



Guide to Preparing a Farm Environment Plan

Workshop Notes

October 2014

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Guide to Preparing a Farm Environment Plan

This guide provides some explanation for using the Opuha Water Ltd Farm Environment Plan (FEP) template.

1. Background and Principles – Why we are doing this

As new irrigation schemes are developed and land use intensifies, farmers increasingly find themselves farming under the watchful eye of the community and an increasingly demanding market place. In order to substantiate sustainability claims and alleviate community concerns, farmers must be able to demonstrate responsible use and be proactive in their management - Farm Environment Plans (FEPs) are a good way of showing this.

To ensure that good practice environmental management is part of normal farming business on all farms supplied by scheme water, Opuha Water Ltd has developed an Audited Self Management (ASM) programme that includes the requirement for each water user to prepare and implement a Farm Environmental Plan for their property. These Plans will demonstrate how each water user is actively managing their use of natural resources in order to achieve high standards of environmental management and optimise production from irrigation. They enable farmers to identify what they are currently doing well, as well as indicate areas of potential improvement. At the same time, the Plan development process recognises that each farm is different, and it enables farmers to take responsibility for their actions and have flexibility to choose and adopt practices to suit their situation.

Farm Environment Plan is a valuable tool for OWL shareholders, helping farmers to develop profitable and sustainable farm management system. The aim of the Farm Environment Plan is to build a farm system that is optimal for the business, while also having the lowest impact on the environment. There are both management benefits and productivity gains to be made by identifying and achieving ongoing improvements in environmental practices on-farm. A Farm Environment Plan, done well, will provide strategic direction for successful and sustainable business performance.

New Zealand farmers have been involved in the development and implementation of farm plans for many years. These have taken a variety of shapes and forms and have been used as an aid to improve on-farm financial, production and environmental performance. Today, FEPs are being used as a means for farmers to meet water quality objectives and outcomes or limits set in regional plans. They are a fundamental tool in the Land and Water Regional Plan and are the preferred mechanism for land users to satisfy regulatory requirements now and into the future.

OWL's ASM system and the rollout of FEPs will help shareholder meet obligations in the Land and Water Regional Plan, Sub-Regional Plan or resource consents. Ultimately it should help reach set environmental, social, economic and cultural outcomes.

1.1. Audited Self-Management for Opuha Water Ltd

In order to retain the privilege of having access to water OWL needs to be able to demonstrate responsible use of natural resources, through proactive management, consent compliance, monitoring and auditing. OWL believes the best approach it can take as an irrigation scheme is a coordinated one, driven by the concept of Audited Self Management (ASM).

ASM is a process by which OWL, as a collective group, will manage its resource use activities (on farm and scheme wide) to demonstrate the achievement of good management practice and specified management objectives. Self-management is a key factor in ASM - OWL and its shareholders will take

ownership and responsibility to achieve objectives, allowing a systematic but flexible approach tailored for individual resource users through the development and implementation of FEPs. ASM encourages a collective, collaborative way of working together so that resource users can learn from each other, explore opportunities to work differently to achieve outcomes at a farm and scheme level, and costs can be shared. Commitment at both a scheme and shareholder level is required to make ASM work.

Environment Canterbury (ECan), as the regulatory authority, will still require an audit function to ensure accountability and transparency, however OWL have the ability to tailor this to suit its situation. OWL understand that the more ownership, accountability and transparency that can be demonstrated within the scheme, the less scrutiny will be required from ECan.

