Irrigation Scheme
Management Plan and
Environmental Management
Strategy:

*Delivering an Improved Environment Through Greater Resource Use Efficiency*

December 2018
Table of Contents

1.0 Introduction and Summary

2.0 Description of the Amuri Irrigation Scheme
   2.1 Balmoral Irrigation Scheme
   2.2 Waiau Irrigation Scheme
   2.3 Waiareka Downs Irrigation Scheme
   2.4 Scheme Developments and Piping Upgrade

3.0 An Environmental Management Strategy

4.0 The Management and Operation of the EMS
   4.1 Membership
   4.2 Governance and Management
   4.3 Programme and Management Areas
   4.4 Outcomes Sought
   4.5 Mechanisms to meet Objectives

5.0 Farm Environment Plans
   5.1 Introduction
   5.2 FEP: Goals and Objectives
   5.3 Requirements for Individual FEPs and FEP Objectives, Outcomes and Targets
   5.4 Updating of FEPs

6.0 Auditing: Measurement, Evaluation and Reporting
   6.1 Introduction
   6.2 Nutrient Budgets
   6.3 Nutrient Management and Nutrient Losses
   6.4 Evaluation and Grading
   6.5 Non-Compliance Process
   6.6 Auditing Charging Policy
   6.7 Communications
   6.8 Independent Expert Scrutiny
   6.9 Reporting
   6.10 Collective Management Performance Monitoring

7.0 Training and Development

Appendix 1: HWRRP Schedule 2
Appendix 2: Schedule of Landowners and Land Use
Appendix 3: Property Boundaries
Appendix 4: Environmental Subcommittee Terms of Reference
Appendix 5: GMP Development Strategy
Appendix 6: Systems Audit Protocol
Appendix 7: Non-Compliance Process Flow Diagram
Appendix 8: Relevant Documents and Policies
Appendix 9: Inventory of current N loss
Appendix 10: Auditor Health and Safety
Appendix 11: Biosecurity Policy
Appendix 12: Checklist of relevant documents and evidence required for the auditing
1.0 Introduction and Summary

This Irrigation Scheme Management Plan (ISMP) has been developed by Amuri Irrigation Company Ltd. (AIC) in accordance with Schedule 2 of the Hurunui and Waiau River Regional Plan (HWRRP), which became operative on 20 December 2013. The scope of this document is limited to the requirements set out in Schedule 2 and the requirements of AIC’s Resource Consent CRC153154. It should not be read as an overarching environmental policy for the management of AIC’s irrigation schemes.

AIC consulted with the Hurunui and Waiau Zone Committee (Zone Committee), various industry organisations, land managers within the catchment area, and Environment Canterbury (ECan) in the preparation of the original Plan. Interim ECan approval was received in October 2014 and full approval in July 2015.

Since interim approval of the original ISMP, several significant developments, including, the:

- Publication of the Industry-agreed Good Management Practices relating to water quality in April 2015;
- Publication of the Canterbury Certified Farm Environment Plan Auditor Manual in January 2016;
- Granting of CRC153154 (AIC Nutrient Load Consent) in August 2015; and
- Findings and recommendations of the first independent audit of AIC’s EMS in November 2016.

These developments necessitated a full review and revision of the ISMP in the spring of 2016.

This revised draft was presented to the Zone Committee in December 2016 for comment before being submitted to ECan and was approved shortly afterwards.

This current third iteration has been prepared following:

- The second and third findings and recommendations of the first Independent audit of AIC’s EMS in November 2017 and November 2018;
- Revision of the ECan Canterbury Certified FEP Auditor Manual (November 2018); and
- Changes in the membership of the Collective.

This third version of the ISMP was submitted to ECan in December 2018 and approved shortly after.

As an established community-based land user group, recognised as such by the Zone Committee, AIC understands it has a responsibility to help take forward several key recommendations set out in the Zone Implementation Plan (ZIP) and the HWRRP. In preparing this Plan AIC has been particularly aware of the following ZIP recommendations:
• The water quality of the Hurunui River at SH1 should be at or about the same or better standard than at present;
• Current land users will need to improve nutrient management to allow new irrigation development to occur;
• New irrigation development must have good nutrient management; and
• Implementation of a sustainable best practice audited self-management programme, particularly for water quality, led by community/land user land care groups and industry is essential.

AIC fully supports the Zone Committee’s recognition that the future social and economic prosperity of the zone is largely dependent on the utilisation of its water resources for agricultural and horticultural development through the expansion of irrigation, and tourism activities. AIC also shares the Zone Committee’s vision that this can be achieved while maintaining, but striving to enhance, environmental outcomes to achieve a “net gain” for water resources and associated ecosystems as well as preserving cultural and recreational values.

AIC has also drawn on the experience it has gained from its previous involvement with projects to improve the quality of the environment including the ECaA sponsored Land Use and Water Quality (LUWQ) pilot project and the Pahau River Enhancement Project. Both initiatives provide practical examples of where Amuri farmers have demonstrated a willingness to improve the environmental quality of the area in which they live and work.

This plan has been developed using the principles of Audited Self-Management (ASM) to contribute to the delivery of the outcomes for water quality and land use set out in the ZIP and the HWRRP.

In developing this ISMP AIC has:

• Set out an Environmental Management Strategy (EMS) that establishes the protocols, policies and procedures that will be followed in implementation of an Environmental Collective and a programme of measures to help improve the management and use of resources and contribute to the protection of water in rivers and tributaries within the Hurunui and Waiau Zone;
• Established a system of governance and EMS management that is largely independent of the AIC Board, transparent in its operation and established on the principles of ASM;
• Prepared Farm Environment Plans (FEPs) for all farms that are members of the AIC Environmental Collective;
• Opened membership of the ISMP to land managers that are not AIC shareholders and prepared a non-shareholder membership agreement;
• Defined four Management Areas that reflect the land uses and associated environmental risks of the ISMP’s Programme Area;
• Set out a system of FEP Auditing for measuring and monitoring progress towards GMP; and
• Put in place an EMS auditing process to ensure the processes and practices for managing and implementing the EMS are subject to independent expert scrutiny.

The overarching principle adopted in the development of this Plan is the delivery of an improved environment through more efficient use of resources. Our vision for the future is optimistic and forward looking, with a commitment to modern productive agriculture that
seeks continuous improvement in its economic productivity, efficient use of natural resources with a high standard of environmental care and to remain a major contributor to the prosperity of the area.

2.0 **Description of the Amuri Irrigation Scheme**

AIC owns and operates three irrigation schemes within the Hurunui-Waiau catchments. The company abstracts water from the Hurunui River below the Mandamus confluence, the Waiau River at Mouse Point and from two Hurunui tributaries (Lowry Drain and St Leonards Drain).

As an irrigation scheme operator AIC is also committed to the sustainable use of water with regards its abstraction, reticulation and use for irrigation. This commitment is reflected in AIC’s mission statement: **To be a progressive irrigation company, efficiently and sustainably supplying reliable water, while protecting and enhancing shareholder assets.**

In this regard AIC will undertake other areas of work that contribute to the environmental and resource use objectives of this ISMP, which currently include but are not limited to:

- Implement systems and processes to track the scheme’s environmental performance and act on complaints and incidents;
- Water quality sampling programme to supplement ECAn’s existing programme;
- Nutrient modelling to identify current and future nitrogen loss; and
- Water delivery optimisation, including piping of the scheme.

2.1 **Balmoral Irrigation Scheme**

The Balmoral Irrigation Scheme is located within the Hurunui River catchment between the Pahau and Hurunui Rivers and has been operating since 1985. Most the water for this scheme is taken from the Hurunui River downstream of the Mandamus River confluence. The Pahau River and Dry Stream sub-catchments also lie within the scheme area. Soil type, soil moisture and drainage properties vary considerably across the scheme area.

Current land uses within the scheme area are predominantly irrigated dairy platform and dairy support.

AIC has consent to abstract a maximum of 5,258 l/s from the Hurunui River.

2.2 **Waiau Irrigation Scheme**

The Waiau Irrigation Scheme is located on the Amuri Plains within both the Hurunui and Waiau River catchments. The Pahau River, Dry Stream, St Leonards and Lowry Peaks Drain sub-catchments also lie within the scheme area. Soil type, soil moisture and drainage properties vary considerably across the scheme area, with deeper soils in the north-western section of the plains.

Existing land use within the Waiau Irrigation Scheme is predominantly dairy and dairy support, with a small area of beef and cropping.
The scheme has been operating since 1980. The scheme takes up to 12,477 l/s from the Waiau River, Lowry Drain and St Leonards Drain.

### 2.3 Waiareka Downs Irrigation Scheme

The Waiareka Downs Irrigation Scheme is located on the north side of the Waiau River just downstream of the Waiau township and lies within the Waiau River catchment. The Stanton and Bourne Stream sub-catchments also lie within the scheme area. The scheme area typically has well drained, shallow soils with a low to moderate soil moisture availability, with deeper soils in the north-western section of the scheme area.

Water is taken from the Waiau River at a maximum rate of 450 l/s under resource consent CRC951296-98. These consents expire on 25 March 2033.

### 2.4 Scheme Developments and Piping Upgrade

In 2016 AIC shareholders voted for a major upgrade of the three AIC schemes to replace the majority of the open race network with a piped network. A piped network allows AIC to fully utilise its water rights assets to expand the area of land irrigated and improve the efficiency of water both on and off the farm. Utilising allocated water at a high level of efficiency is beneficial to both the regional and national economy and is consistent with the Canterbury Water Management Strategy and the HWRRP.

In environmental terms the piping of the scheme will deliver:

- more efficient water use and less system leakage and bywash;
- capacity to irrigate more land;
- bring forward the conversion of border dyke to inherently more efficient spray irrigation;
- reduction in the cost of future storage to maintain reliability once higher minimum flows are introduced through economies of scale; and
- a pressurised system which will result in significantly reduced on farm energy usage and provide the potential for future electricity generation.

### 3.0 An Environmental Management Strategy (EMS)

This EMS provides for:

- The requirements of AIC’s Resource Consent CRC153154 with regards conditions 6, 7 and 8 relating to the preparation of an ISMP, FEP Audits and associated reporting to ECan for AIC shareholding members;
- The continued operation of farms as a permitted activity subject to Rule 10.1 of the Hurunui and Waiau Rivers Regional Plan (HWRRP) under the governance of the AIC Environmental Collective and associated reporting to ECan for non-shareholding members; and
• A framework by which farms with individual resource consents with FEP and FEP Auditing consent conditions can meet those conditions through membership of an ECan approved Environmental Collective, as defined under the HWRRP.

This EMS sets out, in accordance with Schedule 2 of the HWRRP, the protocols and procedures that will be followed in the development, implementation and maintenance of this ISMP. The various sections that are required to complete the EMS can be divided into issues relating to:

• **The Management and Operation of the EMS**, including: farms subject to AIC’s EMS, governance arrangements, contractual arrangements, a description of Programme and Management areas and a statement of outcomes sought;

• **The Design and Delivery of Farm Environment Plans (FEP)**, including: the requirements for FEPs, inventory of nitrogen loss, specified management objectives and assessment of nutrient management risks for each property; and

• **The Audit Process**, including: measurement, compliance monitoring, independent expert scrutiny and reporting.

The various documents and policies that relate to the preparation of this EMS and its implementation are summarised at Appendix 8.

### 4.0 The Management and Operation of the EMS

#### 4.1 Membership

The group of individual land managers that agree to, and sign up to, the terms and requirements of this ISMP will be known as the AIC Environmental Collective (the Collective). Membership for AIC shareholders will be a requirement of an AIC water use agreement, as required by CRC153154. Non-AIC shareholders may voluntarily join the Collective to meet their obligations under Rule 10.1(a) of the HWRRP or to meet any individual consent conditions relating membership of an Environmental Collective, FEPs and FEP Auditing. Conditions of Collective membership will be the same for all members, regardless of their status with AIC.

A formal contract for membership of the Collective for non-shareholders (*Membership Agreement for Independent Members*) has been prepared by Anderson Lloyd Solicitors, June 2016.

Membership for non-AIC shareholders is subject to approval by AIC’s Environmental Subcommittee.

#### 4.2 Governance and Management of the EMS

In developing this ISMP AIC has separated the overall ownership of the ISMP, which will remain with AIC, and the management and responsibility for the delivery of the EMS, which will be delegated to an Environmental Subcommittee that operates largely independently of the AIC Board.

The Environmental Subcommittee will have responsibility for the:

• Implementation and management of the EMS;
• Management and resolution of compliance issues relating to FEPs; and
• Reporting of outcomes to ECan, Zone Committee, AIC Board and the wider community.

The Terms of Reference (ToR) for the Environmental Subcommittee is attached at Appendix 4. The ToR and the operation of the Environmental Subcommittee will be reviewed annually to determine if it is operating as expected and to review the roles and need for any training requirements for the members and/or chairman.

The membership of the Subcommittee is made up of farmers in the Collective who can represent the various farming sector interests. It will be focused on the practical on-farm implementation of the EMS and FEPs. The Subcommittee has a remit to ensure that the management of the EMS and the measurement, evaluation, reporting and auditing is transparent and fully reported to the Zone Committee, ECan and other stakeholders.

AIC’s Environmental Manager has responsibility to develop and implement this ISMP, EMS and FEPs and will act as Principal Advisor to the Environmental Subcommittee. The Environmental Manager will prepare agendas, papers and reports for meetings and be responsible for minutes and acting on the Sub-committee’s decisions. The Environmental Manager reports to AIC’s General Manager who will annually appraise performance against their job description and determine the need or any training and/or professional development.

