AMURI IRRIGATION CO

Irrigation Scheme

Management Plan and Environmental Management Strategy:

Delivering an Improved Environment Through Greater Resource Use Efficiency

July 2022

Table of Contents

1.0 Introduction and Summary

This Irrigation Scheme Management Plan (ISMP) has been developed by Amuri Irrigation Company Limited (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 CRC204999. It should not be read as an overarching environmental policy for the management of AIC's irrigation schemes.

This current amendment has been prepared to include:

Some changes to the auditing framework and internal processes around attendance, charging, scheduling of audits.

- The inclusion of the Winter Management Handbook and Winter auditing
- The NPS-FW 2020 release and how matters of Intensive Winter Grazing and Intensification specifically are addressed.
- Including into the FEP audit framework some greater provisions associated with biodiversity and mahinga kai.

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 ECan 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 the Leslie Hills Bridge 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 trusted and progressive irrigation company, safely, efficiently and sustainably supplying reliable water.***

AIC will undertake 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

The scheme is working towards future proofing the needs of the shareholders and community by investing in a number of larger scale projects. These are associated with a sizeable storage pond in the Balmoral catchment, which will service the needs of the scheme and independent irrigators into the future. There is also hydro-power development to utilise the water resource in a way that assists in the management of the scheme and also uses the water resource for value-add purposes.

3.0 An Environmental Management Strategy (EMS)

This EMS provides for:

- The requirements of AIC's Resource Consent CRC204999 previously 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 CRC204999. 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 Board.

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.

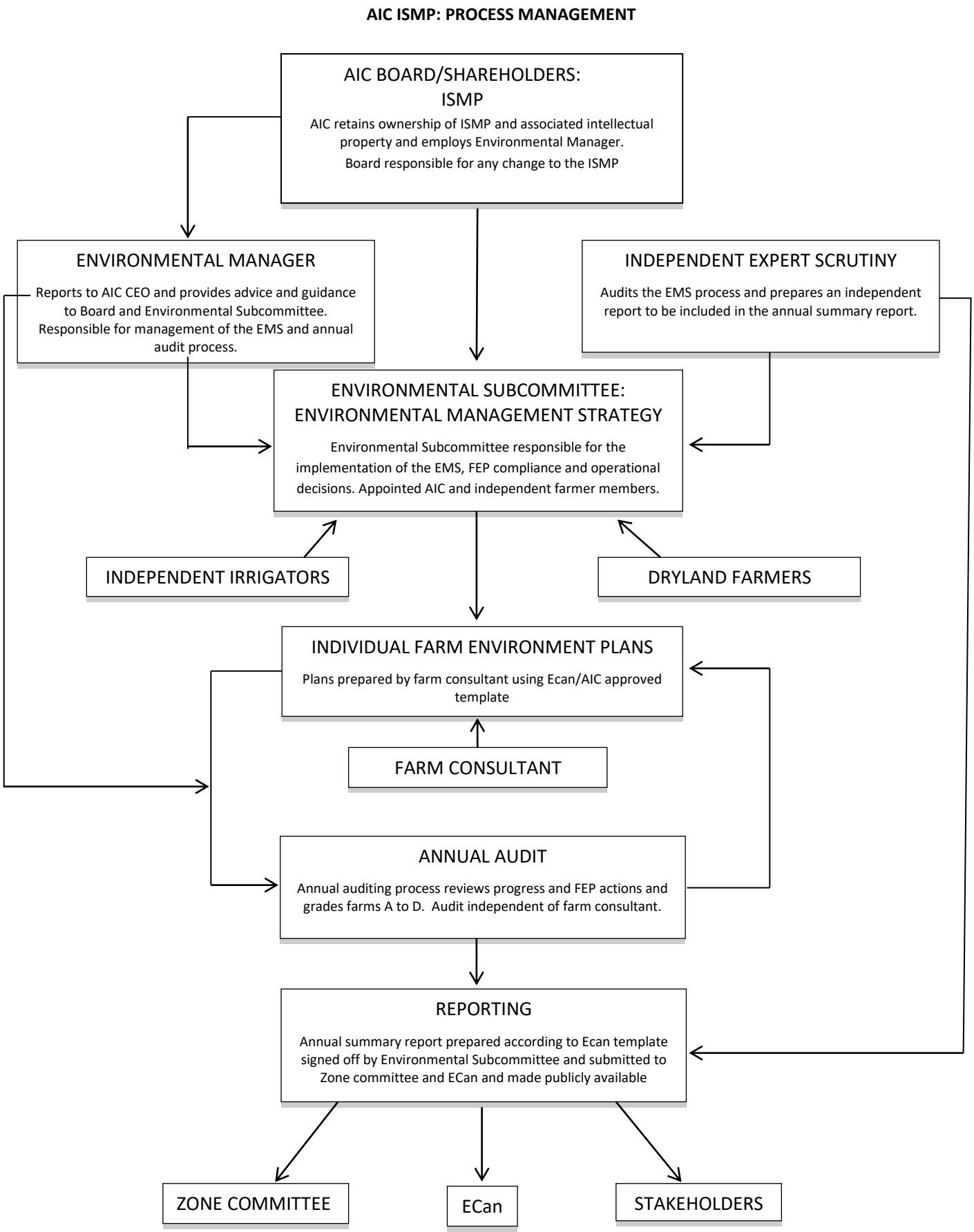
The membership of the Subcommittee is made up of farmers in the Collective who can represent the various farming sector interests. It will be focused on the practical on-farm implementation of the EMS and FEPs. The Subcommittee has a remit to ensure that the management of the EMS and the measurement, 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 Subcommittee's decisions. The Environmental Manager reports to AIC's Chief Executive Officer 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 Subcommittee who will make recommendations on any changes to the AIC Board for approval.

Fig 1 Management Process Flowchart



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
- 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.
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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;

[1] The decision to pipe the irrigation scheme will accelerate the conversion of borderdyke to spray irrigation. In 2021, there is 186 hectares of borderdyke irrigated land remaining in the scheme.