The OWL audited self-management programme is based on a hierarchy of three key documents:

- **Environmental Management Strategy:** Sets policies, standards and compliance
- **Water Supply Agreements:** Legal contract, includes requirement to prepare and implement Farm Environment Plans
- **Farm Environment Plans:** Action plan for each property



The FEPs process aims to provide a realistic, practical approach that enables irrigators to address the environmental issues and demonstrate good practice associated with on-farm environmental management. The process aligns with, and is supported by, OWL's Environmental Management Strategy and associated policies and procedures and is based on the following principles:

- Each FEP is created from the scheme template but individually developed for each user to provide flexibility for each farm business
- FEPs will be easy to use, facilitated by a workshop and support process to assist water users to develop individual plans
- FEPs will promote good management practice and will assist shareholders to achieve legal, industry and scheme compliance
- FEPs are reviewed and approved by scheme, and regular independent audits will give credibility
- The focus of the FEP is managing on-farm environmental risks related to water quantity and water quality
- FEPs are based on a process of continuous improvement: *Planning, Doing, Monitoring, Improving*
- Compliance measures will be used to resolve environmental problems

2. Structure of the Farm Environment Plan

The FEP that is produced from the OWL template is specifically designed so that:

- An irrigator can demonstrate that they have implemented suitable on-farm practices and record keeping to manage their operation to address environmental risks.
- An irrigator can demonstrate they are managing water quality and water quantity within any limits set through resource consents or regional plans.
- The FEP can be readily audited to check whether the management objectives and required outcomes are being achieved.

- Objectives and outcomes are set, but, as far as possible, the on-farm practices implemented to achieve the outcomes are determined by the irrigator to fit with the farm system and natural resource base.

2.1. Farm Environment Plan Sections

The Farm Environment Plan template is made up of a number of sections:

FARM		
1	Farm Plan Details	- Supporting documentation
2	Farm Information	- Property details - Enterprise type - Irrigation details - Effluent Management - Nutrient Management (including nutrient budget)
3	Farm Map	
LAND UNITS		
4	Land Management Units	- Risk assessment
PRACTICES		
5	Practices	- Current practices - Outcome Actions - Records/Evidence to be kept
6	Summary of actions	
APPROVAL		
7	Responsibility, signoff and approval	

3. Farm Plan Details

Farm Plan details

The Plan name will begin with your unique water user code to ensure consistency with other databases, e.g. BLOG – Joe Blogg Estate Ltd. This will be prepopulated by OWL.

The status will change as the plan moves through the ‘draft – approved – signed by user – audited – needs updating cycle’

Any details relevant to your farming operation that are not covered in the bulk of the FEP should be recorded in the ‘notes’ section. This may relate to shares leased in or out, land leased in or out, unique farming enterprises, future plans etc.

Supporting Documentation

This section allows us to upload any resource consent information, the signed approval form, and any other relevant information.

A **Farm Map** must be uploaded here.

Resource consents

ECan requires that the FEP lists all Canterbury Regional Council resource consents held for the property or farm enterprise. Please note the consent number, a brief description and the expiry date.

4. Farm Information

This section is to provide an overview of the property (not great detail). It should be sufficient to provide both OWL and any external auditor with an understanding of the type and scale of farm activities on the

property. It also provides the scheme with information on irrigation type, enterprise type etc that can be used for benchmarking or other analysis.

4.1. Property details

The FEP must contain **contact details** of all owners, managers and lessors associated with the property.

The **legal description and GPS coordinates / farm identifier** are a requirement of ECan and will be prepopulated by OWL. It is important that you check these. The **farm identifier** is derived from the Agribase Farm ID (unique for every farm in NZ)

The FEP template requires that the key **person responsible** for implementing the FEP is clearly identified. The 'plan implementer' is responsible for ensuring the property has a FEP and that it is correctly implemented. If shares and/or property have been leased, the shareholder and lessee must agree on who is responsible for implementing the plan.

4.2. Enterprise type

The FEP template requires that **farm enterprise** information is entered. While some of the main enterprise types are listed, there is the option of 'adding another type' (e.g. lifestyle, pigs, nursery).

If you have multiple enterprises on your property, please enter the information for each enterprise type. Any relevant information not directly asked for in the enterprise questions can be added to the 'additional information' boxes.

4.3. Irrigation

The irrigation section provides OWL with valuable information on **irrigation type and areas** that can be used for benchmarking or other analysis.

