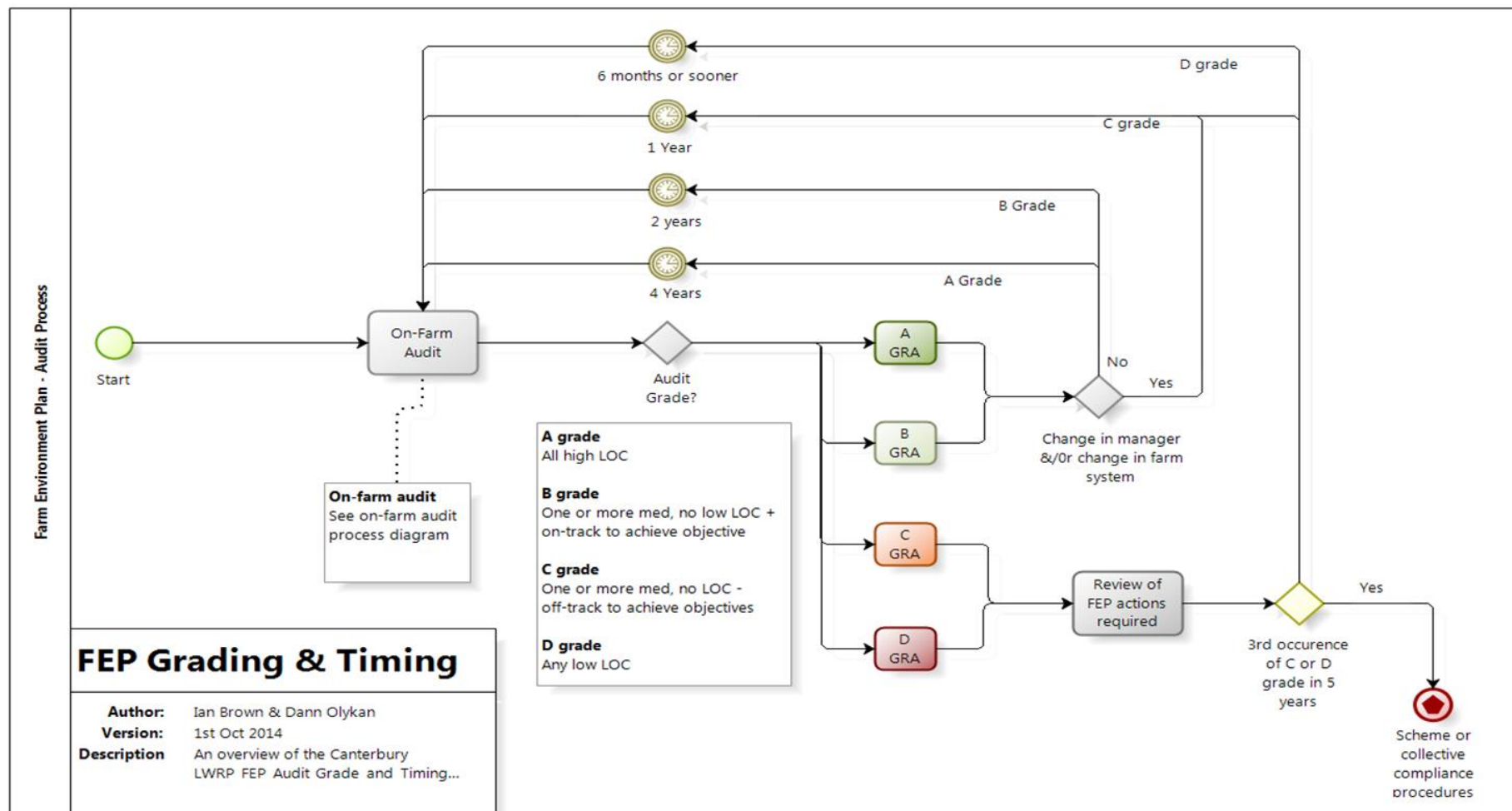


Figure 3: FEP grading and timing

## Appendix B: Support for WIL Shareholders

### Systems

- Simple online systems
- Provide user-friendly and useful templates
- Provide checklists and record sheets

### Support

- Collate and make available useful information, especially from other industry bodies
- Simplifying and communicating GMP
- Be available for one on one advice
- Translate requirements into actions

### Facilitation

- Facilitate learning through sharing information with others, such as farm focus days
- Enable sharing of research
- Work with other industry bodies to be consistent

### Research

- Communicate latest research to interested Shareholders
- Invest and support research initiatives