- 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;
- Preservation and improvement in water quality of our ground and surface resources;
- The protection of ecologically important wetlands and areas of native vegetation and habitats;
- Well trained and motivated farm teams 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 Winter Management GMP's have been developed internally by AIC as a way of improving on-farm wintering considerations and practices. These are detailed in the Winter Management Handbook, released July 2020. 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. The program works around the audit process which are driven by the ECAN issued audit manual and audit guidance which follows guidance and amendments as required.

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 working partnerships involve 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 principal 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; or
- For Synlait Suppliers who are part of the Lead with Pride TM programme, as approved by ECan

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 farm management areas are:

- Irrigation management;
- Soils management;
- Nutrient management;
- Winter 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 farms 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;

[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.

- 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.

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 3: Industry agreed GMP and EMS Objectives, Outcomes and Targets

Industry Agreed GMP	**AIC EMS:** **Objectives, Outcomes and Targets**			
Irrigation GMP	**Overall Objective**	**Outcome on farm**	**FEP / FEP Audit Targets**	**Commentary and Specific Management Area (MA) Risks or Expected Outcomes**
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.	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.	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.	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.

Nutrients GMP	Overall Objective	Outcome on farm	FEP / FEP Audit Targets	Commentary and Specific Management Area (MA) Risks or Expected Outcomes
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.	Maximising the efficient use of nutrients, from all sources, for plant growth while minimising the losses of nitrogen and phosphorous to water.	Nutrient loss to waterways will be reduced. Industry benchmarks for nitrogen and phosphorous loss rates will be achieved or bettered.	T1: GMP are used to ensure N losses from farming activities are minimised. T2: Phosphorous and sediment losses from farming activities are minimised. T3: The amount and rate of fertiliser applied does not exceed crop requirements and takes account of the availability of nutrients from all sources.	Achieving this objective will require farmers to have the skills and tools to understand nutrient flows on the farm and identify practices that lead to inefficiencies and losses. 'Overseer' generated nutrient budget reports will be required for all farms at their FEP Audit and will be used as a tool to help achieve more efficient use and management of nutrients. When reliable benchmarking tools are available (the ECan GMP nutrient management portal) these will be used to help farmers achieve or better GMP loss rates for nitrogen. Where losses are more than benchmark standards then farmers would need to identify how nutrient losses will be reduced to meet or better the industry standard within an agreed timeframe. MA3 and 4: Sloping land brings particular run-off risks and associated loss of sediment and P to waterways. This needs to be carefully considered in FEPs.
Collected Animal Effluent GMP	**Overall Objective**	**Outcome on farm**	**FEP / FEP Audit Targets**	**Commentary and Specific Management Area (MA) Risks or Expected Outcomes**

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.	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.	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.	AIC water users must hold resource consents for the use of land for the storage of animal effluent and the discharge of effluent to land and are expected to meet the consenting requirements. FEP audits will require evidence that these conditions are being met. FEPs will assess each farm's effluent storage capacity and compare industry standards. Where insufficient storage capacity is identified, FEP's would need to identify how this risk will be managed, such as a contract for removal of effluent from the farm for treatment or approved disposal elsewhere. Where there are no suitable management alternatives, increased storage capacity will be required. FEPs will require all new effluent storage and management systems to meet agreed industry best practice. MA3: Application of effluent on sloping land brings particular run-off risks and associated loss of sediment, nutrient and faecal material to waterways. This needs to be carefully considered in FEPs.
Wetland, native vegetation and riparian GMP	**Overall Objective**	**Outcome on farm**	**FEP / FEP Audit Targets**	**Commentary and Specific Management Area (MA) Risks or Expected Outcomes**
To the extent that is	Damage to the bed or	The protection of natural	T1: Stock are excluded from waterbodies	FEPs will require the protection of natural

compatible with land form, stock class and intensity, exclude stock from waterways. Locate and manage farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other sources of run off to minimise risks to water quality. Identify risk of overland flow of sediment and faecal bacteria on the property and implement measures to minimise transport of these to waterbodies. Select appropriate paddocks for intensive grazing, recognising and mitigating possible nutrient and sediment loss from critical source areas. Manage grazing to minimise losses from critical source areas.	banks of water bodies, sedimentation and disturbance of the waterbody, direct discharge of contaminants, and degradation of aquatic ecosystems is avoided.	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. Nutrient loss to waterways minimised.	in accordance with regional council rules and any granted resource consent. T2: Vegetated riparian margins are maintained to minimise nutrient, sediment and faecal contamination of waterways. T3: Farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows, critical source areas and other sources of run off are located and / or managed to minimise risks to water quality. T4: Map and protect existing native vegetation, waterways and wetland habitats from damage or degradation.	waterways and wetlands from physical damage or erosion or the contamination of water by nutrients, effluent or sediment. How this protection is achieved will be identified in FEPs and will be proportional to the environmental risks, sensitivity of environment, frequency of movements, stocking density and the type of stock grazing the land. These factors will need to be considered in the preparation of the FEP. MA1, 2 and 4: FEPs will require that stock should be excluded from permanently or intermittently flowing rivers, lakes or wetlands. Intermittently flowing rivers are defined as a river with some reaches that cease to flow from time to time while other reaches continue to flow. In contrast an ephemeral waterway would generally be a waterway that only contains water for brief periods, such as gullies after heavy rain. MA1 and 2: These are highly modified agricultural landscapes with very little remaining native vegetation or habitats. However, opportunities exist for the planting of riparian margins with native vegetation for landscape and habitat recreation objectives. FEPs will encourage this where appropriate. MA 3 and 4: These management areas may contain remnants of native vegetation, waterways and wetland habitats. These

				should be mapped on FEPs and appropriate protection from damage or degradation identified.
Soils GMP	**Overall Objective**	**Outcome on farm**	**FEP / FEP Audit Targets**	**Commentary and Specific Management Area (MA) Risks or Expected Outcomes**
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 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.	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 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.
Environmental Hotspots	**Overall Objective**	**Outcome on farm**	**FEP / FEP Audit Targets**	**Commentary and Specific Management Area (MA) Risks or Expected Outcomes**
Not included	Offal pits, rubbish pits and other point source risks are managed to minimise environmental damage.	Offal pits and rubbish pits are no greater than $50m^3$ Offal, rubbish and silage pits are sited to avoid surface runoff from entering the pit. No more than one pit per 100ha of farm.	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.	
Winter Grazing Management	Winter stock management is planned, and stock are wintered to manage identified risks to the environment. Consideration is encouraged to integrate wider farm system outcomes, such as animal welfare and team but is not audited through the FEP.	Environmental risks are mititgated and management practices are planned through using the Winter Management plan template and associated support documents. Implemented to effectively manage risks and provide contingencies for extreme events	T1 Paddock Selection T2 Paddock Preparation T3 Grazing Management T4 Post Grazing Management	