The FEP takes a 'whole farm' approach, therefore it is important to record both the irrigation sourced from the scheme as well as that from other sources (e.g. Temuka River or groundwater not hydraulically connected)

4.4. Effluent management

The effluent section is only relevant for dairy farms or other farms (e.g. piggeries) that collect and/or store their effluent. This section can be 'skipped' if not relevant to your farming enterprise.

You may need to check your consent for maximum application rates and consented areas where relevant. Ideally this animal effluent discharge consent will be uploaded onto the FEP database as 'supporting documentation'

4.5. Nutrient management

The nutrient allocation zone map is included in Appendix 1.

A **Farming Enterprise** is defined as an aggregation of parcels of land held in single or multiple ownership (whether or not held in common ownership) that constitutes a single operating unity for the purposes of nutrient management. Examples include a dairy platform and support block, or an arable farm with crops in rotation.

A **nutrient budget** is a tabulation of the inputs and outputs of a farm or block developed with the OVERSEER tool. OVERSEER reports N loss via leaching, runoff and direct deposition as 'N loss to water'. This nitrogen loss is now being regulated in regional plans and it is important that you know what your N loss is.

A **nutrient baseline** is defined as the mean discharge of nitrogen below the root zone over the period 1 July 2009 - 30 June 2013, modelled with OVERSEER® and expressed in kgN/ha/yr. If OVERSEER® is updated, the most recent version is to be used to recalculate the nitrogen baseline using the same input data.

N loss and P loss targets are only relevant if you have a resource consent condition that specifies a target or limit. If you are in the 'red' nutrient allocation zone, your baseline is effectively your target. Over the next 5 years or so, through the MGM project and then through the sub-regional plan, more specific targets or limits will be set – these can be included into the FEP at the appropriate time.

If you have either a nutrient budget or a nutrient baseline, these must be uploaded into **supporting documentation**. If you do not have a nutrient budget at the time of drafting the FEP, this will be a key 'outcome action' of the FEP process (more detail further on in this Guide).

5. Map

The purpose of the map is to identify the features of the natural and built environment that are linked to managing water quality and quantity. The completed map should give a reviewer or auditor a clear picture of the property. More than one map can be used, if desired, to show different features.

Irrigators will be asked to check or provide a map of their property boundaries. OWL will then put these boundaries into the scheme GIS system and will provide irrigators with relevant maps relating to soils, natural features, hydrology etc.

The maps are used to draw the land management units and other farm information, such as waterways, stock crossings, effluent areas. This on-farm information will also be entered into the OWL GIS system, which will enable the company to build up a spatial overview of the scheme. The completed maps will also be uploaded into the FEP database.

ECan requires that the **Farm Maps** must clearly show:

- The boundaries of the property or land areas comprising the farm enterprise
- The boundaries of the main land management units on the property (where possible, align these with the nutrient budget blocks) (*see notes on LMUs below*)
- The location of permanent or intermittent rivers, streams, lakes, drains, ponds or wetlands
- The location of riparian vegetation and fences adjacent to waterways
- The location of all waterways where stock access or crossing occurs
- The location of any areas within or adjoining the property that are identified as 'significant indigenous biodiversity'.

Other key features to mark on the map, where relevant, include:

- Name key roads and show North direction, to enable farm to be located on a road map.
- Irrigated area by irrigation type
- Effluent area
- Bores/wells
- Water races
- Conservation or covenanted areas/ indigenous bush/scrub
- Standoff areas, feed pads
- Tracks and stock lanes
- Open drains and tile drains

- Point source / contaminant risks, e.g. dairy shed, effluent pond, stock underpass, rubbish dump, offal pits, silage pits, stock handling facilities, fertiliser storage areas
- Lease blocks – including owner name (If the whole farm is leased from one owner, then record this information in ‘property details’).

6. Land Management Units

6.1. Understanding Land Management Units

Understanding differences in the way parts of the property respond to nutrient management and different land management practices is an important step in achieving production goals as well as recognising and understanding the environmental risks associated with nutrient management activities. Failure to identify LMUs and manage them differently could lead to some significant production losses and adverse environmental impacts.