AIC has commissioned and will maintain a Geographical Information System (GIS) and a data management system for data recording, monitoring and auditing that are wholly owned, maintained and updated by AIC.

AIC, through its officers and Board of Directors, has taken the lead in developing this ISMP, and retains ownership of the intellectual property, data and information associated with it. The AIC Board will also have responsibility for any changes to this plan, the delegation of financial and staff resources required to deliver it and the responsibility for the employment of the Environmental Manager. It is proposed that this ISMP will be fully reviewed at not more than five yearly intervals following approval by ECan. The plan review will be undertaken by the Environmental Sub-committee who will make recommendations on any changes to the AIC Board for approval.
Fig 1 Management Process Flowchart

**AIC ISMP: PROCESS MANAGEMENT**

**AIC BOARD/SHAREHOLDERS:**
- ISMP
  - AIC retains ownership of ISMP and associated intellectual property and employs Environmental Project Manager. Board responsible for any change to the ISMP

**ENVIRONMENTAL MANAGER**
- Reports to AIC CEO and provides advice and guidance to Board and Environmental Sub-Committee.
- Responsible for management of the EMS and annual audit process.

**ENVIRONMENTAL SUBCOMMITTEE:**
- ENVIRONMENTAL MANAGEMENT STRATEGY
  - Environmental Sub-committee responsible for the implementation of the EMS, FEP compliance and operational decisions. Appointed AIC and independent farmer members.

**INDEPENDENT EXPERT SCRUTINY**
- Audits the EMS process and prepares an independent report to be included in the annual summary report.

**INDEPENDENT IRRIGATORS**
- **DRYLAND FARMERS**

**INDIVIDUAL FARM ENVIRONMENT PLANS**
- Plans prepared by farm consultant using Ecan/AIC approved template

**FARM CONSULTANT**

**ANNUAL AUDIT**
- Annual auditing process reviews progress and FEP actions and grades farms A to D. Audit independent of farm consultant.

**REPORTING**
- Annual summary report prepared according to Ecan template signed off by Environmental Sub-committee and submitted to Zone committee and Ecan and made publicly available

**ZONE COMMITTEE**
- **ECan**
- **STAKEHOLDERS**

Amuri Irrigation Company Limited
4.3 Programme and Management Areas

The total area of land under the governance of this ISMP is defined as the Programme Area. This includes all the land, irrigated or non-irrigated, on holdings where the members of the Collective have shares in AIC or that is covered by an independent agreement. This means that the character of the land that makes up the Programme Area is very diverse in terms of its land use, topography, intensity of use and the nature and level of environmental risk. It also means that the most appropriate response to any environmental risk may differ across character areas.

For these reasons the Programme Area has been divided into four Management Areas that share characteristic land uses that present different sets of environmental risks and different options and approaches to managing those risks.

The four distinct Management Areas that together make up the overall Programme Area and which pose a distinct set of environmental risks are:

**MA 1. Flat spray irrigated land:**
- Predominantly dairy and dairy support with smaller areas of sheep, beef and cropping;
- Generally, highly modified natural environments with few areas of remaining native vegetation or habitats, but with some opportunities for habitat restoration particularly along fenced waterways;
- High stocking densities and frequent animal movements pose risk of soil damage through compaction and pugging and erosion leading to run off risks, particularly when located near to waterways;
- Collected animal effluent requiring adequate storage and efficient disposal systems; and
- Relatively intensive farming systems, with risk of nutrient loss to groundwater, particularly on lighter soils.

**MA 2. Borderdyke irrigated land**¹:
- A mixture of dairy, dairy support and beef and sheep farming;
- Generally, highly modified natural environments with few areas of remaining native vegetation or habitats, but with some opportunities for habitat restoration particularly along fenced waterways;
- Relatively high risk of nutrient loss, particularly phosphorous transferred via wipe-off water particularly where land use is intensive and stocking densities are high;
- Relatively inefficient water use compared to spray irrigation and high costs involved with system upgrades to improve efficiencies of water use;
- Under more extensive land uses risks from animal effluent and nitrogen loss will be likely be lower, compared to intensive scenarios; and

---

¹ The decision to pipe the irrigation scheme will accelerate the conversion of borderdyke to spray irrigation. It is anticipated that by the 2019 season there will be very little borderdyke irrigated land remaining in the scheme.
• Lower stocking densities and less frequent animal movements will present lower risk to soil damage and erosion, although areas with frequent animal movements will present some risk.

MA 3. **Extensively managed hills and downs:**

• Traditionally managed high country dryland beef, sheep and deer farming on rolling downs to steeper slopes with relatively low intensity of land use and lower stocking densities;

• Typically, lower levels of nutrient applications, particularly nitrogen, and no stored effluent;

• Some areas with heavy poorly drained soils and frequent waterways and gullies with risk of erosion and soil and nutrient loss, particularly phosphorus;

• Pockets of remaining native vegetation, particularly in gullies, and areas of wetlands at risk of loss or degradation unless protected and managed appropriately;

• Topography, higher rainfall and heavy soils combine to create hot spots from runoff, erosion, damage to stream banks and sedimentation and associated loss of phosphorous to waterways; and

• Potential for native vegetation in gullies and wetlands to be incorporated into buffer areas to trap sediment and nutrients.

MA 4. **Intensively managed hills and downs:**

• Rolling downs and some steeper slopes under more intensive management and higher stocking densities including overwintering of livestock;

• Higher levels of nutrient use and cropping compared to more traditional systems with consequent higher risks of nutrient loss and erosion and loss of soil to waterways;

• Areas of heavy, poorly drained soils and frequent waterways and gullies with pockets of remaining native vegetation;

• Under more intensive land uses, particularly dairy support (with corresponding higher stocking densities of heavier animals, particularly during the wetter winter months and the greater use of cropping on rolling country for winter feed) there is high risk of soil damage, erosion, nutrient losses from runoff and the loss or damage to remaining wetlands and habitats; and

• Achieving irrigation application efficiency targets and avoiding run-off on rolling country will be more difficult than on flat land.

4.4 **Outcomes Sought**

The strategic environmental, economic and social outcomes that are sought from this ISMP are:

• The reduction of nitrogen and phosphorous loads in tributary streams;

• The more efficient use of resources including water, nutrients and soils through improved farm management practices;

• The protection of ecologically important wetlands and areas of native vegetation and habitats;

• Well trained and motivated farm staff and managers who have the skills and understanding to deliver environmentally sustainable and socially acceptable farming practices; and
- The maintenance and enhancement of economically sustainable farming in the Hurunui and Waiau catchments, which underpins the wider economic and social well-being of the area.

At a farm level, the primary means of achieving these outcomes will be through actions that help farms achieve, at a minimum, Good Management Practice (GMP) across all management areas.

GMP is informed by the Industry-agreed Good Management Practices relating to water quality, published by the Canterbury Matrix of Good Management Project, 9 April 2015. The interpretation of GMP requirements for each management area, the objective on farm and the outcome sought are set out in section 5.3 and Table 3 below.

### 4.5 Mechanisms used to meet objectives

The Zone Committee recommended a system of ASM for land and water management to help meet the communities’ water quality objectives for the Hurunui and Waiau catchment. The Committee believed this approach offers much greater flexibility to achieve agreed outcomes than a system of individual resource consents and compliance monitoring. However, at the same time all parties need to recognise the limitations of community groups, including AIC, in delivering ASM programmes. In particular:

- Financial resources;
- The availability of staff resources and diversity of skills within the organisation; and
- The inability to enforce resource use consents or any regional or district council plan rules.

Overcoming these constraints will require AIC to work in partnership with other groups including ECan, industry bodies and other community organisations in delivering its ASM programme. Effective partnership working involves establishing shared objectives and building trust between organisations. In this regard, the implementation of an ASM programme is a process or journey where partners move forward together to build understanding and capacity to achieve shared outcomes, rather than imposing a set of rules or requirements to an inflexible timetable.

The primary mechanism that AIC will use to achieve the outcomes set out in this ISMP will be a system of individual Farm Environment Plans (FEPs) to evaluate and record each farm’s environmental performance, agreeing actions for further improvement and an auditing system to measure progress, reward good behaviour and focus compliance on poor performance and highest risk.

Ultimately, any member of the Collective could have their membership of the scheme withdrawn for persistent failure to make satisfactory progress in meeting the requirements of their FEPs (see section 6.3 below). This option would only be used as a last resort and should not be a mechanism for achieving the scheme’s objectives.
5.0 **Farm Environment Plans**

5.1 **Introduction**

Farm Environment Plans (FEPs) are the principle tool for the delivery of the objectives sought from this ISMP.

A FEP is a tool for farmers to:

- Recognise key on-farm environmental risks that relate to water quality and can influence biodiversity and cultural values; and
- Set out a programme to manage those risks through the implementation of Good Management Practice (GMP).

An appropriate FEP that addresses the environmental risks, objectives and targets set out in Table 3 below, must be prepared for any farm subject to this ISMP within six months of joining the AIC Environmental Collective. An appropriate FEP must be prepared using either:

- The AIC FEP Template, approved by ECan, as meeting the criteria set down in Schedule 2 of the HWRRP and Schedule 7 of the Land and Water Regional Plan (LWRP); or
- For Fonterra suppliers, the Fonterra FEP template as approved by ECan as meeting the criteria set down in Schedule 2 of the HWRRP and Schedule 7 of the LWRP.

FEPs will be audited as set out in section 6.0 below, and following each audit the member will receive an audit report. This will:

- Record progress against FEP actions;
- Highlight areas where inadequate progress against identified actions has been made; and
- Identify any new operational risks that were not recorded in the original FEP or have developed because of farm management changes. The audit report will set out any problems that must be acted upon within a specific timescale.

5.2 **FEP Goals and Objectives**

Each FEP will include up to five different farm management areas, as required by Schedule 2 of the Hurunui and Waiau River Regional Plan and appropriate to the individual farm. In addition, a further category of risk to identify point source environmental risks, such as offal and farm rubbish pits has also been added. The six farm management areas are:

- Irrigation management;
- Soils management;
- Nutrient management;
• Waterway, native vegetation and riparian management;
• Collected animal effluent management; and
• Environmental hotspots (point source risks).

All members of the Collective are required to be at, or making progress towards, Good Management Practice (GMP)\(^2\), or are on track to achieve GMP, for each Management Area.

### 5.3 Requirements for GMP and FEP Objectives, Outcomes and Targets

The interpretation of GMP requirements for each management area, the objective on farm and the outcomes sought are set out in Table 3 below.

The purpose of the table is to translate the high-level requirements for GMP set out in the industry agreed *Good Management Practices relating to water quality*, into a set of clear farm-level targets. These targets can then be used to help develop any FEP actions required to move a particular farm towards meeting GMP and guide the FEP Auditing process to evaluate a farm's performance in relation to GMP.

The table also defines the practical on-farm outcomes that are expected if the GMP requirements are met and notes any specific environmental risk or outcome relating to each of the four Management Areas (MAs) defined in section 4.3 above.

### 5.4 Updating of FEPs

FEPs will be updated if there has been a significant change to farming systems or farm management. The need to require a revision to a FEP will be monitored in various ways, including:

• Changes in AIC's share register;
• Changes in Farm System data identified from Fonterra Nitrogen Reporting Pages;
• FEP Audits;
• Applications from AIC shareholders for Farm System Change as part of AIC’s Nutrient Management Policy that may increase nitrogen losses to water;
• Identification of changes to Resource Consents, or applications to ECan for changes to Resource Consents; and
• Other farm visits, information gathering or local knowledge.