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 ECan 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 at least six weeks 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. A farm can change their audit date by contacting AIC directly up to 5 working days before an audit. The audit date can only be changed once otherwise the FEP audit grade becomes a C. It would only be in certain circumstances, such as illness, injury, death or force majeure circumstances that a requested change would be accepted within the 5 working day window.

During the audit, the use of remote technology, such as drones, aerial imagery and photographs may be used to aid the audit process. This imagery is only gathered to assist the farm owner, Farm Management, AIC and the auditors in completing the farm audit process in a more effective and time efficient manner. It is AIC's expectation that the auditor seeks verbal approval to use such technology at the time of being accompanied on the audit. This technology does not detract from the direct audit relationships and process that has been conducted to date. It is a way where direct contact can be removed and you can view a different perspective on your property with the auditor, if required from a health or biosecurity perspective. There is a AIC Drone SOP, which the auditors will be given and asked to follow.

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

The finalisation of FEP Audits is completed by AIC's Environmental Officer 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 *Sustainability by Design* for a 3-year period from 2019 to 2021.

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[3].

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. Failure to produce a nutrient budget at the time of the audit will automatically result in a C grade audit being awarded. The standard review times still apply, and this can be re-graded in an appropriate budget is provided in the set timeframes.

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 (CRC204999) 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 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. It is the direct responsibility of the Collective Member to always ensure compliance with the permitted activity rule and meet their specified baseline load. The FEP auditor or audit process does not manage this.

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

[3] A significant change is defined in AIC's Nutrient Management Policy.

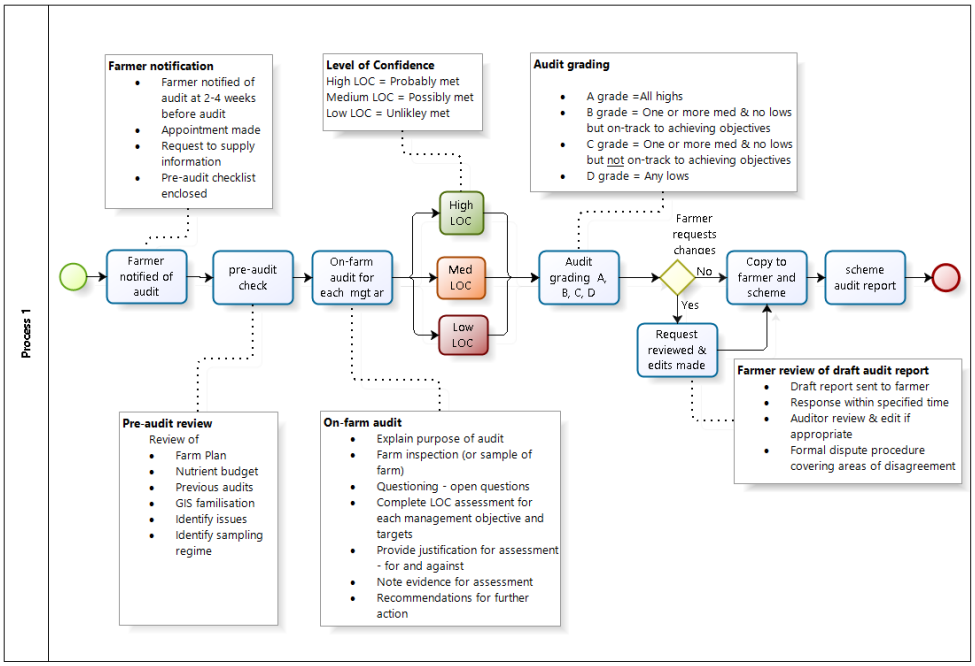
farm meet the consented NLL defined in the resource consent. Discrepancies between modelled nutrient losses and the NLL will affect the Level of Confidence for the nutrient management section of the FEP Audit and influence the overall FEP Audit grade awarded by the auditor.

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:



The audit process works best when there is engagement, empathy, and trust between all parties. The value of the audit is to obtain constructive and workable feedback to improve on-farm performance. This is best achieved when conduct and standards of work are mutually respected. The audit process asks that all parties engage with each other in a manner that represents the goals, objectives and values of the AIC FEP programme and AIC business. The audit report shall outline in a professional manner, so that it is clearly understood what practices are being done well on-farm, the practices that need some improvement and practices that need to be undertaken to achieve the required standards and objectives.

At a minimum the code of conduct expected would be:

- To respect the time of each party – be present, punctual and if necessary, advise of any delays as soon as you can.
- To be open to listening, receiving the feedback and respecting other thoughts and opinions than your own.

- Participate fully in the process by sharing your farm practices, evidence, documentation and constructively answering questions posed to you.
- No verbal or physical behaviour should be displayed toward either party at any time.

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

Confidence that Environmental Management Area Objectives Being Met	**Overall Assessment**	**Grading**	**Action to be Taken and Repeat Inspection**	
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[4].
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.

[4] Significant change in farm management means a change in farm manager and / or significant change to farm boundaries, ownership or farming systems.

>1 Medium 0 Lows	Some areas in need of further action but not on-track to achieving objectives within agreed timeline.	C Confidence that	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.

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.*

If there are any known enforcement or significant non-compliance events through Ecan Compliance Monitoring processes, then the farm needs to notify AIC within 5 working days of them becoming aware of the issue or if AIC become aware of this directly the farm will be automatically re-audited, regardless of grade and recent audit timeframes during the next audit cycle. This will be communicated to the farm owner at the time of matter being raised. The costs of this audit and any subsequent re-audits associated with the same matter will be borne by the member.