A Land Management Unit is a homogenous block of land that responds in a similar way under similar management.

Areas that need different management or that will show different responses need to be separated for good planning e.g. is all the area managed in the same way? Will all parts of the property or block respond to nutrients in the same way? Do they share the same environmental risks?

LMU’s are best assessed using a combination of:

- physical factors (e.g. soil type, slope, aspect)
- major management factors (e.g. dryland verses irrigated areas; different arable or horticulture crops; dairy effluent disposal areas); and
- history of previous use and management

Some farmers will find that their property has several land management units, while others (largely dairy platforms) can treat their entire property as a single LMU. These LMUs should, as far as possible, **align** with the blocks used in the nutrient budget.

6.2. Land Management Unit description

The FEP template requires that more specific Land Management Unit information is entered. This should align with information presented on the farm map.

6.3. Block strengths / weaknesses

A strength is a favourable land quality, while a weakness is a not-so-favourable quality. What is defined as a strength or weakness may depend on the farm activities in the block e.g. stoniness may be a weakness for cropping but a strength for winter grazing of cattle (avoiding pugging).

Examples of strengths and weaknesses

- Free / poor draining
- Deep/ shallow topsoil
- Good / poor soil moisture holding capacity

- Good / poor soil structure
- Flat / moderate / steep land
- Warm aspect / exposed aspect
- Resistant / susceptible to pugging
- Flooding risk
- Erosion prone / stable (no erosion)
- Droughty
- High runoff risk
- High water table
- Naturally sheltered

6.4. Environmental Risk Assessment

The risks to water quality from the combination of the natural resources (soil, stream, slope etc.) and current farm practices (stock, irrigation, cultivation etc.) in each land management unit must be identified.

For each LMU you must assess the **inherent environmental risks** associated with the farming operation. Inherent risk means any risk that arises from the combination of the natural resources (soil, stream, slope etc.) and current farm practices (stock, irrigation, cultivation etc.). Do not ignore an environmental risk because you use good management to reduce it – while this shows that you have recognised and responded to it, it does not *remove* the inherent risk.

Five key ‘risks’ are assessed – N leaching, P leaching, runoff contamination, erosion and soil compaction, using a scale of High, Medium or Low risk. As a guide, think about both the likelihood of the risk occurring, and the consequence of the risk occurring e.g:

		Environmental consequence		
		Low	Medium	High
Likelihood	Low	Low significance	Low significance	Medium significance
	Medium	Low significance	Medium significance	High significance
	High	Medium significance	High significance	High significance

For each ‘risk’, you must provide a brief explanation that explains and justifies why the high, medium or low risk is given. For example a ‘high’ risk for N leaching might be explained by ‘free draining soils’ or ‘high application rates (borderdyke)’, while a ‘low’ risk for N leaching may be explained by ‘heavy soils’ or ‘low stocking rate’.

Adequacy of Current Practices to manage risk

You are then asked to assess how adequate your current practices are to manage the risks. Use a scale from 1-5, where 1 = risk not managed at all, and 5 = risk fully managed.

This table then informs the Management Practices section where current practices are assessed and specific further actions are identified in order to avoid or minimise adverse effects of farm activities on water quality i.e. if current practices are not enough to fully manage the risks, what else can you do on-farm.

The desired outcome is that, through the implementation of the FEP, all risks will be fully management and achieve a ‘5’ rating over time.

7. Management Topics

This FEPs covers 5 management areas critical to water quality and quantity management.

- Irrigation Management (includes Irrigation System Design and Installation where relevant)
- Nutrient Management
- Soil Management
- Collected Effluent Management
- Riparian, Wetland and Biodiversity Management

7.1. Management Objectives and Required Outcomes

The management objective for each topic provides the overall long term direction for the management area.

For each objective there are one or more 'required outcomes'. These are the targets that irrigators must be aiming to achieve with their farm management practices. The expectation is that all of the outcomes for a particular management area must be achieved in order to achieve the objective for that management area.