\(^2\) Paragraph 1(h.) of the HWRRP requires a statement of the industry agreed ‘*best nutrient management practice*’. However, since the adoption of the Plan, the industry agreed land management practices, have been defined as the Industry Agreed Good Management Practices (GMP) relating to water quality, published by the Canterbury Matrix of Good Management Project, 9 April 2015. There is no such equivalent standard relating to ‘*best nutrient management practice*’. Therefore, the agreed standard for GMP is adopted throughout this EMS.
This process will be completed annually following the conclusion of FEP Auditing and on an ad hoc basis through the year as changes in systems or management are reported or identified. FEPs will be revised and updated prior to any subsequent FEP Audit.
<table>
<thead>
<tr>
<th>Industry Agreed GMP</th>
<th>AIC EMS: Objectives, Outcomes and Targets</th>
<th>Commentary and Specific Management Area (MA) Risks or Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation GMP</td>
<td>Overall Objective</td>
<td>FEP / FEP Audit Targets</td>
</tr>
<tr>
<td>Manage the amount and timing of irrigation inputs to meet plant demands and minimise risks of leaching and runoff. Design, calibrate and operate irrigation systems to minimise the amount of water needed to meet production objectives. Maintain accurate and auditable records of annual farm inputs, outputs and management practices.</td>
<td>At least 80% application efficiency, meaning 80% of water delivered to the farm is stored in the crop root zone. Efficient use of irrigation water, reducing risks of leaching, ponding and surface run-off, to avoid losses of nutrients, sediment and faecal contamination to water.</td>
<td>MA1: While some operators with more sophisticated spray systems will be able to meet the target relatively easily others will need to undertake investment in new equipment which will need to be planned and budgeted for over a longer period. Achieving the 80% efficiency target for the scheme will therefore need to be achieved progressively. MA2: The scheme piping upgrade will greatly accelerate the conversion of the last remaining borderdyke to spray irrigation and it is expected that by 2019 the Hurunui and Waiau irrigation schemes operated by AIC will be all spray irrigation. MA4: Irrigation on sloping land is associated with potential run-off risks and this needs to be considered in FEPs. MA3: Not applicable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T1: New irrigation systems are designed and installed in accordance with industry best practice standards. T2: The farm’s irrigation system is capable of meeting the 80% target. T3: Irrigation systems are calibrated, maintained and operated to meet optimum performance for that particular system. T4: All irrigation applications (scheduling) are justified by objective monitoring of crop needs and/or soil moisture status. T5: Staff involved in the operation of irrigation systems are suitably trained, and keep accurate and auditable records.</td>
</tr>
<tr>
<td>Nutrients GMP</td>
<td>Overall Objective</td>
<td>Outcome on farm</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Manage the amount and timing of fertiliser inputs, taking account of all sources of nutrients, to match plant requirements and minimise risk of losses. Store and load fertiliser to minimise risk of spillage, leaching and loss into water bodies. Equipment for spreading fertilisers is well maintained and calibrated. Monitor soil phosphorous levels and maintain them at or below the agronomic optimum for the farm system. Maintain accurate and auditable records of annual farm inputs, outputs and practices.</td>
<td>Maximising the efficient use of nutrients, from all sources, for plant growth while minimising the losses of nitrogen and phosphorous to water.</td>
<td>Nutrient loss to waterways will be reduced. Industry benchmarks for nitrogen and phosphorous loss rates will be achieved or bettered.</td>
</tr>
<tr>
<td>Collected Animal Effluent GMP</td>
<td>Overall Objective</td>
<td>Outcome on farm</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Ensure effluent systems meet industry specific Code of Practice or equivalent standard. Have sufficient, suitable storage available to enable farm effluent and wastewater to be stored when soil conditions are unsuitable for application. Ensure equipment for spreading effluent and other organic manures is well maintained and calibrated. Apply effluent to pasture and crops at depths, rates and times to match plant requirements and minimise risk to waterbodies. Maintain accurate and auditable records.</td>
<td>The management and optimum use of effluent for productive benefits while avoiding, remedying or mitigating the contamination of ground and surface waters with faecal matter, nitrogen and phosphorous. Resource consent conditions met. Nutrient loss to waterways minimised. Effluent storage capacity meets industry standards and / or practices are in place to manage risk of insufficient storage capacity. Effluent and other organic manures are spread to land to make best use of their nutrient value for pasture and crop production.</td>
<td>T1: Effluent storage facilities and discharges comply with regional council rules and resource consent. T2: The timing and rate of land application of effluent and other organic manures is managed to minimise the risk of contamination of groundwater or surface water. T3: Sufficient and suitable storage is available to store effluent and wastewater when soil conditions are unsuitable for application or practices are in place to manage risks of insufficient storage capacity. T4: The timing and rate of land application of effluent and other organic manures is managed to maximise productive value and minimise the risk of contamination of groundwater or surface water. T5: Staff are trained in the operation, maintenance and use of storage and application systems and accurate and records are maintained.</td>
</tr>
<tr>
<td>Wetland, native vegetation and riparian GMP</td>
<td>Overall Objective</td>
<td>Outcome on farm</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>To the extent that is compatible with land form, stock class and intensity, exclude stock from waterways.</td>
<td>Damage to the bed or banks of water bodies, sedimentation and disturbance of the waterbody, direct discharge of contaminants, and degradation of aquatic ecosystems is avoided.</td>
<td>The protection of natural waterways, wetlands and native vegetation from stock damage and nutrient losses. The management of riparian zones and critical source areas to help minimise run off and the loss of nutrients, sediment and faecal contamination to waterways. The mapping and protection of existing native vegetation, waterways and wetland habitats. Planting of native flora to provide new and enhance existing habitats and manage nutrient run-off where opportunities exist.</td>
</tr>
</tbody>
</table>
mitigating possible nutrient and sediment loss from critical source areas.

Manage grazing to minimise losses from critical source areas.

<table>
<thead>
<tr>
<th>Soils GMP</th>
<th>Overall Objective</th>
<th>Outcome on farm</th>
<th>FEP / FEP Audit Targets</th>
<th>Commentary and Specific Management Area (MA) Risks or Expected Outcomes</th>
</tr>
</thead>
</table>
| Manage farming operations to minimise direct and indirect losses of sediment and nutrients to water, and maintain or enhance soil structure, where agronomically appropriate. Manage periods of exposed soil between crops / pasture to reduce risk of erosion, overland | The physical and biological condition of soils are maintained or improved. | Soils are mapped and their physical limitations and environmental risks are understood. Stock, nutrient and irrigation management practices are identified to prevent erosion, loss of soil to waterways, damage to soil structure and contamination. | T1: Farm management practices recognise the physical limitations of soils and avoid compaction and / or other deterioration or physical and biological condition. T2: Farming activities are managed to minimise loss of soil by wind and / or water erosion. | The soils of the Amuri Basin mostly fall into two broad categories: Pallic type soils which are weakly structured and susceptible to breakdown and physical damage; and brown loam soils which tend to be thin, very free draining and susceptible to physical damage, loss of structure and erosion and are susceptible to nitrogen leaching. 
FEPs will require the mapping of soil types on the farm and identify stock, cultivation, nutrient and irrigation... |
flow and leaching.

Retire all Land Use Capability Class 8 and either retire, or actively manage, all Class 7e to ensure intensive soil conservation measures and practices are in place.

Management practices to minimise nutrient loss to waterways and the maintenance or improvement of soil structure and health.

MA 3 and 4: For hill and downs the topography of rolling to steep slopes intensifies the environmental risks posed by erosion and soil damage. FEPs will additionally require high risk areas susceptible to erosion and areas showing signs of erosion by wind or water to be identified and mapped. Management practices to mitigate damage, such as reduced stocking density, seasonal or the permanent exclusion of stock, need to be identified and measures adopted over a reasonable timescale.

<table>
<thead>
<tr>
<th>Environmental Hotspots</th>
<th>Overall Objective</th>
<th>Outcome on farm</th>
<th>FEP / FEP Audit Targets</th>
<th>Commentary and Specific Management Area (MA) Risks or Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not included</td>
<td>Offal, rubbish pits and other point source risks are managed to minimise environmental damage.</td>
<td>Offal pits and rubbish pits are no greater than 50m³ Offal, rubbish and silage pits are sited to avoid surface runoff from entering the pit. No more than one pit per 100ha of farm.</td>
<td>T1: All on-farm silage, offal pit and rubbish pit discharges are sited and managed to in line with regional council rules and to avoid direct discharges of contaminants to ground or surface water or drinking water bores.</td>
<td>management practices to minimise nutrient loss to waterways and the maintenance or improvement of soil structure and health. MA 3 and 4: For hill and downs the topography of rolling to steep slopes intensifies the environmental risks posed by erosion and soil damage. FEPs will additionally require high risk areas susceptible to erosion and areas showing signs of erosion by wind or water to be identified and mapped. Management practices to mitigate damage, such as reduced stocking density, seasonal or the permanent exclusion of stock, need to be identified and measures adopted over a reasonable timescale.</td>
</tr>
</tbody>
</table>
6.0 Auditing: Measurement, Evaluation, Reporting and Independent Scrutiny

6.1 Introduction

The overall approach to developing an audited self-management (ASM) process for this ISMP is based on the findings and recommendations of the ECarn and Irrigation New Zealand facilitated workshop: Building Knowledge and Understanding of Audited Self-Management, August 2011.

The auditing of FEPs, as required under Schedule 2 1 (j) of the HWRRP is consistent with the processes and requirements set out in the Canterbury Certified FEP Auditor Manual, November 2018.

Farmers will be notified they have been selected for audit in the forthcoming auditing round not less than three months prior to auditing starting, this enables farmers to prepare for auditing, including arranging for a nutrient budget and collating any other evidence required for the audit interview. A checklist list of relevant documents and other evidence that may be required at the audit interview is included with the notification (see Appendix 12). Farmers will again be contacted not less than three weeks prior to the audit date with an audit appointment notification which includes the date and time of the audit and the name and contact details of the auditor, this notification again includes the checklist of relevant documents.

Auditors are required to adhere to AIC’s health and safety policies and complete a pre-start job safety analysis form (Appendix 10) prior to the start of auditing and abide by AIC’s Biosecurity Policy when visiting any AIC Environmental Collective farm while contracted to AIC (Appendix 11).

The finalisation of FEP Audits is completed by AIC’s Environmental Administrator once all of the FEP Audit documentation has been received from the auditor and checked and processed according to AIC’s FEP Auditing Standard Operating Procedures.

An independent annual scrutiny of this ISMP and EMS, is required under Schedule 2 (3) of the HWRRP. The scope of this external audit has been defined in a Systems Audit Protocol (Appendix 6) and has been contracted to Irricon Resource Solutions for a 3-year period from 2016 to 2018.

With these considerations in mind, the principles adopted in the development of the system of measurement, evaluation, reporting and independent scrutiny of this ISMP, EMS and individual FEPs aims to:

- Keep the regulatory burden manageable and proportionate to the environmental risks;
- Minimise duplication of compliance processes;
- Target compliance monitoring at areas of greatest environmental risk;
- Build knowledge and understanding;
- Reward good behaviour and put greater emphasis on poor performers; and
• Ensure transparency of process and outcomes and facilitate independent scrutiny of the ISMP, the EMS process and the progress made towards the desired outcomes.

6.2 Nutrient Budgets

For farms that do not have a Nutrient Loss Limit (NLL) attached as a condition to a resource consent, an Overseer nutrient budget in an appropriate version and for the previous full season is required for a FEP Audit, unless:

• The audit is a repeat audit and the previous audit grade was at A or B and a High confidence level for the Target 1 for Nutrient Management assessment; and

• There has been no significant change in the enterprise structure and/or management of the farm.

For farms that have an NLL attached as a condition to a resource consent, then an Overseer nutrient budget is required as per the requirements of the consent.

The absence of an appropriate nutrient budget, notwithstanding the exceptions set out above, shall decrease the Level of Confidence for the nutrient management section of the FEP Audit and influence the overall FEP Audit grade awarded by the auditor.

The robustness of the nutrient budget made available for the FEP Audit will be evaluated by the FEP Auditor prior to the audit according to the guidelines set out in the Environment Canterbury FEP Auditor Manual.

The nutrient budget will be used by the FEP Auditor to assess whether nutrient losses from farming activities are being minimised. The FEP Auditor will use the nutrient budget to identify high nutrient loss blocks and practices and discuss with the farmer any nutrient loss mitigation measures that could be employed. These may be included as required FEP Audit actions.

6.3 Nutrient Management and Nutrient Losses

For all AIC shareholding farms identified as scheduled properties in AIC’s Land Use Consent (CRC153154) nutrient load calculation and reporting will be in accordance with AIC’s rootzone N loss numbers used for catchment nutrient accounting are derived from the report by Lilburne et al. (2013) “Estimating nitrate-nitrogen leaching rates under rural land uses in Canterbury (updated)” (see Appendix 9). The management of AIC’s consented nutrient load and the monitoring of nutrient losses against individual farming activities will be in accordance with AIC’s Nutrient Management Policy and achievement of GMP will be used to ensure N losses from farming activities are minimised.

For all independent members of the AIC Environmental Collective an estimate of collective independent nutrient load will be calculated, and reported, using the same methodology as for AIC shareholding farms.

3 A significant change is defined in AIC’s Nutrient Management Policy.
For any property that is an independent member of the Environmental Collective and a permitted activity under Rule 10.1 of the HWRRP, then achievement of GMP will be used to ensure N losses from farming activities are minimised.

For any property that is an independent member of the Environmental Collective and holds a resource consent with an NLL, then achievement of GMP will be used to ensure N losses from farming activities are minimised. In addition, the FEP Auditor shall assess whether the modelled Overseer nutrient losses for the farm meet the consented NLL defined in the resource consent. Discrepancies between modelled nutrient losses and the NLL will affect the Level of Confidence for the nutrient management section of the FEP Audit and influence the overall FEP Audit grade awarded by the auditor.

The FEP Auditor’s assessment of the NLL and way discrepancies influence the Level of Confidence grading for the Nutrient Management Objective will be in accordance with both the relevant consent conditions and the requirements set out in the Environment Canterbury FEP Auditors Manual.

6.4 The FEP Audit Process: Evaluation and Grading

The auditing of FEP’s will be undertaken by an ECAN approved Independent FEP Auditor and will follow the procedures set out in the Canterbury Certified FEP Auditor Manual. The audit process is summarised in Fig.1 below.

Fig 1. FEP Audit Process:

All farms in the AIC Environmental Collective will have a first FEP audit completed within three years of the plan being completed and the timing of repeat audits will be dependent on the Audit Grade achieved. The aim of the initial FEP audit will be to revisit the FEP and:
• Evaluate the appropriateness of each action for each environmental management area and highlight any apparent discrepancies or lack of robustness in the action required to address the risk;
• Highlight any risk areas where action may be appropriate but has not been required;
• Confirm the number of actions for each risk area reported as being either completed within the timeline for action, started within the deadline for action but not completed, or not started; and
• Assess the level of confidence that the GMP standards for each environmental management area are being met or are on target to being met as either high, medium or low confidence. The reasons for reaching a particular confidence level will be clearly stated in the audit report.