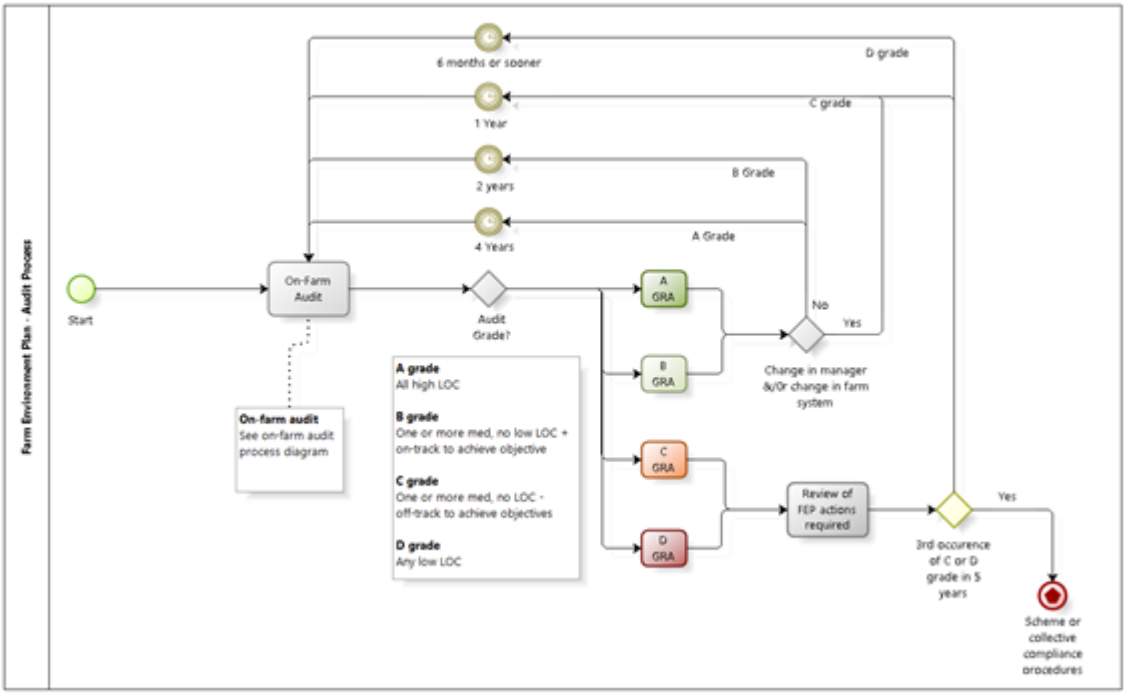
If there are any observed performance issues on-farm reported directly to AIC by other farmers, community members or the members of the public an on-farm advisory visit will be undertaken, where possible. This may include a member of the Environmental Sub-Committee, AIC staff and/or technical advisors as deemed necessary by AIC. The standard farm visit report form would be used.

Any concerns with environmental practices and/or the auditing process within the catchment (on your own, neighbouring or other land) needs to be raised in a timely manner with AIC directly in confidence. These matters will be dealt with by undertaking an advisory visit, as outlined above.

As the FEP programme continues to strengthen and more farms operate above GMP, on an A grade audit. The 4 years between audits is significant so it is proposed all farms will be offered an internal advisory visit. This is a time where a on-farm visit, 1:1 catch up or phone discussion will be undertaken. It is not compulsory that farms have an advisory visit, but it is strongly encouraged. At the time of the visit any new requirements for the audit will be discussed and the evidence checklist will be worked through.

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 party 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 HWRRP. 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.

Audit scheduling Policy

Our policy in the timeframes of audits is outlined below:

- Our environmental team met with our Environmental Subcommittee with the proposed changes to move our auditing scheme audit rotation to when audits are due and at our discretion for workload and risk. This maintains the integrity of our programming while allowing us to continue to provide on farm support and ensuring there is adequate engagement.
- Following approval from our subcommittee we then move to liaison at Environment Canterbury who supported this move due to the success of the program and the implementation of our audit follow up procedure to ensure that a no-man-left-behind approach to be used for landowners who are facing bigger challenges.

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 within 5 working days audit 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 C grade and the farmer will be charged for the repeat audit accordingly.

- **6.7 Audit Actions Follow up**

Over the 21-22 auditing season we trialled a system that followed up for the higher priority and higher risk audit actions such as re-siting of a farm pit, stock exclusion, silage pit relining, by providing additional support to each farm outlining the actions required and suitable timeframes. Feedback was positive as it kept the actions in momentum.

Implementing this from 2022-2023 season will aim to increase our future audit results to more A grade farms, ensure actions are being carried out in a timely manner to ensure a desired outcome is achieved rather than actions completed just prior to the next audit. This also means there is less risk to the farm system and ensures that audit actions are kept alive.

- It is important to note that we will not be able to upgrade their audit grade, but we will have more confidence in our farmers when the next audit season rolls around that they are operating at GMP and provides additional support and a no man left behind approach to our EMS.

After the audit the landowner is notified of the grade and outstanding actions and have their ten days to dispute the report or have it finalised. After the ten days have passed from the audit report being finalised a call will be made to the landowner/shareholder to discuss the actions and make a time for an advisory visit to be undertaken on-farm if required, as a follow up.

- An advisory visit consists of Lucy or Esther visiting the farm, meeting with the appropriate management, discussing the audit and actions, agreeing the timeframe and support needed to address the actions, ensuring the follow up process if timeframes are not met.

- This will assist in helping bridge some of the gaps identified in the FEP program. It is also another great way to engage with farms and help address environmental and business-related matters by front-footing the discussions.
- Lack of engagement from landowners for these actions could result in our Environmental Subcommittee getting notified or audit scheduling being brought forward.

6.8 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 regarding 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).

It is strongly encouraged that both landowner and farm management; lessee and in winter the stock owner if they control the day-day winter grazing requirement, are in attendance at the time of the audit.