Irrigation management
Management objective: To ensure efficient on-farm water use that meets crop needs and minimises losses
Required outcome 1: All irrigation applications are justified by monitoring and/or other assessment or information
Required outcome 2: Farm practices optimise water applications from irrigation system - application efficiency targets achieved
Required outcome 3: All staff involved in the operation and maintenance of the irrigation system are suitably trained
Required outcome 4: New irrigation infrastructure is designed and installed to meet industry best practice standards
Nutrient management
Management Objective: To minimise nutrient and sediment losses from farming activities to ground and surface water
Required outcome 1: All sources and potential areas of loss of nutrients, sediment and effluent are clearly identified
Required outcome 2: Nitrate losses from the property are minimised, and targets met
Required outcome 3: Phosphate (P) and sediment losses to waterways minimised and critical source areas managed
Required outcome 4: Demonstrated plans in place to minimise nutrient and sediment losses from winter grazing of forage crops
Required outcome 5: All on-farm silage and offal pit and rubbish dump discharges are appropriately managed
Collected animal effluent management
Management Objective: To manage the operation of the effluent system to avoid adverse effects on water quality
Required outcome 1: Effluent management and discharge comply fully with all regional council requirements 365 days / year
Required outcome 2: Effluent applied at correct rates and timing to avoid contamination of ground and surface water
Riparian, Wetland & Biodiversity Management
Management Objective: To manage waterways, wetlands and their margins to avoid stock damage and minimise inputs of nutrients, sediment and faecal contamination
Required outcome 1: Stock damage to waterways and wetlands minimised
Required outcome 2: Farm practices minimise soil, nutrient and faecal contamination of waterways
Required outcome 3: All areas of indigenous biodiversity on the farm are protected
Soils management
Management Objective: To maintain or improve the physical and biological condition of the soil
Required outcome 1: Erosion caused through land use activities is minimized.
Required outcome 2: Soils are well-managed to optimise infiltration and minimise runoff

7.2. Baseline Practices and expectations

The FEP template sets out examples of practices that are indicative of the standard for achieving basic, good and premium practice on farm. However, there are numerous options for achieving each outcome, and what is suitable will depend on the type and intensity of the farming operation as well as soil, slope and other natural resource characteristics.

Basic	A level of activity provides for small, low intensity properties (e.g. lifestyle blocks) for which the 'good' level of activity is not always necessary because the environmental risks are very low, usually because of low water use (application volume and/or rate) and very low nutrient inputs.
Good	Identifies the minimum types of actions that need to be carried out on the majority of irrigated farms to be able to adequately manage environmental risks, especially to water quality.
Premium	Identifies current practices that give a high level of environmental risk management, and the types of activity that provide for continuous improvement in water quality and/or water quantity management.

It is the expectation of OWL that all shareholders and water users receiving OWL irrigation water will be performing at an equivalent of Good Practice, though it is acknowledged that some exceptions may apply if the operation fits into the 'basic' category, at the discretion of OWL.

The practices listed in the FEP will be updated as appropriate to respond to new knowledge, innovations, expectations or requirements.

7.3. Current Practices and Additional Actions

Irrigators identify their current practices with the 'tick boxes.' Where changes to current practices are required in order to meet the outcome then these should be entered in the 'Outcome Actions'. Here you should be referring back to the risk assessment table and ask yourself 'would the current and any additional practices mean I am able to fully manage the environmental risks on farm and meet the required outcomes?'

Additional actions may fall into a number of categories:

1. Physical works: these include projects such as building a sump for silage leachate collection, or fencing off waterways.
2. Systems or Management changes: these may range from minor adjustments that can be implemented immediately, to more substantial changes that need careful planning and implementation over several years.
3. Procedures and monitoring systems: one thing almost everyone needs to do is be more rigorous in their recording procedures. Setting up and maintaining suitable systems may be a feature of your action plan.
4. Training: a system is only as good as its operator – further staff training may be required in specific aspects of the aspects of the farm system.