### Communicating Success

- Celebrate success
- Communicate progress and meeting of milestones

## Appendix C

### Nitrogen Loss Tables

**Table C1: Annual Nitrogen Losses for the Period  
1 August 2016 - 31 July 2017**

Property number	Nutrient Allocation Zone Mass Nitrogen Loss (kg/yr)		
	Ashley-Waimakariri	Ashley	Waimakariri
1	3,020	0	0
2	26,637	0	0
3	4,800	0	0
4	4,389	0	0
5	82,560	0	0
6	14,030	0	0
7	117,183	0	0
8	49,423	0	0
9	118	0	0
10	2,361	0	0
11	208	0	0
12	596	0	0
13	21	0	0
14	191	0	0
15	7,390	0	0
16	23	0	0
17	8,683	0	0
18	5,493	0	0
19	99	0	0
20	62,666	0	0
21	23,813	181	0
22	24,611	188	0
23	17,292	132	0
24	30,142	0	0
25	5,664	0	0
26	24,598	0	0
27	25,717	0	0
28	17,710	0	0
29	10,418	0	0
30	1,349	0	0
31	1,269	0	0
32	12,425	0	0
33	0	12,238	0
34	0	17,156	0
35	0	27,494	0
36	15,649	0	0
37	34,680	0	0
38	6,475	0	0
39	27,941	17,102	0
40	3,266	3,694	0
41	45,462	0	0

42	2,707	6,299	0
43	921	2,143	0
44	448	0	0
45	4,021	0	0
46	21,813	0	0
47	59	0	0
48	85	0	0
49	30,232	0	0
50	1,984	919	0
51	830	0	0
52	7,524	0	0
53	4,904	235	0
54	4,519	0	0
55	2,997	0	0
56	4,987	0	0
57	59,133	0	64
58	35,929	0	0
59	11,722	0	0
60	33,977	0	0
61	8,349	0	0
62	24,164	0	0
63	15,076	0	0
64	1,148	0	0
65	220	0	0
66	299	299	0
67	7,316	0	0
68	2,105	0	0
69	1,294	0	0
70	3,054	0	0
71	219	0	0
72	90	0	0
73	13,155	0	0
74	25,275	0	0
75	957	0	0
76	61,706	0	0
77	181	0	0
78	159	0	0
79	160	0	0
80	5,384	0	0
81	188	0	0
82	4,013	0	0
83	16,701	0	0
84	1,496	0	0
85	36,220	0	245
86	823	0	0
87	5,380	0	0
88	3,224	0	0
89	17,021	0	0
90	5,775	0	0
91	3,228	0	0

92	49,804	24,597	0
93	472	0	0
94	34,295	0	0
95	2,600	0	0
96	3,929	0	0
97	18,792	0	0
98	2,613	0	0
99	172	0	0
100	43	0	0
101	19,931	0	0
102	218	0	0
103	16,471	4	0
104	2,432	0	0
105	24,170	0	0
106	31,320	0	0
107	26,163	0	0
108	43,708	0	0
109	65,866	0	0
110	90	0	0
111	102	0	0
112	590	0	0
113	9,411	0	0
114	11,168	0	0
115	2,165	0	0
116	29,250	0	0
117	21,027	0	0
118	30,271	0	0
119	460	0	0
120	1,109	0	0
121	0	269	0
122	0	5,144	0
123	118	0	0
124	118	0	0
125	1,445	4	0
126	7,865	20	0
127	3,447	9	0
128	33,672	0	0
129	50,619	0	0
130	16,809	0	0
131	23,931	0	0
132	0	3,764	0
133	33,347	0	50
134	123,070	0	0
135	800	0	0
136	1,137	0	0
137	64	0	0
138	4,585	0	0
139	107	0	0
140	142	0	0
141	106	0	0

142	14,108	0	6,976
143	524	1,111	0
144	5,712	0	0
145	4,860	0	0
146	8,201	0	0
147	2,400	0	0
148	55,007	0	0
149	1,511	0	0
150	6,959	0	0
151	601	0	0
152	9,990	0	0
153	123	0	0
154	1,173	0	0
155	91	0	0
156	1,080	0	0
157	112	0	0
158	1,035	0	0
159	4,872	0	0
160	5,548	0	0
161	27,948	0	0
162	32,400	0	0
163	6,080	0	0
164	22,379	0	0
165	0	1,628	0
166	23,520	0	0
167	350	0	0
168	31,840	0	0
169	2,415	0	0
170	974	0	0
171	3,519	0	0
172	787	0	0
173	6,566	0	0
174	2,086	0	0
175	7,724	10,115	0
176	24,804	0	0
177	148	0	0
178	1,062	0	0
179	26,393	0	0
180	2,080	0	0
181	7,993	0	0
182	2,597	0	0
183	870	0	0
184	5,000	0	0
185	48,635	0	0
186	669	121	0
187	207	0	0
188	90	0	0
189	56,730	0	0
190	132	0	0
191	3,790	0	0

192	2	0	0
193	13,532	6,960	0
194	15,135	7,784	0
195	0	17,405	0
196	90	0	0
197	135	0	0
198	12,361	1,622	0
199	3,275	430	0
200	12,945	0	0
201	90	0	0
202	414	0	0
203	2,073	0	0
204	5,214	0	0
205	125	0	0
206	8,222	1,279	0
<b>Total</b>	<b>2,508,873</b>	<b>170,342</b>	<b>7,335</b>