Using the confidence levels for the six environmental management areas, each farm will be graded according the summary table below:

Table 4. FEP Auditing: Level of Confidence, Grading and Repeat Inspection

<table>
<thead>
<tr>
<th>Confidence that Environmental Management Area Objectives Being Met</th>
<th>Overall Assessment</th>
<th>Grading</th>
<th>Action to be Taken and Repeat Inspection</th>
</tr>
</thead>
</table>
| All High                                                      | High level of confidence that all environmental objectives are being met. | A      | Re-audit within four years unless significant change in farm management).
| 5-4 High 1-3 Medium 0 lows                                     | Some areas in need of further action but on-track to achieving objectives within agreed timeline. | B      | Any revised actions recorded in FEP. Re-audit within two years unless significant change in farm management. |
| >1 Medium 0 Lows                                              | Some areas in need of further action but not on-track to achieving objectives within agreed timeline. | C      | FEP actions reviewed and revised actions and timelines for completion recorded in FEP. Repeat inspection in 12 months Further failure to make progress at repeat inspection will result in enforcement action. |
| Any Lows                                                      | At least one area in need of urgent attention. Reviewed FEP actions agreed with timeline. | D      | FEP actions reviewed and revised actions and timelines for completion recorded in FEP. Repeat inspection in 6 months. Further failure to make progress at repeat inspection will result in enforcement action. |

4 Significant change in farm management means a change in farm manager and / or significant change to farm boundaries, ownership or farming systems.
At the end of the farm audit inspection the auditor will give the farm an overall audit grade which will be based on the evidence presented and the findings from the physical inspection of the farm. The grade will reflect the level of confidence (LOC) the auditor has that the objectives for each management area are being met. The LOC ratings will be recorded as high, medium or low in the audit report and will be used to produce an overall FEP Audit grade (‘A’ – ‘D’).

The frequency of repeat inspections will depend on the performance of each farm in terms of the confidence that the objectives for the six environmental management areas being met. The normal grading and timing of repeat audits is set out in Fig. 2 below. However, under certain circumstances, such as identified non-compliance, the audit date can be brought forward, and the farm’s previous audit grading reviewed or extended by a maximum of six months with agreement with the Environmental Manager to meet extenuating circumstances or situations of Force Majeure.

Repeated failure to make progress on a ‘C’ or ‘D’ grading will lead to scheme compliance actions being taken.

**Fig. 2. FEP Audit Flowchart**

Following the farm audit inspection, a report, including the overall farm grading, will be prepared by the auditor and sent to the farmer within two weeks of the farm visit. The farmer will have one week to respond to the audit report and make comments or make an objection to the findings of the report. The auditor will review any comments and revise the report if appropriate and seek independent expert opinion if necessary. If agreement can’t be reached, then the outcome will be decided by the Environmental Sub-Committee as part of a formal dispute procedure.
6.5 Non-compliance Process

A flow diagram of the non-compliance process is given at Appendix 8. A first C or D audit grade will result in the member being notified of the grade, that there are actions that need to be addressed immediately and that the Chairman of the Environmental Subcommittee will be notified of the grading for that farm.

The member will be offered the opportunity to discuss the grading and how to address the problems identified with the Environmental Manager and / or the Chairman of the Environmental Subcommittee.

The Environmental Subcommittee will be notified of all farms receiving a D grade at their first audit.

After the first repeat audit, a farm which achieves a second D or C grade will be notified in writing by the Chairman of the ESC:

- of the audit grade; and

- that that there are actions that need to be addressed immediately and that failure to act to improve the grading by the next audit will trigger non-compliance procedures and the member could, therefore, be required to leave the collective.

If a farm achieves a third C or D grade in five years, or proves uncooperative, they will be invited to attend a meeting with the Environmental Subcommittee before a decision is made regarding their future in the Farm Environment Collective. The decision of the Environmental Subcommittee will be reported to the member within a month of the date set for the meeting.

The member may appeal the decision of the Environmental Subcommittee to expel the member from the Collective.

An appeal must be made in writing to the Environmental Manager within 10 working days of notification of the Sub-committee’s decision. Any notice of appeal must be accompanied with a deposit of $5000 as a contribution to the cost of the appeal.

Within one month of receipt of a notice of appeal, and at AIC’s cost, an independent arbitrator will be appointed by ECan. Each part will collate their own documentation and evidence prior to any hearing.

The arbiter’s decision shall be final and binding on all parties. Arbitration will be conducted in accordance of the Arbitration Act 1996.

If the member is unsuccessful on appeal, the $5,000 paid by the member will be used to contribute towards the cost of the arbitration. If the member is successful on appeal, the $5,000 shall be returned to the member within 10 working days of the written decision of the arbitrator.

Any member expelled from the scheme by the Environmental Subcommittee will be in breach of Rule 10.1 or 10.2 of the HWRP. Should the expelled member also be an AIC shareholder then they will also be in breach of their water supply agreement. The Chairman of the Environmental Sub-committee will report the decision to expel the
member concerned from the collective to both ECan and the Chairman of AIC’s Board of Directors.

AIC may take further action in accordance with the dispute resolution clauses of the water supply agreement.

6.6 Auditing Charging Policy

The policy for the charging of audit inspections has been agreed by the Environmental Subcommittee and is consistent with the principles set out in section 6.1 above:

- For both shareholder and non-shareholder members the cost of the first audit and first repeat audit will be covered by either water charges or non-shareholder agreement fees;

- The cost of subsequent audits for C or D grades will be paid for by the farmer in addition to their annual membership fee or water charges. This means that the costs of poor performance are borne individually and not shared by members of the Collective;

- In addition, should a farmer fail to turn up for an audit after appropriate notification from AIC or cancel an audit on the day, or fail to cooperate or allow access to the farm or any part of the farm to complete the audit to the auditor's satisfaction, then the farm will be awarded a D grade and the farmer will be charged for the repeat audit accordingly.

6.7 Communications with Collective Members

The notification of farm owners and managers that the farm has been selected for a FEP, an explanation of the auditing process, expectations regards participation in the audit and required evidence and other paperwork that should be available for the audit, will be completed to the timelines and standards set out in FEP Auditing Standard Operating Procedures (SOPs).

The notification of farm owners and managers of the results of the audit and the implications and consequences of the audit grade will, similarly, be made according to the SOPs prepared for the auditing campaign.

6.8 Independent Expert Scrutiny

As part of the annual auditing process the Environmental Subcommittee will contract an independent organisation or expert suitably qualified to provide an annual review of the EMS in accordance with Schedule 2 (3) of the HWRRP. This assessment will include:

- The process for assessing performance against agreed actions;
- Expectation and agreements for landowner and property record keeping for audit purposes;
- Outline of how audit results will be fed back to members of the collective and shared with the community; and
- How issues of poor performance to implement actions and reach outcomes are to be managed.
A systems audit protocol has been developed and agreed with ECan as meeting the requirements of Schedule 2 (3) of the Plan, see Appendix 8.

The independent expert will be required to provide a report to the Environmental Subcommittee outlining their findings and any recommendations for improving the performance of any aspect the ISMP, the EMS and the FEP process. The report will be included in the annual summary report to ECAN and the Zone Committee, see section 6.9 below.

6.9 Reporting and Management Review

The annual auditing cycle commences in November and is normally completed by the end of March. Following the completion of auditing the results are analysed and a Management Review of the audit campaign is prepared by the Environmental Manager for the ESC at its May meeting for consideration and approval.

The Management Review will provide:

- An overall review of the audit campaign from an administration and management perspective. It will identify any significant risks to the delivery of the audit programme, including staff and budget resources or any Force Majeure event and recommendations to ensure identified risks are managed appropriately;

- A report against the performance targets set out in section 6.10 below; and

- An analysis of the audit grades and the levels of confidence for each Management Area and a comparison with performance from previous rounds of auditing. The analysis will identify trends in performance and progress to meeting GMP for the Collective as a whole and for the three main farming types (dairy, beef and sheep and dairy support). The analysis of performance will be used to help identify areas in need further improvement and develop targeted initiatives to help farmers make further progress to GMP or beyond.

The results and conclusions from the audit campaign are then presented to the Zone Committee following approval by the ESC, normally at the June Zone Committee meeting and the report to the Zone Committee is also lodged on the AIC website as a public document once it has been presented to the Zone Committee.

An annual summary report for the July – June season will be prepared according to the requirements of the Canterbury Certified FEP Auditor Manual (Nov 2018) and will include:

- Author;
- AIC Land Use Consent Number and N load limit;
- Date and Reporting Period;
- Aggregated N loss for the year from all properties that are members of the AIC Collective calculated using Brown / Lillburne Look up Table methodology as described in the Land Use Consent;
• Numbers of farms graded A, B, C and D per farm type;  
• LOC per target and objective by farm type;  
• Number of farms that are repeated C, D (1st repeat, 2nd repeat, etc.), per farm type;  
• List of the main reasons why farms have been graded C or D;  
• Program to improve performance of these farms;  
• Progress report on previous identified issues; and  
• Identified illegal discharges and actions taken.

The annual summary report is prepared from the analysis of the audit results once the audit campaign is concluded and these have been reported to the ESC and the Zone Committee as outlined above, and report will also include a summary of the report of the external audit (see 6.1 above).

### 6.10 Collective Management Performance Monitoring

As set out in section 3.0 above, this EMS and the function of the AIC Environmental Collective is to develop and implement an Audited Self-management programme that meets the requirements of Schedule 2 of the Hurunui and Waiau Rivers Regional Plan (HWRRP) and provide a framework that enables:

• AIC and its shareholders to meet its land use consent (CRC153154) conditions relating to Farm Environment Plans (FEPs) and FEP Auditing;  
• Independent members to meet the requirements of any resource consent conditions relating to FEPs and FEP Auditing; and  
• Independent members who remain permitted activities to meet the requirements of Rule 10.1 of the HWRRP.

To monitor the performance of the Collective in achieving these objectives a set of process and delivery targets have been agreed by the ESC. These are:

**Targets for FEPs:**

• All farms to have an appropriate FEP in place within six months of joining the Collective; and  
• FEPs are updated in accordance with section 5.4 above.

**Targets for FEP Audits:**

• All farms to receive a first FEP Audit within three years of joining the Collective; and  
• All farms are re-audited according to the timeframe set out in section 6.4 above;

---

5 In order to ensure membership confidentiality any farm type represented by four or less farms in the Collective will be reported collectively as ‘other’.
Implement and deliver an annual FEP Auditing campaign to the timelines and expectations set out in this EMS and the various SOP, and in particular meeting deadlines for the completion of draft audit reports and implementing any review and compliance procedures.

**Target for Reporting:**

- Collate annual FEP Auditing data and report results to the Zone Committee, ECAn and publish results on the AIC website to the timelines set out in section 6.9 above.

**Target for Governance:**

- Establish and manage an Environmental Subcommittee that meets the governance objectives of the Collective as set out in the section 4.2 above and Appendix 4 below.

**Targets for Continuous Improvement:**

- Commission an independent ISMP/EMS system audit according to the requirements and timeframe set out in section 6.8 above and Appendix 6 below; and

- Implement any actions required by the independent ISMP/EMS system audit to the required timeframe.

Performance against these targets will be included in the annual Management Review to the ESC set out in section 6.9 above.

### 7.0 Training and Development

As noted in section 6 above, ASM has a focus on knowledge, to both understand issues and find practical solutions to problems.

The Environmental Subcommittee will prepare a strategy to help deliver this ISMP and assist farmers in progressing to GMP and above through a process of continuous improvement.

The GMP Development Strategy agreed by the Environmental Subcommittee in July 2016 is attached at Appendix 6.
Appendix 1: HWRRP Schedule 2

5.3 Schedule 2: Matter to be addressed in any System, Agreement or Plan in accordance with Rules 10.1 and 10.2

Rules 10.1 and 10.2 require any land use in the area marked as a nutrient management area on Map 4 implement, on, or before 1 January 2017, one of either:

(a) an Industry Certification System; or,
(b) a Catchment Agreement; or,
(c) an Irrigation Scheme Management Plan; or,
(d) a Lifestyle Block Management Plan.

This schedule sets out the basic requirements that any one of the above Plans, Systems or Agreements (‘The Programme’) must contain and address for it to be approved by the Canterbury Regional Council.

1. An Environmental Management Strategy

The ‘Environmental Management Strategy’ sets out the protocols and procedures that the Programme will follow in its development, implementation and maintenance. As a minimum the ‘Environmental Management Strategy’ shall include:

(a.) Details relating to the governance arrangements of the Programme.

(b.) A description of the Programme area including management areas within it, land uses, key environmental issues and risks, property boundaries and ownership details.

(c.) A statement of the outcomes sought in relation to minimising and mitigating the environmental effects of land-use on water quality within the Programme area including an objective of reducing phosphorus loss to waterways.

(d.) A statement of the requirement for farm environment plans which demonstrate how land managers are actively managing the use of natural resources in order to achieve the management objectives as specified in sections 1(e) and 2 below. The farm environment plans shall include (where appropriate) sections relating to:

(i) Irrigation management
(ii) Soils management
(iii) Nutrient management
(iv) Wetland and riparian management
(v) Collected animal effluent management
(e.) Specified management objectives for each of the management areas identified in 1(b) above.

(f.) An inventory of the current (from [date this Plan is made operative]) nitrogen loss rate (kg/ha/year) for each property in the Programme area, as determined by application of Overseer (or an alternative nutrient budget model approved by the Canterbury Regional Council) by a suitably qualified independent practitioner.

(g.) An assessment of the nutrient management risks associated with the major farming activities on the property (including risks associated with direct runoff into waterways and indirect nutrient losses) and how the identified risks will be managed.