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 3-yearly review of the EMS or earlier if deemed necessary 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 auditing cycle commences in May and is normally completed by the end of March. Winter audits are conducted between mid-late May and then late June-Mid July. Summer audits typically occur between late October – end March, breaking for the Christmas and holiday period.

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 early Winter 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.

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;
- Number of winter and summer audits
- 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[5];
- 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 (CRC204999) 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

[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'.

- 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;
  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 suggested actions from the independent ISMP/EMS review deemed appropriate and priority by the Environmental Sub Committee

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

3.0 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:

(a) The process for assessing performance against agreed actions and at an individual property level;

(b) The expectation and agreements around landowner and property record keeping for the audit purposes;

(c) An outline as to how the audit results will be fed back to Members and also shared with the wider community; and,

(d) 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

FEP No	Farm name	Owner name	Farm type
1000	A N & S B Williamson Ltd	Norm Williamson	Dairy
1001	Achray Holdings Ltd	Michael Mossman	Beef and Sheep
1002	Balmoral Ngai Tahu		Beef
1003	Amuri Area School	Adam Williamson	Lifestyle block
1007	Gregor & Liz Mackenzie	Gregor Mackenzie	Dairy Support
1008	Alexander Macfarlane	Alexander Macfarlane	Lifestyle block
1010	Hemingford	Alistair Holland	Beef and Sheep
1012	Rockdale	Louise Pickering	Dairy
1014	Amuri Dairying Ltd	Andrew Benton	Dairy
1018	Amuri Pastoral Ltd	Stuart Neill	Dairy
1020	Amuri Polo Club	Bryan Burrows	Lifestyle block
1025	Ben Lomond	Andrew Gould	Beef and Sheep
1027	Coldstream	Andrew Dalzell	Dairy Support
1036	Cranleigh & part of Parkvale	Duncan Rutherford	Dairy Support
1040	Rangeview	Ross Beaven	Dairy Support
1043	Mt Montrose	David McKenzie	Beef and Sheep
1047	Glasgarten Farm	Jamie Lissington	Dairy
1049	Salix Farm	Arthur Black	Sheep
1050	Auchenbrae Farm Ltd	Duncan Anderson	Dairy
1051	Auchtercairn Farm Ltd	Duncan Rutherford	Dairy
1052	Kaiwara Farm	Bruce Johns	Beef and Sheep
1053	Kaiwara Farm	Bruce Johns	Dairy
1055	Pahau Dairy Ltd	Ed Tapp	Dairy
1057	Ballindalloch Farm Ltd	Peter Kinney	Dairy
1058	Ballindalloch Farm Ltd	Peter Kinney	Dairy Support
1064	Beechwood Ltd	Peter Kinney	Beef (>70% beef)
1068	The Hermitage	Matthew Gould	Beef and Sheep
1069	Bermar Holdings Ltd	Berry Neppelenbroek	Dairy
1070	Royden	Chris Draper	Arable/Dairy Support
1073	Overdale	Geoffrey Bowron	Beef and Sheep
1074	Black Farming Group	Ben Black	Dairy
1076	Brian & Wendy Beaven	Wendy Beaven	Lifestyle block
1079	Bexhill Pastures	Bryan Burrows	Dairy
1080	Eskdale	Craig Ritchie	Dairy Support
1084	Te Pahau	Terry Rothery	Dairy
1089	Clive Smith	Clive Smith	Lifestyle block
1091	Kia ora	Colin Salkeld	Beef and Sheep
1096	Culverden Rugby Club	Kevin O'Neill	Lifestyle block
1099	Roads End, Elvaston & Balcarres	Alastair Youngman	Beef and Sheep
1102	Glencarron	David Croft	Dairy
1109	Lowry Peaks	Hugo Davison	Dairy
1114	Klondyke	Johnny Ussher	Arable/Dairy Support
1115	Neppelenbroek Trustees	Berry Neppelenbroek	Lifestyle block