Once you have identified what needs to be done, you need to set a timeframe for when you want to complete the activities. Choosing the timeframe for activities will depend on the availability of finances, labour, where your priorities lie, and the severity of the risk you are trying to manage. You will also need to assign responsibility for completion of the task to either yourself or your staff.

7.4. FEP Expected practices

For many of the FEP objectives irrigators will determine their own 'best practices', depending on land use, soil type, irrigation type etc. However, OWL requires the practices listed below be implemented, as a minimum [*note, these are draft only and are open to change*]

Irrigation management

OWL expects that:

- Irrigation applications are undertaken in accordance with property specific soil moisture monitoring, or a soil water budget, or irrigation scheduling calculator
- Records of irrigation applications, soil moisture monitoring and rainfall are kept
- Annual check of system completed to identify efficiency improvements (e.g. flow check, DIY irrigation evaluation, bucket tests)
- All water users with take consents comply with national water metering regulations (where relevant)
- Systems are in place to prevent irrigators spraying water directly onto roads
- Staff with irrigation management duties well trained with respect to their responsibilities
- All new irrigation systems installed or replaced after 1 January 2014 meet the INZ Piped Irrigation System Design, and installation Code of Practices and Standards.

Nutrient management

OWL expects that:

- For all farms over 5ha, an OVERSEER (or approved alternative) nutrient budget is prepared for the property and each LMU/block in accordance with the OVERSEER Best Practice Data Standards, and input records are kept
- The nutrient budget is reviewed annually and revised if necessary
- For all farms over 5ha, a nutrient baseline, as defined by the Land and Water Regional Plan is prepared in accordance with the OVERSEER Best Practice Data Standards and/or input records sufficient to calculate the baseline are kept
- Water users comply with nutrient cap levels/catchment load levels as set by ECan for the relevant farming area
- Council rules relating to on-farm silage and offal pit and rubbish dump are adhered to
- Fertiliser is applied in accordance with COP for Nutrient Management (2007)
- Fertiliser is applied to Spreadmark COP or with equipment self-calibrated to Spreadmark COP standards

Collected animal effluent management

OWL notes that managing collected animal effluent is not a scheme responsibility, but requires water users to obtain the necessary resource consents and meet overall effluent consent requirements. Water users are required to demonstrate how they manage irrigation in effluent areas and that they have systems in place to manage effluent when soils are saturated. OWL requires:

- Effluent consent is current and complied with 365 days / year
- Effluent is applied at rates that do not lead to ponding and/or runoff

Riparian, Wetland & Biodiversity Management

OWL expects that:

- Water users to meet, as a minimum, the stock exclusion rules in the Land and Water Regional Plan, and the requirements of the 'Sustainable Dairying: Water Accord' where relevant
- All regular stock crossings have bridge or culvert

These required practices may be amended over time to reflect new technologies or regulations

It is the expectation of OWL that all shareholders and water users receiving OWL irrigation water will be performing at an equivalent of **Good Practice*** across all management areas **within 2 years** of developing their FEP.

*The FEP template provides indicative **Basic, Good** and **Premium** practices for each management area.

7.4. Evidence for Compliance

All irrigators must be able to demonstrate to the auditor how, over the entire year or years between audits, they are carrying out the stated practices to achieve the objectives and outcomes.

Auditors need to be provided with 'objective evidence' as they cannot use subjective opinion and "here-say" as the basis of their conclusions. Objective evidence includes records, data, reports and actual practice observed during the audit. To justify their conclusions as to whether the objectives and outcomes have been met, the auditor must be able to demonstrate how the evidence provided leads to these conclusions.

There are no formal requirements with regard to the standard of records to be kept. Notwithstanding this, the better the records, the better the 'story' that can be told and the more likely that the auditor will be able to make an objective assessment.

In terms of record keeping there are a few simple rules.