(h.) A statement of what is industry agreed best nutrient management practice for nitrogen and phosphorus loss rates (in kg/ha/year) for all specified land use types relevant for each management area, (i.) A statement of the contractual arrangements between the Programme and individual land managers (the ‘Members’) who commit to the Programme.

(j.) A statement of the audit and compliance components of the Programme that the Members shall be required to adhere to.

2. Management objectives

As a minimum all Members shall be required to meet the following management objectives for each of the specified management areas.

(a.) Irrigation management

To use water efficiently, minimising runoff and drainage in order to avoid, remedy or mitigate problems arising from:

(i) Inefficient water application

(ii) Ponding of irrigation water

(iii) Excessive runoff of irrigation water

(iv) Excessive losses to groundwater

Note: 1. Water use efficiency is required to be at a level of at least 80% application efficiency as per Policy 8.1(c).

2. The application of water using real-time soil and water data is strongly encouraged to ensure water is used to match soil and production demands.

3. A description as to the use of soil moisture monitoring technologies and similar devices to supply accurate information on moisture levels in the soil profile is desirable.
(b.) Soils management

To maintain or improve the physical and biological condition of soils in order to avoid, remedy or mitigate problems arising from:

(i) Loss of topsoil by wind or water erosion

(ii) Movement of soils and contaminants into waterways

(iii) Damage to soil structure and health

(c.) Nutrient management

To maximise nutrient use efficiency while minimising nutrient losses such that industry agreed benchmarks for nitrogen and phosphorus loss rates (kg/ha/year) defined in 1(h) above are achieved or bettered, in order to:

(i) avoid, remedy or mitigate nitrogen and phosphorus losses through runoff and leaching to ground and surface waters;

(ii) comply with any limits or targets set within the environmental management strategy.

Notes: 1. All land uses must also comply with Rule WQL19 of the Natural Resources Regional Plan and/or the relevant rule(s) for the discharge of fertiliser in the Land and Water Regional Plan, or consent will be required under the relevant plan(s).

2. Changes of land use within the Programme area may require consent under Rule 11.1 or 11.1A of the HWRRP.

(d.) Wetland and riparian management

To protect the natural waterways and wetlands by, for example, fencing and planting, in order to avoid, remedy or mitigate:

(i) Stock damage to banks causing sedimentation

(ii) Nutrient losses to water bodies

Note: 1. All land uses must also comply with Rule WQL21 of the Natural Resources Regional Plan and/or the relevant rule(s) for livestock in the Land and Water Regional Plan, or consent will be required under the relevant plan(s).

(e.) Collected animal effluent management

To manage effluent systems to optimise the productive benefits of effluent while taking all practicable steps to avoid contamination of ground and surface waters in order to avoid, remedy or mitigate contamination of ground and surface waters, especially faecal matter, nitrogen and phosphorus.
3. Description of the Audit and Reporting Process

To ensure actions are undertaken to achieve the outcomes described in the ‘management system’ the actions shall be audited annually, by an independent body. A description of the Audit Process shall include:

- (c) The process for assessing performance against agreed actions and at an individual property level;
- (f) The expectation and agreements around landowner and property record keeping for the audit purposes;
- (g) An outline as to how the audit results will be fed back to Members and also shared with the wider community; and,
- (h) How issues of poor performance to implement actions and reach outcomes are to be managed. The summary audit report shall be submitted to the Canterbury Regional Council annually.
### Appendix 2: Schedule of Landowners and Land Use