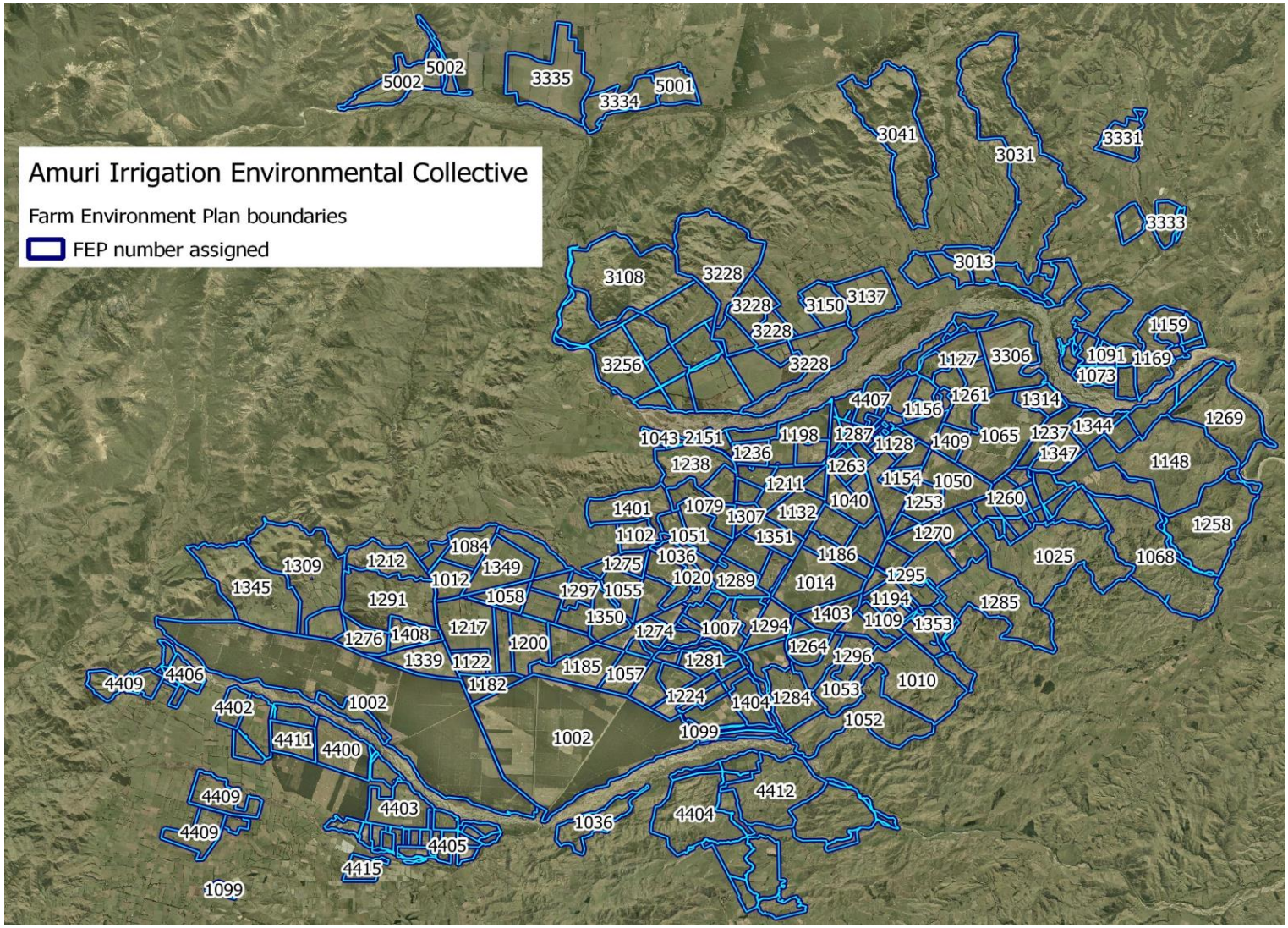
1119	Loch Leven	Michael Dryden	Beef and Sheep
1122	Dry Creek Dairy Ltd	James McCone	Dairy
1124	River Camp	Andy Gardner	Dairy Support
1127	Murray Downs	Bernie Chick	Dairy Support
1128	Nga-Roto	Bernie Chick	Dairy
1132	Fenland Dairy Farm LP	Bill Donaldson	Dairy
1133	Buttermere Fernrose Ltd	Grant McIntosh	Dairy
1136	Beechbank Dairies Ltd	Alan Davie-Martin	Dairy
1139	Caithness Dairy Ltd	Stuart Taylor	Dairy
1142	Topp Farm	Jonny Dingle	Beef and Sheep
1148	Graeme Grigg	Graeme Grigg	Beef and Sheep
1154	Greg Earl	Greg Earl	Dairy
1156	Matakana	Bernie Chick	Dairy
1158	Harakeke Dairies Ltd	Jane Evans	Dairy
1159	The Willows	Margaret Dalley	Beef
1160	Beltons	Graham Dalley	Beef
1169	Highfield & Leader Road	Michael Northcote	Beef and Sheep
1182	Hurunui Limited Partnership	Felix McGirr	Dairy
1185	Kyenton Farm Ltd	Malcolm Norrie	Dairy
1186	Inniskillen Dairy Ltd	Bill Suckling	Dairy
1194	The Willows	Tom McIntosh	Sheep
1195	Cairnbrae	Janet Murphy	Beef
1197	Ray Thomas	Ray Thomas	Dairy
1198	Riverside	Philip Roberts	Dairy
1199	Pukeiti	Richard Ormond	Beef
1200	Callura Dairies	Brad Sutton	Dairy
1201	Burra Burra	Graeme Sutton	Dairy
1203	Jersey Land Dairies Ltd Home block	Tim Delany	Dairy
1205	Summerhaze	John Fleming	Beef and Sheep
1208	Parham Hill	Mark Fleming	Beef and Sheep
1210	Kaiora Downs 2000 Ltd	Mark Schwass	Beef and Sheep
1212	Kalgoorlie Holdings Ltd	Richard Moody	Dairy Support
1217	Kenmare Dairy Ltd	Emlyn Francis	Dairy
1218	Taihoa	Ken Riddington	Dairy
1219	Kaituna	Ken Riddington	Dairy
1222	Pat Phipps	Patricia Phipps	Lifestyle block
1223	Kingsway - Inniskillen	Murray King	Dairy
1224	Kingsway - Hedley	Murray King	Dairy
1235	Monowai	Doug Johns	Dairy
1236	The Terrace	John Faulkner	Dairy
1237	Longbrook Dairy Ltd	Paul Hood	Dairy
1238	Eudunda Dairy Ltd	Wally Jamieson	Dairy
1239	Hollydale	Stuart Gibson	Dairy Support
1243	Devine	Trevor Devine	Dairy Support
1248	Pahau Block	Matthew Black	Dairy Support
1253	Mindel Dairy Farm LP	Bill Donaldson	Dairy
1255	Montrose	Ben Rutherford	Beef and Sheep
1258	Mount Palm	Hugh Robinson	Beef and Sheep
1260	Ayrburn	Rose Lawson	Beef and Sheep