<table>
<thead>
<tr>
<th>FEP No</th>
<th>Farm name</th>
<th>Owner / Representative</th>
<th>Farm type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>A N &amp; S B Williamson Ltd</td>
<td>Norm Williamson</td>
<td>Dairy</td>
</tr>
<tr>
<td>1001</td>
<td>Achray Holdings Ltd</td>
<td>Michael Mossman</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1002</td>
<td>Balmoral</td>
<td>Ngai Tahu</td>
<td>Beef</td>
</tr>
<tr>
<td>1003</td>
<td>Amuri Area School</td>
<td>Emlyn Francis</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1007</td>
<td>130 St Leonards Rd.</td>
<td>Gregor Mackenzie</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1008</td>
<td>N/A</td>
<td>Alexander Macfarlane</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1010</td>
<td>Hemingford</td>
<td>Alistair Holland</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1012</td>
<td>Rockdale</td>
<td>Louise Pickering</td>
<td>Dairy</td>
</tr>
<tr>
<td>1014</td>
<td>Amuri Dairying Ltd</td>
<td>Andrew Benton</td>
<td>Dairy</td>
</tr>
<tr>
<td>1018</td>
<td>Amuri Pastoral Ltd</td>
<td>Stuart Neill</td>
<td>Dairy</td>
</tr>
<tr>
<td>1020</td>
<td>Amuri Polo Club</td>
<td>Bryan Burrows</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1025</td>
<td>Ben Lomond</td>
<td>Andrew Gould</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1027</td>
<td>Coldstream</td>
<td>Andrew Dalzell</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1036</td>
<td>Cranleigh &amp; part of Parkvale</td>
<td>Robbie Clark</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1040</td>
<td>Rangeview</td>
<td>Ross Beaven</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1043</td>
<td>Mt Montrose</td>
<td>David McKenzie</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1047</td>
<td>Glasgarten Farm</td>
<td>Shaun Lissington</td>
<td>Dairy</td>
</tr>
<tr>
<td>1049</td>
<td>Salix Farm</td>
<td>Arthur Black</td>
<td>Sheep</td>
</tr>
<tr>
<td>1050</td>
<td>Auchenbrae Farm Ltd</td>
<td>Duncan Anderson</td>
<td>Dairy</td>
</tr>
<tr>
<td>1051</td>
<td>Auchtercairn Farm Ltd</td>
<td>Rod Thomson</td>
<td>Dairy</td>
</tr>
<tr>
<td>1052</td>
<td>Kaiwara Farm</td>
<td>Bruce Johns</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1053</td>
<td>Kaiwara Farm</td>
<td>Bruce Johns</td>
<td>Dairy</td>
</tr>
<tr>
<td>1055</td>
<td>Pahau Dairy Ltd</td>
<td>Ed Tapp</td>
<td>Dairy</td>
</tr>
<tr>
<td>1057</td>
<td>Ballindalloch Farm Ltd</td>
<td>Peter Kinney</td>
<td>Dairy</td>
</tr>
<tr>
<td>1058</td>
<td>Ballindalloch Farm Ltd</td>
<td>Peter Kinney</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1064</td>
<td>Beechwood Ltd</td>
<td>Peter Kinney</td>
<td>Dairy</td>
</tr>
<tr>
<td>1068</td>
<td>The Hermitage</td>
<td>Matthew Gould</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1069</td>
<td>Bermar Holdings Ltd</td>
<td>Berry Neppelenbroek</td>
<td>Dairy</td>
</tr>
<tr>
<td>1070</td>
<td>Royden</td>
<td>Chris Draper</td>
<td>Arable/Dairy Support</td>
</tr>
<tr>
<td>1073</td>
<td>Overdale</td>
<td>Geoffrey Bowron</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1074</td>
<td>Lochside Dairies Ltd</td>
<td>Ben Black</td>
<td>Dairy</td>
</tr>
<tr>
<td>1076</td>
<td>N/A</td>
<td>Wendy Beaver</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1079</td>
<td>Bexhill Pastures</td>
<td>Bryan Burrows</td>
<td>Dairy</td>
</tr>
<tr>
<td>1080</td>
<td>Eskdale</td>
<td>Craig Ritchie</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1084</td>
<td>Te Pahau</td>
<td>My Farm Ltd.</td>
<td>Dairy</td>
</tr>
<tr>
<td>1089</td>
<td>N/A</td>
<td>Clive Smith</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1091</td>
<td>Kia ora</td>
<td>Colin Salkeld</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1096</td>
<td>Culverden Rugby Club</td>
<td>Emlyn Francis</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1099</td>
<td>Roads End, Elvaston &amp; Balcarrs</td>
<td>Alastair Youngman</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1102</td>
<td>Glencarron</td>
<td>David Croft</td>
<td>Dairy</td>
</tr>
<tr>
<td></td>
<td>Farm Name</td>
<td>Owner</td>
<td>Category</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>1109</td>
<td>Lowry Peaks</td>
<td>Hugo Davison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1114</td>
<td>Klondyke</td>
<td>Johnny Ussher</td>
<td>Arable/Dairy Support</td>
</tr>
<tr>
<td>1115</td>
<td>N/A</td>
<td>Alexander Boissard</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1119</td>
<td>Loch Leven</td>
<td>Michael Dryden</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1122</td>
<td>Dry Creek Dairy Ltd</td>
<td>James McConne</td>
<td>Dairy</td>
</tr>
<tr>
<td>1124</td>
<td>River Camp</td>
<td>Andy Gardner</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1127</td>
<td>Murray Downs</td>
<td>Bernie Chick</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1128</td>
<td>Nga-Roto</td>
<td>Bernie Chick</td>
<td>Dairy</td>
</tr>
<tr>
<td>1132</td>
<td>Fenland Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1133</td>
<td>Buttermere Ferne Rose Ltd</td>
<td>Grant McIntosh</td>
<td>Dairy</td>
</tr>
<tr>
<td>1136</td>
<td>Beechbank Dairies Ltd</td>
<td>Alan Davie-Martin</td>
<td>Dairy</td>
</tr>
<tr>
<td>1139</td>
<td>Caithness Dairy Ltd</td>
<td>Josh Dondertman</td>
<td>Dairy</td>
</tr>
<tr>
<td>1142</td>
<td>Topp Farm</td>
<td>Geoffrey Topp</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1143</td>
<td>Topp Farm</td>
<td>Geoffrey Topp</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1148</td>
<td>Graeme Grigg</td>
<td>Graeme Grigg</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1154</td>
<td>Greg Earl</td>
<td>Greg Earl</td>
<td>Dairy</td>
</tr>
<tr>
<td>1156</td>
<td>Matakana</td>
<td>Bernie Chick</td>
<td>Dairy</td>
</tr>
<tr>
<td>1158</td>
<td>Harakeke Dairies Ltd</td>
<td>Jane Evans</td>
<td>Dairy</td>
</tr>
<tr>
<td>1159</td>
<td>The Willows</td>
<td>Graham Dalley</td>
<td>Beef</td>
</tr>
<tr>
<td>1160</td>
<td>Beltons</td>
<td>Graham Dalley</td>
<td>Beef</td>
</tr>
<tr>
<td>1169</td>
<td>Highfield &amp; Leader Road</td>
<td>Michael Northcote</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1182</td>
<td>Hurunui Limited Partnership</td>
<td>Jenna Smith</td>
<td>Dairy</td>
</tr>
<tr>
<td>1185</td>
<td>Kytenton Farm Ltd</td>
<td>Malcolm Norrie</td>
<td>Dairy</td>
</tr>
<tr>
<td>1186</td>
<td>Inniskillen Dairy Ltd</td>
<td>Bill Suckling</td>
<td>Dairy</td>
</tr>
<tr>
<td>1194</td>
<td>The Willows</td>
<td>Tom McIntosh</td>
<td>Sheep</td>
</tr>
<tr>
<td>1195</td>
<td>Cairnbrae</td>
<td>Janet Murphy</td>
<td>Beef</td>
</tr>
<tr>
<td>1197</td>
<td>Ray Thomas</td>
<td>Ray Thomas</td>
<td>Dairy</td>
</tr>
<tr>
<td>1198</td>
<td>Riverside</td>
<td>Philip Roberts</td>
<td>Dairy</td>
</tr>
<tr>
<td>1199</td>
<td>Pukeiti</td>
<td>Richard Ormond</td>
<td>Beef</td>
</tr>
<tr>
<td>1200</td>
<td>Callura Dairies</td>
<td>Dean McMillan</td>
<td>Dairy</td>
</tr>
<tr>
<td>1203</td>
<td>Jersey Land Dairies Ltd Home block</td>
<td>Tim Delany</td>
<td>Dairy</td>
</tr>
<tr>
<td>1205</td>
<td>Summerhaze</td>
<td>John Fleming</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1208</td>
<td>Parham Hill</td>
<td>Mark Fleming</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1210</td>
<td>Kaiora Downs 2000 Ltd</td>
<td>Mark Schwass</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1212</td>
<td>Kalgoorlie Holdings Ltd</td>
<td>Richard Moody</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1217</td>
<td>Kenmare Dairy Ltd</td>
<td>Emlyn Francis</td>
<td>Dairy</td>
</tr>
<tr>
<td>1218</td>
<td>Taihoa</td>
<td>Ken Riddington</td>
<td>Dairy</td>
</tr>
<tr>
<td>1219</td>
<td>Kaituna</td>
<td>Ken Riddington</td>
<td>Dairy</td>
</tr>
<tr>
<td>1222</td>
<td>N/A</td>
<td>Patricia Phipps</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1223</td>
<td>Kingsway - Inniskillen</td>
<td>Murray King</td>
<td>Dairy</td>
</tr>
<tr>
<td>1224</td>
<td>Kingsway - Hedley</td>
<td>Murray King</td>
<td>Dairy</td>
</tr>
<tr>
<td>1235</td>
<td>Monowai</td>
<td>John Faulkner</td>
<td>Dairy</td>
</tr>
<tr>
<td>1236</td>
<td>The Terrace</td>
<td>John Faulkner</td>
<td>Dairy</td>
</tr>
<tr>
<td>1237</td>
<td>Longbrook Dairy Ltd</td>
<td>Paul Hood</td>
<td>Dairy</td>
</tr>
<tr>
<td>Number</td>
<td>Farm Name</td>
<td>Manager Name</td>
<td>Business Type</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------</td>
<td>------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1238</td>
<td>Eudunda Dairy Ltd</td>
<td>Wally Jamieson</td>
<td>Dairy</td>
</tr>
<tr>
<td>1239</td>
<td>Hollydale</td>
<td>Stuart Gibson</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1243</td>
<td>Devine</td>
<td>Trevor Devine</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1248</td>
<td>Pahau Block</td>
<td>Matthew Black</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1253</td>
<td>Mindel Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1255</td>
<td>Montrose</td>
<td>Ben Rutherford</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1258</td>
<td>Mount Palm</td>
<td>Hugh Robinson</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1260</td>
<td>Ayrburn</td>
<td>Rose Lawson</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1261</td>
<td>Achray</td>
<td>Rose Lawson</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1263</td>
<td>Conway Downs</td>
<td>Geoffrey Jopp</td>
<td>Dairy</td>
</tr>
<tr>
<td>1264</td>
<td>Lowry</td>
<td>FarmRight</td>
<td>Dairy</td>
</tr>
<tr>
<td>1269</td>
<td>Ngawiro</td>
<td>Frank Macfarlane</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1270</td>
<td>Nukiwai Pastoral Ltd</td>
<td>Andrew Benton</td>
<td>Dairy</td>
</tr>
<tr>
<td>1271</td>
<td>The Oaks</td>
<td>George Gould</td>
<td>Dairy</td>
</tr>
<tr>
<td>1274</td>
<td>Pentervin</td>
<td>Peter Allison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1275</td>
<td>Airlie</td>
<td>Peter Allison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1276</td>
<td>The Ranch</td>
<td>Peter Allison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1281</td>
<td>Pahau Dairy Farm Ltd</td>
<td>Johnny Ussher</td>
<td>Dairy</td>
</tr>
<tr>
<td>1282</td>
<td>Pahau Reserve Ltd</td>
<td>Kevin O'Neill</td>
<td>Dairy</td>
</tr>
<tr>
<td>1283</td>
<td>Darnley</td>
<td>Craigmore Farms</td>
<td>Dairy</td>
</tr>
<tr>
<td>1284</td>
<td>Pahau Pastures Ltd</td>
<td>Andrew Benton</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1285</td>
<td>Palmside Station</td>
<td>Mike Satterthwaite</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1287</td>
<td>Flintoft</td>
<td>Peter Flintoft</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1289</td>
<td>Mossman</td>
<td>Peter Mossman</td>
<td>Dairy</td>
</tr>
<tr>
<td>1291</td>
<td>Balmoral Station</td>
<td>Philip Smith</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1294</td>
<td>R &amp; P McIntosh Ltd</td>
<td>Robert McIntosh</td>
<td>Dairy</td>
</tr>
<tr>
<td>1295</td>
<td>Blakiston Too</td>
<td>Frank Ranford</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1296</td>
<td>Green Valley</td>
<td>Frank Ranford</td>
<td>Dairy</td>
</tr>
<tr>
<td>1297</td>
<td>Rakaia Incorporation Ltd</td>
<td>John Donkers</td>
<td>Dairy</td>
</tr>
<tr>
<td>1300</td>
<td>Redpost Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1305</td>
<td>Rex Flintoft</td>
<td>Robert Flintoft</td>
<td>Lifestyle block</td>
</tr>
<tr>
<td>1307</td>
<td>K D Land Ltd</td>
<td>James McConie</td>
<td>Dairy</td>
</tr>
<tr>
<td>1309</td>
<td>Sandford Downs Ltd</td>
<td>James Hartnell</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1311</td>
<td>Borne Lea Ltd</td>
<td>Warren Armstrong</td>
<td>Sheep</td>
</tr>
<tr>
<td>1314</td>
<td>Stroma Farm</td>
<td>Hamish Macfarlane</td>
<td>Beef</td>
</tr>
<tr>
<td>1339</td>
<td>FLO New Zealand Ltd</td>
<td>Ian Jolly</td>
<td>Dairy</td>
</tr>
<tr>
<td>1340</td>
<td>Upper Balmoral Ltd</td>
<td>Emlyn Francis</td>
<td>Dairy</td>
</tr>
<tr>
<td>1342</td>
<td>Waihou Land Company Ltd</td>
<td>Josh Stainton</td>
<td>Dairy</td>
</tr>
<tr>
<td>1344</td>
<td>Waihui Farming Ltd</td>
<td>Tom Macfarlane</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1345</td>
<td>Waipuna Farming Co Ltd</td>
<td>Richard McLachlan</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1347</td>
<td>Waitanui Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1348</td>
<td>Wroxton</td>
<td>Warren Higgins</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1349</td>
<td>Westhaven Dairy Ltd</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1350</td>
<td>Willowbank Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>1351</td>
<td>Windale Dairy Farm LP</td>
<td>Mark Holland</td>
<td>Dairy</td>
</tr>
<tr>
<td>Number</td>
<td>Farm Name</td>
<td>Owner Name</td>
<td>Category</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------</td>
<td>------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>1353</td>
<td>Wynyard</td>
<td>Dan Davison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1400</td>
<td>Hillcrest Farm</td>
<td>David Croft</td>
<td>Dairy</td>
</tr>
<tr>
<td>1401</td>
<td>The Homestead</td>
<td>David Croft</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1402</td>
<td>Jersey Land Dairies Ltd Island Paddocks</td>
<td>Tim Delany</td>
<td>Dairy</td>
</tr>
<tr>
<td>1403</td>
<td>Jersey Land Dairies Ltd Duck Pond</td>
<td>Tim Delany</td>
<td>Dairy</td>
</tr>
<tr>
<td>1404</td>
<td>Landsend</td>
<td>Craigmore Farms</td>
<td>Dairy</td>
</tr>
<tr>
<td>1406</td>
<td>Parkvale</td>
<td>Gary Rae</td>
<td>Dairy</td>
</tr>
<tr>
<td>1408</td>
<td>Chalfont</td>
<td>Peter Allison</td>
<td>Dairy</td>
</tr>
<tr>
<td>1409</td>
<td>Red Hill Dairy Ltd</td>
<td>Kevin O'Neill</td>
<td>Dairy</td>
</tr>
<tr>
<td>1410</td>
<td>Cranford</td>
<td>Chris Dampier-Crossley</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1411</td>
<td>Cranford Downs Ltd</td>
<td>Ben Dampier-Crossley</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>1412</td>
<td>Westhaven runoff</td>
<td>Mark Holland</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1413</td>
<td>Avenue Farm Ltd</td>
<td>Martin Smith</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>1414</td>
<td>Kairoma Farm Ltd</td>
<td>Mark Fleming</td>
<td>Dairy</td>
</tr>
<tr>
<td>2151</td>
<td>Kereone</td>
<td>John Faulkner</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>3013</td>
<td>Edale Farms Ltd</td>
<td>Matthew Gardner</td>
<td>Dairy/Sheep</td>
</tr>
<tr>
<td>3031</td>
<td>Hossack Downs</td>
<td>Hamish Galletly</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3041</td>
<td>Polo Hill</td>
<td>Don Mclean</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3048</td>
<td>Ardan View Farm</td>
<td>Shaun Lissington</td>
<td>Dairy</td>
</tr>
<tr>
<td>3056</td>
<td>Avonvale</td>
<td>Hamish McRae</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3108</td>
<td>L H Dairy Ltd</td>
<td>Duncan Rutherford</td>
<td>Dairy</td>
</tr>
<tr>
<td>3137</td>
<td>Denbrae &amp; Timalyn</td>
<td>Graeme Coats</td>
<td>Dairy</td>
</tr>
<tr>
<td>3150</td>
<td>Chamrousse</td>
<td>Grant Florance</td>
<td>Arable/Dairy Support</td>
</tr>
<tr>
<td>3228</td>
<td>Landsborough</td>
<td>Scott Rutherford</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3256</td>
<td>Morna Downs</td>
<td>Craig Rutherford</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3278</td>
<td>Fyfe Downs</td>
<td>Scott Anderson</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>3306</td>
<td>Rock End Downs</td>
<td>Andrew Black</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3331</td>
<td>Glenshee</td>
<td>Vicky Stainton</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>3333</td>
<td>The Tongue</td>
<td>Sarah Williams</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3334</td>
<td>Lower Farm</td>
<td>Don Dennis</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>3335</td>
<td>Toshi</td>
<td>Brent Pilet</td>
<td>Beef</td>
</tr>
<tr>
<td>4400</td>
<td>Patoa Farms Ltd</td>
<td>Eldon Matthews</td>
<td>Pigs</td>
</tr>
<tr>
<td>4401</td>
<td>Hanley Farming</td>
<td>Mark Hassall</td>
<td>Dairy</td>
</tr>
<tr>
<td>4402</td>
<td>Peaks Dairy LP</td>
<td>Jenna Smith</td>
<td>Dairy</td>
</tr>
<tr>
<td>4403</td>
<td>Medstone Dairy</td>
<td>Craig Ginders</td>
<td>Dairy</td>
</tr>
<tr>
<td>4404</td>
<td>Mt Benger</td>
<td>Duncan Fraser</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>4405</td>
<td>Medbury Farm Ltd</td>
<td>Dave Hislop</td>
<td>Dairy</td>
</tr>
<tr>
<td>4406</td>
<td>Cairnbrock Dairies Ltd</td>
<td>Kevin Earl</td>
<td>Dairy</td>
</tr>
<tr>
<td>4407</td>
<td>Reklaw Farms Ltd</td>
<td>Russell Walker</td>
<td>Dairy</td>
</tr>
<tr>
<td>4408</td>
<td>Dairy Dairy Ltd</td>
<td>Andrew Mulholland</td>
<td>Dairy</td>
</tr>
<tr>
<td>4409</td>
<td>Zino Holdings Ltd</td>
<td>Mark Zino</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>4410</td>
<td>The Bluffs</td>
<td>Russell Walker</td>
<td>Dairy Support</td>
</tr>
<tr>
<td>Code</td>
<td>Location</td>
<td>Name</td>
<td>Role</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>4411</td>
<td>Hurunui Plains/Forest View</td>
<td>Charles Davies</td>
<td>Pigs</td>
</tr>
<tr>
<td>4412</td>
<td>Maxwellton</td>
<td>Tom Maxwell</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>4415</td>
<td>Pinegrove</td>
<td>Bill Suckling / William Dene</td>
<td>Arable/Dairy Support</td>
</tr>
<tr>
<td>5001</td>
<td>Ben Nevis</td>
<td>Roger Smith</td>
<td>Beef and Sheep</td>
</tr>
<tr>
<td>5002</td>
<td>Grantham Springs</td>
<td>Scott Rutherford</td>
<td>Arable/Dairy Support</td>
</tr>
</tbody>
</table>
Appendix 3: Property Boundaries
Appendix 4: Environmental Subcommittee Terms of Reference

AIC Environmental Subcommittee:

Terms of Reference

Revised October 2017

Purpose of the Subcommittee:

The purpose of the Subcommittee is to advise the AIC Board of Directors on the implementation of the Environmental Management Strategy (EMS)\(^6\), as set out in the AIC Irrigation Scheme Management Plan (ISMP)\(^7\), revised text approved by Environment Canterbury (ECan) in June 2017. The Subcommittee also has responsibility for the resolution of disputes and compliance issues relating to Farm Environment Plans (FEPs)\(^8\) and FEP audits and the reporting of outcomes to AIC Board, ECan, Zone Committee and the wider community. See appendix 1 below: EMS Governance and Management Flowchart.

Responsibilities:

- Overall implementation of the EMS;
- Dealing with all FEP and FEP audit non-compliance issues in accordance with section 6.3 of the ISMP;
- The final resolution of disputes any member may have (whether AIC shareholders or not) regarding the preparation of FEPs and FEP audit and the setting and measurement of any targets or objectives within that FEP or FEP audits;
- The preparation of annual summary audit reports for approval by the AIC Board before reporting to ECan, the Zone Committee;
- Agreeing an annual plan, including a training and development plan, to direct staff in the delivery of the EMS;
- Preparing any recommendations to the AIC Board regarding any proposed changes to the ISMP that are beyond the Subcommittee’s terms of reference;
- Appointing an independent industry expert to provide an annual review of the ISMP, the EMS process and the performance and independence of the Environmental Subcommittee; and
- Commissioning a review of the AIC ISMP within five years from its approval by ECan.

---

\(^6\) **Environmental Management Strategy (EMS):** That section of the ISMP relating to the implementation and administration of Farm Environment Plans (FEPs).

\(^7\) **Irrigation Scheme Management Plan (ISMP):** The overarching five year plan prepared by AIC and agreed by its Board of Directors in accordance with Schedule 2 of the HWRRP and subsequently approved by ECan.

\(^8\) **Farm Environment Plans (FEPs):** Individual on-farm plans prepared according to the requirements and objectives set out in the EMS.
Role of Subcommittee Chair

The Chair of the AIC Environmental Subcommittee is to:

- To ensure the Subcommittee functions effectively to deliver its objectives set out in its Terms of Reference;
- To run effective meetings by setting meeting dates well in advance of Subcommittee meetings and ensuring members are provided with relevant papers in a timely manner;
- Facilitate effective discussion and ensure decision making reflects the views of the Subcommittee and is consistent with relevant policies and plans; and
- Provide guidance and support to staff in the delivery of relevant policies and plans.

Role of Environmental Manager

The role of the AIC Environmental Manager is set out in the Manager’s contract of employment and in Annual Management Plans.