1263	Conway Downs	Geoffrey Jopp	Dairy
1264	Lowry	Ed Tapp	Dairy
1269	Ngawiro	Frank Macfarlane	Beef and Sheep
1270	Nukiwai Pastoral Ltd	Andrew Benton	Dairy
1271	The Oaks	George Gould	Dairy
1274	Pentervin	Duncan Allison	Dairy
1275	Airlie	Peter Allison	Dairy
1276	The Ranch	Peter Allison	Dairy
1281	Pahau Dairy Farm Ltd	Johnny Ussher	Dairy
1282	Pahau Reserve Ltd	Kevin O'Neill	Dairy
1283	Darnley	Stuart Taylor	Dairy
1284	Pahau Pastures Ltd	Andrew Benton	Dairy Support
1285	Palmside Station	Mike Satterthwaite	Beef and Sheep
1287	Flintoft	Peter Flintoft	Beef and Sheep
1289	Mossman	Peter Mossman	Dairy
1291	Balmoral	Philip Smith	Beef and Sheep
1294	R & P McIntosh Ltd	Robert McIntosh	Dairy
1295	Blakiston Too	Frank Ranford	Dairy Support
1296	Green Valley	Frank Ranford	Dairy
1297	Rakaia Incorporation Ltd	John Donkers	Dairy
1300	Redpost Dairy Farm LP	James McCone	Dairy
1307	K D Land Ltd	James McCone	Dairy
1309	Sandford Downs Ltd	James Hartnell	Beef and Sheep
1311	Bourne Lea Ltd	Ray Thomas	Sheep
1314	Stroma Farm	Hamish Macfarlane	Beef
1339	FLO New Zealand Ltd	Ian Jolly	Dairy
1340	Upper Balmoral Ltd	Emlyn Francis	Dairy
1342	Waihou Land Company Ltd	Vicky Stainton	Dairy
1344	Waihui Farming Ltd	Tom Macfarlane	Beef and Sheep
1345	Waipuna Farming Co Ltd	Richard McLachlan	Beef and Sheep
1347	Waitanui Dairy Farm LP	Bill Donaldson	Dairy
1348	Wroxton	Warren Higgins	Beef and Sheep
1349	Westhaven 2019 LP	Simon Van der Heyden	Dairy
1350	Willowbank Dairy Farm LP	Bill Donaldson	Dairy
1351	Windale Dairy Farm LP	Bill Donaldson	Dairy
1353	Wynyard	Rupert Davison	Dairy
1400	Hillcrest Farm	David Croft	Dairy
1401	The Homestead	David Croft	Dairy Support
1402	Island Paddocks	Tim Delany	Dairy
1403	Duck pond	Tim Delany	Dairy
1404	Landsend	Stuart Taylor	Dairy
1405	Riverend	Stuart Taylor	Dairy
1406	Parkvale		Dairy
1408	Chalfont	Peter Allison	Dairy
1409	Red Hill Dairy Ltd	Kevin O'Neill	Dairy
1410	Cranford	Chris Dampier-Crossley	Beef and Sheep
1411	Cranford Downs Ltd	Ben Dampier-Crossley	Beef and Sheep

1412	Westhaven runoff	Bill Donaldson	Dairy Support
1413	Avenue Farm Ltd	Martin Smith	Dairy Support
1414	Kairoma Farm Ltd	Mark Fleming	Dairy
1415	Green Valley	John Ranford	Lifestyle block
2151	Kereone	John Faulkner	Dairy Support
3013	Edale Farms Ltd	Matthew Gardner	Dairy/Sheep
3031	Hossack Downs	Hamish Galletly	Beef and Sheep
3041	Polo Hill	Don Mclean	Beef and Sheep
3048	Ardan View Farm	Ben Lissington	Dairy
3056	Avonvale	Hamish McRae	Beef and Sheep
3094	Spring Farm	Billy Lott	
3108	L H Dairy Ltd	Duncan Rutherford	Dairy
3109	Leslie Hills	Duncan Rutherford	Beef and Sheep
3137	Denbrae & Timalyn	Graeme Coats	Dairy
3150	Chamrousse	Grant Florance	Arable/Dairy Support
3228	Landsborough	Scott Rutherford	Beef and Sheep
3256	Morna Downs	Craig Rutherford	Beef and Sheep
3278	Fyfe Downs	Scott Anderson	Dairy Support
3306	Rock End Downs	Andrew Black	Beef and Sheep
3331	Glenshee	Vicky Stainton	Dairy Support
3332	Belton Block	Graham Dalley	
3333	The Tongue	Sarah Williams	Beef and Sheep
3334	Lower Farm	Carol Dennis	Beef and Sheep
3335	Toshi	Scott Shadbolt	Beef
3336	Leebrook	Angus Aitken	Beef and Sheep
3337	Lochness	Don Galletly	Dairy
4400	Patoa Farms Ltd	Holly Sterne	Pigs
4401	Hanley Farming	Mark Hassall	Dairy
4402	Peaks Dairy LP	Ian Joyce	Dairy
4403	Medstone Dairy	Craig Ginders	Dairy
4404	Mt Benger	Duncan Fraser	Beef and Sheep
4405	Medbury Farm Ltd	Dave Hislop	Dairy
4406	Cairnbrock Dairies Ltd	Kevin Earl	Dairy
4407	Neppalex	Berry Neppelenbroek	Dairy
4408	Dalry Dairy Ltd	Andrew Mulholland	Dairy
4409	Zino Holdings Ltd	Mark Zino	Beef and Sheep
4410	The Bluffs	Russell Walker	Dairy Support
4411	Hurunui Plains/Forest View	Holly Sterne	Arable / cropping
4412	Maxwelton	Tom Maxwell	Beef and Sheep
4413	Bermar Runoff	Berry Neppelenbroek	Dairy Support
4415	Pinegrove	Bill Suckling	Dairy Support
5001	Ben Nevis	Roger Smith	Beef and Sheep
5002	Grantham Springs	Scott Rutherford	Dairy Support
5003	Bull Farm	Scott Shadbolt	Beef and Sheep

Owner name	Farm type

Appendix 3: Property Boundaries



Appendix 4: Environmental Subcommittee Terms of Reference

AIC Environmental Subcommittee:

Terms of Reference

Revised June 2021

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;
- 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 3 yearly review of the ISMP, the EMS process and the performance and independence of the Environmental Subcommittee or at an earlier timeframe if necessary; and
- Commissioning a review of the AIC ISMP within five years from its approval by ECan.
- Provide a working relationship between the independent members and AIC for the sharing of knowledge, ideas and aligning workstreams.

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[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 workplans;

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 environmental strategy and associated workplan.

Subcommittee Membership:

The Subcommittee will be composed of five to nine members drawn from farmer members of the Environmental Collective[9] 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 an additional three members up to a maximum of seven.

The AIC Environmental Manager[10] will act as principal 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.

Accountability and Reporting:

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[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 Manager:** The person employed or contracted by AIC to manage AIC's environmental project and act as principal advisor to the Subcommittee. The Environmental Manager reports to AIC's CEO.

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 representative parties, such asEcan as required.

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 Ecan and the AIC consents, 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 these terms of reference.