The Environmental Manager reports to AIC’s CEO and provides advice and guidance to the Board and Environmental Subcommittee and is responsible for the use of delegated financial and staff resources for the effective delivery of the relevant policies and plans.

Subcommittee Membership:

The Subcommittee will be composed of up to five members drawn from farmer members of the Environmental Collective who are able to represent the Collective’s various farming sector interests and will be focused on the practical on-farm implementation of the EMS and management of FEPs. The AIC Board will initially appoint two members to the Subcommittee, one of who will act as Chairman. The two Board appointed members will be responsible for appointing up to an additional three members.

The AIC Environmental Project Manager will act as principle advisor to the Subcommittee who will be required to attend all meetings and receive all committee papers.

The Subcommittee may appoint additional advisory members that are not Environmental Collective members, but bring a particular expertise or knowledge that will assist the Subcommittee in fulfilling its responsibilities.

Advisory members to the Subcommittee do not have voting rights but may offer advice to the Subcommittee on reaching a decision on a dispute or compliance issue.

The Subcommittee may appoint a new member(s) following any resignation or loss of a member(s) from the Subcommittee.

Members are required to declare any conflict of interest, and abstain from reaching any decision, regarding any dispute or compliance issues the Subcommittee may be considering.

9 The Environmental Collective: All of the farmers and/or landowners who have signed up to the terms and conditions of the EMS including both AIC shareholders and non-shareholders.

10 Environmental Project Manager: The person employed or contracted by AIC to manage AIC’s environmental project and act as principle advisor to the Subcommittee. The Environmental Project Manager reports to AIC’s General Manager.
Budget and financial responsibility

As part of AIC’s annual budgeting process, the Subcommittee will submit an environmental project budget to the AIC Board for approval. Once approved, any delegated funds will be within the authority of the Subcommittee to spend within the limits of the agreed budget.

Accountability and Reporting:

The Subcommittee is accountable to the AIC Board to deliver its responsibilities with regard to the implementation of the EMS and the resolution of disputes and compliance issues and will report its actions and activities to the AIC Board.

The Subcommittee will prepare an annual EMS Summary Report which will be submitted to the AIC Board for approval before it is reported to the Hurunui and Waiau Zone Committee and ECan.

Should the Subcommittee fail to deliver its responsibilities in an efficient and timely way to such an extent that AIC risks failing in its requirements under the HWRRP and its obligations to the Hurunui and Waiau Zone Committee and ECan, then the AIC Board may dismiss the entire Subcommittee and appoint new members to establish a new Subcommittee to deliver its responsibilities as set out in this terms of reference.

Review:

The Subcommittee will annually appoint a suitably qualified external industry expert, as defined by the ECan FEP Audit Manual, to undertake an audit of the EMS management system and progress against agreed actions and objectives set out in the EMS.

Within five years of its full approval by ECan, the Subcommittee will commission a review of the AIC ISMP and make recommendations to the AIC Board regarding any revision of the Plan and the EMS.

Ways of Working:

The Subcommittee is required to:

- Ensure the management of the EMS and the measurement, evaluation, reporting and auditing is transparent and appropriately reported to the AIC Board, Hurunui and Waiau Zone Committee, Ecan and other Hurunui and Waiau Rivers Regional Plan (HWRRP) stakeholders.

- Show a commitment to the continuous improvement in farm and land management practices which can contribute to the maintenance and / or improvement of water quality and the efficient use of resources.

- Act with complete impartially and fairness in the resolution of any disputes any Collective member may have (whether AIC shareholders or not) regarding the preparation of FEPs and the setting and measurement of any targets or objectives within that FEP or FEP audits.

- Reach decisions on issues regarding compliance with the requirements of the EMS, FEPs and FEP audits with complete impartially and fairness.

- Act with discretion and respect the confidentiality of any discussions and decisions regarding individual Environmental Collective members.
Meetings:

The Subcommittee will meet not less than four times a year at a suitable location within the HWRRP zone.

A secretariat will be provided by AIC who will organise meetings, circulate agendas and commission or prepare any papers for discussion and subsequently prepare meeting minutes.

All Subcommittee papers will remain the property of AIC and any discussions and decisions regarding members of the AIC Environmental Collective will be taken in confidence.

Remuneration:

AIC shareholding members of the Subcommittee will be remunerated for their attendance of meetings a rate agreed by the AIC Board. Non-shareholding members and advisors to the Subcommittee will be remunerated at the discretion of their parent organisation.
Appendix 5: GMP Development Strategy

AIC ENVIRONMENTAL SUBCOMMITTEE
GOOD MANAGEMENT PRACTICE (GMP) DEVELOPMENT STRATEGY

1. Introduction

1.1 At its meeting of the 27 July 2016, the Environmental Subcommittee agreed the following strategy to help Environmental Collective members make progress to Good Management practice (GMP).

2. Priority Areas for Improvement

2.1 The results of the first round of FEP Audits confirm that irrigation management, nutrient management and effluent management, in particular the inefficient use of effluent as a source of nutrients, are the three management areas in need of greatest improvement.

2.2 These results suggest there is considerable scope to reduce nutrient losses to water by focusing on improving irrigation efficiency and more integrated and effective use of all sources of nutrients available to the farmer.

2.3 This indicates that the most effective use of time and resources to achieve the best return on investment will be to focus training and development work for several years on helping farmers meet GMP for irrigation management and nutrient management, developing a more integrated approach to nutrient management.

3. Distribution of Audit Grades: Where we are in terms of meeting GMP and what sort of help is needed?

3.1 The distribution of audit grades from the first round of auditing shows that a few farms are already at GMP or above for all management areas, but these are in the minority (11%). Most farmers achieved a B audit grade (62%), showing they are not at GMP for all areas – but they are aware of this and are committed to do something about it.

3.2 This suggests that most members are positively engaged with moving to GMP or above and either have an A grade or will secure an A Grade at some point, but some management changes and / or investment in infrastructure are needed to achieve this. For some farms these changes will be minor for others it could be significant and will inevitably take longer to reach GMP. However, this large group of farmers is likely to be a positive and receptive audience to work with.

3.3 The 27% of farmers who are at C or D grade present a bigger challenge. In general C and D grades fall into two broad categories:

3.4 Those that are in general good managers but have a single or discrete reason for not achieving GMP, such as inadequate effluent storage capacity and no plan to manage the risks posed.

3.5 This category is likely to be relatively easy to manage and help, as long as they can be persuaded change is required.

3.6 The other category are those that have more systematic management failings across one or more management areas, such as inherently inefficient irrigation systems, poor system maintenance and a lack of any clear rational for irrigation scheduling. Anecdotal evidence would also suggest that these farms are also likely to be less efficient in terms of production and may be
struggling financially. This category will be much more challenging to manage and help progress to GMP and is likely to need targeted support and some persuasion to make progress towards GMP.

3.7 The Committee also needs to be prepared for the possibility of situations where some individual farmers repeatedly show a lack of willingness to engage in actions to make progress towards GMP where there is no option left but to revoke the farmer’s membership of the Collective.

4. Principles for a developing a strategy

4.1 It is proposed that a strategy for helping members of the Environmental Collective achieve GMP recognise the following six principles:

   i. Focus actions and activity on the areas that are likely to lead to the biggest improvement in desired outcomes at lowest cost or, ideally, to a cost benefit to the farmer;
   ii. Target and tailor actions at the needs of the various groups of farmers identified from each round of auditing;
   iii. Wherever possible incentivise good behaviour – regardless of individual starting points;
   iv. Maintain clear communications with farmers throughout the process - ensure farmers are aware of required actions and understand the consequences of failing to make required progress;
   v. Wherever possible work in partnership with other organisations to minimise duplication and aim to multiply AIC’s investment; and
   vi. Adapt and refresh the strategy considering feedback, evidence and capitalise on opportunities as they arise.

5. A two-year strategy for 2016-2018

   i. **A focus on irrigation management and more integrated nutrient management** – making the most efficient use of available resources;
   ii. **Follow up workshops** – giving farmers the information, contacts, knowledge and resources to operate at GMP. Initially the focus of these workshops will be on more efficient use of resources (water and nutrients) to deliver both economic and environmental benefits. Where possible these will be provided free of charge to the farmer.
   iii. **Mentoring** – AIC staff and other Collective members working individually with farmers and their advisors who face more challenging problems to get them into a position where they clearly understand what is required of them to make progress.
   iv. **Troubleshooting** – offering farmers, who are struggling to make progress or are faced with making challenging management changes, with the services of a farm consultant to analyse the nature of the problem and offer some clear guidance on moving forward. Wherever possible this will be provided free of charge to the farmer.
   v. **Identifying what can be done at a scheme level** – helping farmers access data to make better irrigation decisions will be an important area for future work and is linked to the scheme’s planned upgrade.
   vi. **Dealing with failure** – ensuring a clear process has been set out for dealing with repeated failure. Ultimately farmers could be required to leave the collective and would be required to engage directly with ECan and operate under an individual Resource Consent. It is hoped that such sanctions would not be needed, but it is important that this is in place and members clearly understand the consequences of failing to progress.
Appendix 6: Systems Audit Protocol

ENVIRONMENTAL MANAGEMENT STRATEGY:
SYSTEM AUDIT REQUIREMENTS

Introduction

AIC owns and implements an ECAn approved Irrigation Scheme Management Plan (ISMP) as defined in Schedule 2 of the Hurunui and Waiau Rivers Regional Plan.

Schedule 2 (3) of the HWRRP requires the ISMP to set out the protocols and procedures that will be followed in the development, implementation and maintenance of an Environmental Management Strategy (EMS), including:

- **The Management and Operation of the EMS**, including: governance arrangements, contractual arrangements, a description of Programme and Management areas and a statement of outcomes sought;
- **The Design and Delivery of Farm Environment Plans (FEP)**, including: the requirements for FEPs, inventory of nitrogen loss, specified management objectives and assessment of nutrient management risks for each property; and
- **The Audit Process**, including: FEP auditing and reporting to farmers, re-audit and compliance processes and annual summary reporting to ECAn and the Zone Committee.

Schedule 2 also requires that the ISMP and EMS process is audited annually by a suitably qualified independent body.

This note defines what AIC understands to be the requirements of an annual system audit, what would constitute a suitably qualified independent body and the approximate time required to complete a system audit.

What needs to be audited?

Requirement as set out in Schedule 2, section 3 of the HWRRP:

3. Description of the Audit and Reporting System

To ensure actions are undertaken to achieve the outcomes described in the ‘management system’ [i.e. the AIC ISMP] the actions shall be audited annually, by an independent body.

A description of the ‘Audit Process’ [i.e. the process to audit the ISMP and not FEP Audits] shall include:

- The process for assessing performance against agreed actions and at an individual property level;
- The expectation and agreements around landowner and property record keeping for the audit purposes;
- An outline as to how the audit results will be fed back to Members and also shared with the wider community; and
- How issues of poor performance to implement actions and reach outcomes are to be managed.
The summary audit report shall be submitted to the Canterbury regional Council annually.

It is AIC’s shared understanding with ECAn that the term audit in the description above is referring to the audit of the ‘management system’ i.e. the AIC ISMP as defined by Schedule 2, which is a ‘System Audit’ and not individual ‘FEP Audits’ although the system audit of the ISMP may include some assessment of a sample of individual FEP Audits in order to evaluate system performance.

With regards the first 3 points above, it is also understood that the system audit will be assessing how well AIC has delivered its ISMP against the objectives and standards set out in both the HWRRP and the Canterbury Certified FEP Auditor Manual.

With regards the last point above the system audit will be assessing how AIC has managed C and D grades against both the requirements of the auditor manual and in terms of the way we have implemented our internal Governance process, including the role of the AIC Environmental Subcommittee, in managing poor performance in the context of AIC operating an Audited Self Management (ASM) system.

It is understood that the ‘Summary Audit Report’, as outlined above along with the reporting requirements set out in Appendix 3.2 of the ECAn Auditor Manual would together comprise the Annual Summary Report for the AIC ISMP to be reported Ecan and the Zone Committee.

Who is capable of undertaking the system audit?

Discussions with ECAn regards who would be a suitable ‘independent body’ highlighted the importance of the ‘independent body’ having a very good understanding of the ECAn FEP auditing system and the Canterbury Land and Water Plan / HWRRP.

ECAn have confirmed that suitably experienced resource management organisations such as Irricon, ABG and Opus would be capable of undertaking a ‘system audit’. In addition, individual contractors – such as suitably experienced individual resource management consultants or other Canterbury irrigation scheme Environmental Managers who are ECAn FEP Certified Auditors would also be considered suitable system auditors.

Extent of the System Audit

It is understood that the System Audit would involve a:

- ‘desk based’ review of various documents, records, strategies, policies, sample FEPs and FEP Audits, meeting agendas and minutes, letters and other correspondence and various records relating to the delivery of the scheme’s ISMP and EMS; and

- series of interviews with scheme staff and appointed members of the Environmental Subcommittee.

It is anticipated that the desk based review would take a maximum of two day’s work with a further day for interviews. A further two days would be required for preparing a draft report and a final report. In total about four to five day’s work plus any mileage and accommodation costs.
Appendix 7: Non-Compliance Flowchart

Member receives first “C” or “D” grade

- ESC Chairman notified of grade and specific actions to be addressed immediately
- Offer to discuss/advise on specific actions within 14 days of audit report

**Repeat audit (2nd)**

- C improves to A or B: Go to a 2-year review
- C drops to D: Go to a 2-year review
- 2nd C audit: Go to a 2-year review
- 2nd D audit: Go to a 2-year review

Within 14 days these steps must be taken:

- ESC notified of 2nd low grade
- Chairman writes & says must improve or will trigger compliance on next audit and may be expelled from Collective
- Offer made for financial support for professional advice to resolve issues.

**Repeat audit (3rd)**

- C improves to B: Go to a 2-year review
- C drops to D: Go to a 2-year review
- 3rd C audit: Go to a 2-year review
- 3rd D audit: Go to a 2-year review

Within 14 days these steps must be taken:

- ESC notified of 3rd low grade
- ESC invites member to meet on specific date

**Member attends OR Member declines to meet**

- ESC meets on the date notified to member and decides on future membership or expulsion
- ESC notifies member of decision in writing one month from date of meeting

**Member agrees with decision and decision is finalised**

**Member disagrees with decision:**

- Member appeals decision in writing to Environmental Manager within 10 working days of date of meeting.
- Member must lodge $5,000 towards arbitration costs.

**ECan notified of dispute and requested by ESC to appoint arbitrator within one month of notifying Ecan to make binding decision on all parties**

**Arbitrator finds member compliant:**

- ESC refunds member $5,000

**Arbitrator finds member in breach:**

- Member pays $5,000 lodged previously towards costs to AIC
- May be expelled from scheme
- Water supply may be switched off
- Final water invoice issued
- ECan notified of breach
- AIC Board notified and decide whether to issue Court proceedings for breach of contract
Appendix 8: Relevant Documents and Policies

The AIC Irrigation Scheme Management Plan is informed by a range of other documents and policies. These include:

1. **Canterbury Certified Farm Environment Plan (FEP) Auditor Manual**: Prepared and published by ECan this document provides the operational framework for the auditing of FEPs in Canterbury. It sets out the processes and standard operating procedures that Certified FEP Auditors must follow and provides guidance to Certified FEP Auditors. All FEP auditing undertaken by the AIC Environmental Collective is managed to the standards and requirements of the Manual. All FEP auditors involved with the auditing for the AIC Collective are ECan certified auditors.

2. **AIC Environmental Collective FEP Auditing Standard Operating Procedures (SOP)**: This document and is a critical FEP auditing quality control mechanism, both for individual audits and the campaign as a whole. It sets out the detailed step by step operating procedures for the administration and operation of an AIC Environmental Collective Auditing Campaign. It is consistent with the FEP Auditor Manual (1. Above). It specifies timelines and operational processes for the administration of individual FEP Audits from notification through to completion and finalisation of the audit report and grading. It also details the administrative procedures to ensure the work of individual FEP auditors is coordinated with the FEP audit administration to ensure reliable version control and the management and filing of all relevant documents to enable document identification and retrieval. The document is continuously reviewed and amended as necessary throughout the audit campaign to ensure any administrative problems identified during the campaign are acted on and procedures revised immediately. The document is also fully reviewed prior to the start of an auditing campaign. Strict adherence to SOPs is required of all persons engaged in FEP auditing including contract FEP Auditors and AIC staff.

3. **AIC Environmental Collective Auditor Guidelines**: This document provides guidelines to all FEP Auditors for a particular auditing campaign and is important for ensuring consistency of auditing both between farms and for the duration of the campaign. It sets out the priorities and requirements for all auditors engaged by AIC. It provides guidance on: pre-audit checks, interview techniques, selection and recording of evidence, standards for conducting audit interviews, requirements for nutrient budgets and their analysis, the evaluation of irrigation efficiency and handling difficult situations. The Auditor Guidelines are updated during the campaign if necessary and fully reviewed prior to the start of an auditing campaign.

4. **AIC Biosecurity Policy**: This document sets out the biosecurity protocols required from all AIC staff or contractors involved with the preparation of FEPs or FEP Auditing.

5. **Environmental Subcommittee Terms of Reference**: This sets out the purpose and responsibilities of the AIC Environmental Subcommittee which is responsible for the overall direction of the work of the AIC Environmental Collective, including the oversight of FEP Auditing campaigns and dealing with non-compliance situations.

6. **AIC Nutrient Management Policy**: This is an AIC Board policy and is not the responsibility of the Environmental Subcommittee. It is applicable only to AIC shareholders. The Policy sets out how AIC’s consented nutrient load is managed and establishes a nutrient management process that regulates land use and farm system changes that may have an impact on nitrogen losses to water. It relates to FEP Audits in that any shareholder application for a change in farming system that may
increase nitrogen losses to water must be accompanied by a FEP Audit report and an audit grade of either A or B for the farm in question.

7. **AIC Biosecurity Policy**: This is a policy setting out the biosecurity precautions that must be observed by all AIC staff and contractors visiting any farm that is a member of the AIC Environmental Collective.
Appendix 9: Inventory of current N loss

Requirement 1 (f) of Schedule 2 of the HWRRP, requires:

(f.) An inventory of the current (from [date this Plan is made operative]) nitrogen loss rate (kg/ha/year) for each property in the Programme area, as determined by application of Overseer (or an alternative nutrient budget model approved by the Canterbury Regional Council) by a suitably qualified independent practitioner.

Requirement 1 (h) of Schedule 2 of the HWRRP, requires:

(h.) A statement of what is industry agreed best nutrient management practice for nitrogen and phosphorus loss rates (in kg/ha/year) for all specified land use types relevant for each management area, (i.) A statement of the contractual arrangements between the Programme and individual land managers (the ‘Members’) who commit to the Programme.

Condition 8 a.iii of AIC’s Consent Compliance Annual Report (CRC153154 and CRC168820) requires:

8 a iii A record of the annual loss of nitrogen and phosphorous for the preceding 12-month period (being from the 1 August until the following 31 July) for all properties identified on Schedule CRC153154.

Amuri Irrigation Scheme (AIC) rootzone N lost numbers used for catchment nutrient accounting are derived from the report by Lilburne et al. (2013) “Estimating nitrate-nitrogen leaching rates under rural land uses in Canterbury (updated).
http://files.ecan.govt.nz/public/lwrp/variation1/estimating-nitrate-nitrogen-leaching-rates-under-rural-land-uses-canterbury-updated.pdf At the time, AIC were preparing their nutrient discharge application this report was the most scientifically authoritative source of N leaching rates available.

In this report, N leaching values for pastoral systems were primarily derived from Overseer 6. Overseer 6 assumes ‘good practice’. So, the reported AIC N loss values assume farms are operating at good practice. However, the term ‘good practice’ is not directly comparable to the MGM portal definition of ‘good management practice’. The two systems use different calculation methods, so are not directly comparable.

AIC’s Consent Compliance Annual Report, submitted annually to ECAn, therefore, meets requirement 1 (f) and 1 (h) of Schedule 2 of the HWRRP.
Appendix 10: Auditor Health and Safety:

Prestart/Job Safety Analysis (JSA)

<table>
<thead>
<tr>
<th>Job description:</th>
<th>Farm Environment Plan Auditing</th>
<th>Date:</th>
<th>9/11/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Amuri Basin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landowner contacted:</td>
<td>Y/N</td>
<td>Work order no. AIC asset:</td>
<td>N/A</td>
</tr>
<tr>
<td>Yes</td>
<td>First aid kit location:</td>
<td>In Auditor’s Vehicle</td>
<td></td>
</tr>
<tr>
<td>Job estimation:</td>
<td>Cost: N/A</td>
<td>Duration: November</td>
<td>2018 – March 2019</td>
</tr>
</tbody>
</table>

Names of all personnel on job and involved in completion of JSA

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Contact Number</th>
<th>Role (ie. Auditor, digger operator. Indicate foreman)</th>
<th>Signature</th>
</tr>
</thead>
</table>

Hazards to consider – Tick the boxes for the hazards which are present in the job are about to assess and complete

<table>
<thead>
<tr>
<th>People</th>
<th>Work Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not trained/ Competent</td>
<td>Strains/RSI</td>
</tr>
<tr>
<td>Communication</td>
<td>Medication/Allergy</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Distractions</td>
</tr>
<tr>
<td>Hazard awareness</td>
<td>Manual Handling</td>
</tr>
<tr>
<td>Dehydration/ Sun exposure</td>
<td>Working Alone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental Issues</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust</td>
<td>Caught in / between</td>
</tr>
<tr>
<td>Water control/runoff</td>
<td>Water</td>
</tr>
<tr>
<td>Spills / Chemicals</td>
<td>Land disturbance</td>
</tr>
<tr>
<td>Break the job into logical steps</td>
<td>Identify Hazards: Risk: What could go wrong? Causes: Why could it happen?</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Auditor arrives at pre-arranged meeting place.</td>
<td>Low hazard: Controlled environment.</td>
</tr>
<tr>
<td>Auditor conducts interview with person responsible for farm management in an office environment.</td>
<td>Low hazard: Controlled environment.</td>
</tr>
</tbody>
</table>
| Auditor undertakes tour of farm with farm manager. | Medium: Range of generic and specific possible hazards. | Auditor’s training and experience mean they will be familiar with the general hazards likely to be accounted on a working farm.

Auditor has made themselves aware of farm health and safety policies and any specific hazards to be aware of.

Auditor is always accompanied on farm with farm manager or another responsible person.

Auditor wears any safety clothing provided by the farm manager.

Auditor adheres to any specific health and safety instructions provided for any particular hazard during the farm tour. | Low | N/A | N/A |
Appendix 11: Biosecurity Policy

AIC Biosecurity Policy for AIC Staff and Contractors

Four key principles:

1. **Check Before Visit**: Make sure as far as possible that no farm is visited which is infected or under any form of restriction notice;
2. **Stay Clean When On Farm**: When visiting farms as far as possible ensure yourself, vehicle and equipment does not come into contact with any likely disease vector – animals, effluent, yard slurry, faeces or slobber;
3. **Be Prepared for Any Contamination**: Clean off and disinfect if you do come into contact with likely disease vectors; and
4. **Record Visit and Actions**: Record any biosecurity actions taken and the date and times on farm.

**Guidelines for Visiting a Farm:**

- Require farmers to notify you and AIC of any biosecurity issues that may compromise the visit or any work to be done;
- The staff member / contractor to confirm at the time of the visit any biosecurity issues. Anything identified you are concerned about should be reported immediately to AIC;
- In general, do not enter a farm if it is an infected property or under Notice of Direction (NOD) or a Restricted Place Notice;
- Keep a log or record of farms visited and times and note any clean up or any other any biosecurity actions taken;
- Where possible, contractor vehicles to remain only on main farm tracks i.e. tanker tracks and roads to milking shed or residence;
- Farm visits should be conducted in farmer’s vehicle only. If vehicles need to go ‘on-farm’ they should be cleaned of soil and any effluent or faeces before leaving the farm;
- No vehicles, staff or contractors should come into direct contact with any animals during the visit;
- Any vehicle that becomes contaminated with significant mud / faeces or animal slobber should be hosed down before leaving farm and wheels / contaminated areas sprayed with disinfectant;
- Staff and contractors to wear rubber boots for farm / shed visit and these to be cleaned and disinfected before leaving farm;
- Staff and contractors to keep in vehicle a tray/bucket, scrubbing brush and / or a small hand-held spray for disinfecting boots; and
- Any disinfectant to be approved for farm biosecurity purposes and made up, used and stored as per label instructions.
Appendix 12: Checklist of relevant documents and evidence required for auditing

AIC ENVIRONMENTAL COLLECTIVE
FEP AUDITING

Checklist of Records and Evidence

All FEP audits need to be supported by good records and evidence of various farm management actions that can’t be otherwise demonstrated on the day of the audit.

The following list may be required at your audit and it is a good idea to gather these together before the audit interview – this saves time on the day and will help to make your audit run smoothly.

If you don’t have some of these records, then you may need to review your record keeping system – the requirement for good record keeping is an important part of running an efficient modern farming business.

<table>
<thead>
<tr>
<th>1. Irrigation Management</th>
<th>2. Nutrient Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Irrigation records: Timing of irrigation event (when switched on / off) and application depth</td>
<td>• Nutrient budget</td>
</tr>
<tr>
<td>• Distribution uniformity records and tests (Bucket Tests)</td>
<td>• Soil tests and fertiliser recommendations or nutrient management plan</td>
</tr>
<tr>
<td>• Rainfall records</td>
<td>• Fertiliser application records</td>
</tr>
<tr>
<td>• Soil moisture monitoring evidence</td>
<td>• Spreading company name or Spreadmark certificate</td>
</tr>
<tr>
<td>• Irrigation maintenance evidence</td>
<td>• GPS application records</td>
</tr>
<tr>
<td>• System evaluation report</td>
<td></td>
</tr>
<tr>
<td>• Staff training and evidence</td>
<td></td>
</tr>
<tr>
<td>• System design approval</td>
<td></td>
</tr>
<tr>
<td>• System commissioning report</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• ECan compliance monitoring report (copies available from ECan)</td>
<td>• Planting plan and map</td>
</tr>
<tr>
<td>• Effluent Management Plan:</td>
<td></td>
</tr>
<tr>
<td>o Effluent map;</td>
<td></td>
</tr>
<tr>
<td>o Effluent diary; and</td>
<td></td>
</tr>
<tr>
<td>o Effluent consent.</td>
<td></td>
</tr>
<tr>
<td>• Effluent application records</td>
<td></td>
</tr>
<tr>
<td>• Bucket test results (depth and uniformity)</td>
<td></td>
</tr>
</tbody>
</table>

| 5. Soil Management | |
|-------------------|-
| • Soil maps | |