Review:

The Subcommittee will 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 every 3-years or earlier if deemed necessary.

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, 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 three 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.

Appendix 5: 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

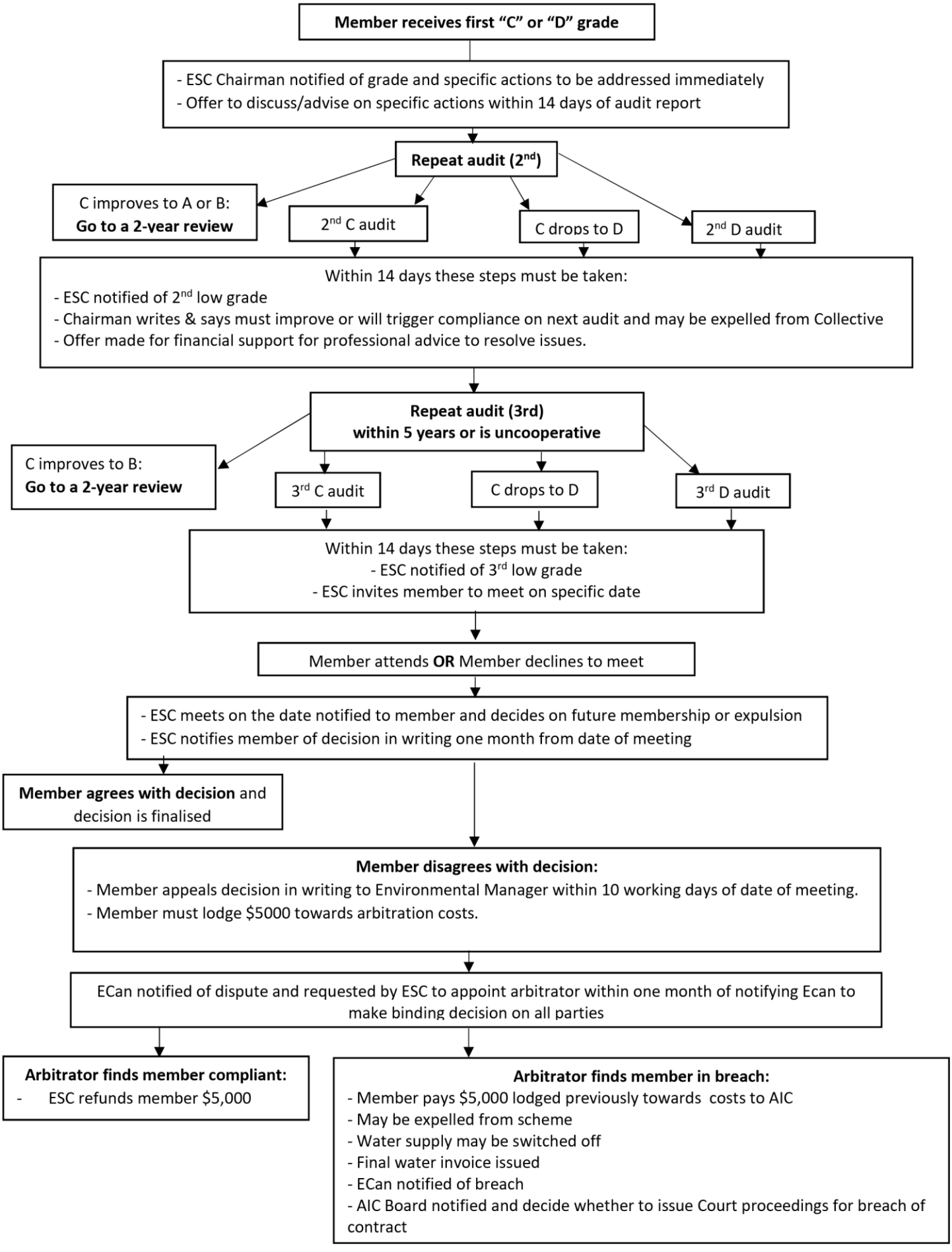
It is understood that the System Audit would involve a:

- '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 6: Non-Compliance Flowchart



Appendix 7: 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 8: 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 (CRC204999) 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 9: Checklist of relevant documents and evidence required for auditing

1. Irrigation Management	**2. Nutrient and Soil Management**
• Irrigation records: Timing of irrigation event (when switched on/off) and application depth • Consent and Compliance Documentation (dairy and stock supplies and/or irrigation consents) • Irrigation Operations and Maintenance Manual • Distribution uniformity records and tests (Bucket test results every 3 years) • Rainfall records • Soil moisture monitoring evidence • Irrigation maintenance evidence • Irrigation Incident Log • System evaluation report • Team training and evidence • System design approval • System commissioning report	• Nutrient budget • Soil tests and fertiliser recommendations or nutrient management plan • Fertiliser purchased documentation • Self-spreading calibration documentation • Fertiliser application records • Spreading company name or Spreadmark certificate • GPS application records • Winter Grazing Management Plan – cropping/regrassing plan, soil conservation, wet weather management and adverse events planning. Photos and discussions of your wintering practices and actions to remediate issues that arise would be most helpful. • Soil Maps

3. Collected Animal Effluent
• ECan consent and compliance monitoring documentation (copies available from ECan)
• Effluent Management Plan:
  ○ Effluent map;
  ○ Effluent diary; and
  ○ Effluent Incident log
• Effluent application records
• Bucket test results (depth and uniformity)
• Storage calculations (Dairy Effluent Storage Calculator) and as built documentation
• Servicing and Maintenance evidence
• Team Training and evidence
	4. Wetland, Native Vegetation and Riparian Management
	• Planting plan and map
	• Evidence and documentation (invoices/receipts/ photos)
	• Stock Exclusion

5. Other Hotspots • Farm Waste recycling and disposal evidence. (Chemical Containers, Bale wrap, String, Feed and Seed bags, stock (calves and cows) hard waste (fencing, mainline, wire), household wastes and feed sources. • Farm Pits management, compliance and safety • Supplementary Feed storage and management • Chemicals: inventory and logbook, SDS, spill management, PPE • Fuel Storage: siting, tank management, spill management	