1. Decide whether it is necessary to keep a written/electronic/photographic record of a particular activity. Only keep records where they help tell a story.
2. Records should be in a form where anybody can pick them up and understand the story that they tell.
3. Good records require a disciplined approach – once you start, then keep going.
4. Remember that a picture tells a 1000 words.

Appendix 2 lists the evidence and records to be kept and provided in an audit. Note that there are both essential (required) and optional records /evidence to be kept

7.5. Records and Information Management

Record keeping

Record keeping is often the area where a FEP can fall down. You can have the very best FEP, but unless you have a good system for storing, updating and retrieving your records then the whole system can fail. The effective management of your records is essential to the successful implementation of your FEP.

Record keeping serves many purposes but key uses include:

- a systematic approach to identifying and solving ongoing problems
- a reminder of the influences of seasonal variations
- as a means of measuring progress, or lack of it, over time
- as a tool to undertake a regular critique of management practices
- as a tool to demonstrate that the land manager has taken steps to overcome various problems by implementing their stated best management practices
- a means of determining returns on investments

Accuracy and attention to detail pay off. For example, accurate records of the position of soil sample sites will aid in interpreting the results against yields, soil types, incidence of frosts, water logging, etc. These records also allow future sampling in the same positions. GPS technology is increasingly used for accurate positioning but good records using paddock landmarks and measurement from the landmarks allow relocation of the sites within a few metres. Permanent markers and an established soil sampling routine also help.

Information management

There are a range of methods that you can use to store and manage your data. These include:

- Farm calendar
- Farm map
- Multi-purpose recording sheet or white board
- Record sheets, folder or folders
- Computer database
- A combination of all of these

You can choose whatever method best suits you. OWL have developed a number of recording sheets that you can use or adapt to your situation. The sample sheets can be made available in both hard copy and electronic form.

Note: A page per day farm diary can be useful for information gathering, but is discouraged for information management as records are often difficult to access and use.

8. Responsibility and Approval

8.1. Responsibility

It is important that the FEP identifies those responsible for achieving the FEP requirements. The OWL FEP must be signed by the following parties, where appropriate:

Person responsible for implementing FEP

This is usually the person who makes the day-to-day management decisions on the property, and is the person who should attend the audit, with others (e.g. owner) if required.

Property Owner (and lessee where relevant)

This may be a company, trust or other entity, or individual/s. The owner is generally (but not always) the person/entity who holds the irrigation shares or other rights to water, and is therefore responsible for the FEP requirements. A key contact for the owner/s should be listed.

Lessor

This is the person/s or entity who lease out part or all of the property. The lessor should ensure that the lease agreement passes on FEP responsibilities as appropriate.

8.2. Approval

Once the FEP has been drafted, OWL will review the plan and ensure it is:

- Technically sound and feasible
- Addresses the identified environmental risks
- Is able to meet the plan objectives

9. What happens next – FEP implementation and auditing

The development of the FEP is just the first step in the farm planning process. For some farmers it will be business as usual in terms of environmental management. For others it will mean a significant change in thinking and approach. For most farmers it will introduce new challenges particularly when it comes to monitoring and recording, and the prospects of being audited.

9.1. External audit

The requirement and conditions surrounding the external audit will be set out within the Scheme Environmental Management Strategy and procedures.

An auditor will look at the contents of your plan and whether you are following the systems and processes that you have established for yourself in that plan.

The auditor will be assessing, as a minimum:

- An assessment of the performance against the objectives, targets, good practices and timeframes in the FEP;
- An assessment of the robustness of the nutrient budget
- An assessment of the efficiency of water use

At the end of the audit, the auditor will provide you with a report which details where you have met requirements and where improvements are needed. A copy of your audit report will also be passed onto OWL who will work with you to develop an action plan to address any improvements required. OWL will use the information collected through the audit process to review the appropriateness of the FEP goals, objectives and targets.

9.2. Farm Environment Plan compliance and enforcement procedures

The compliance process is set out within the Scheme Environmental Management Strategy and procedures.

It includes the following elements:

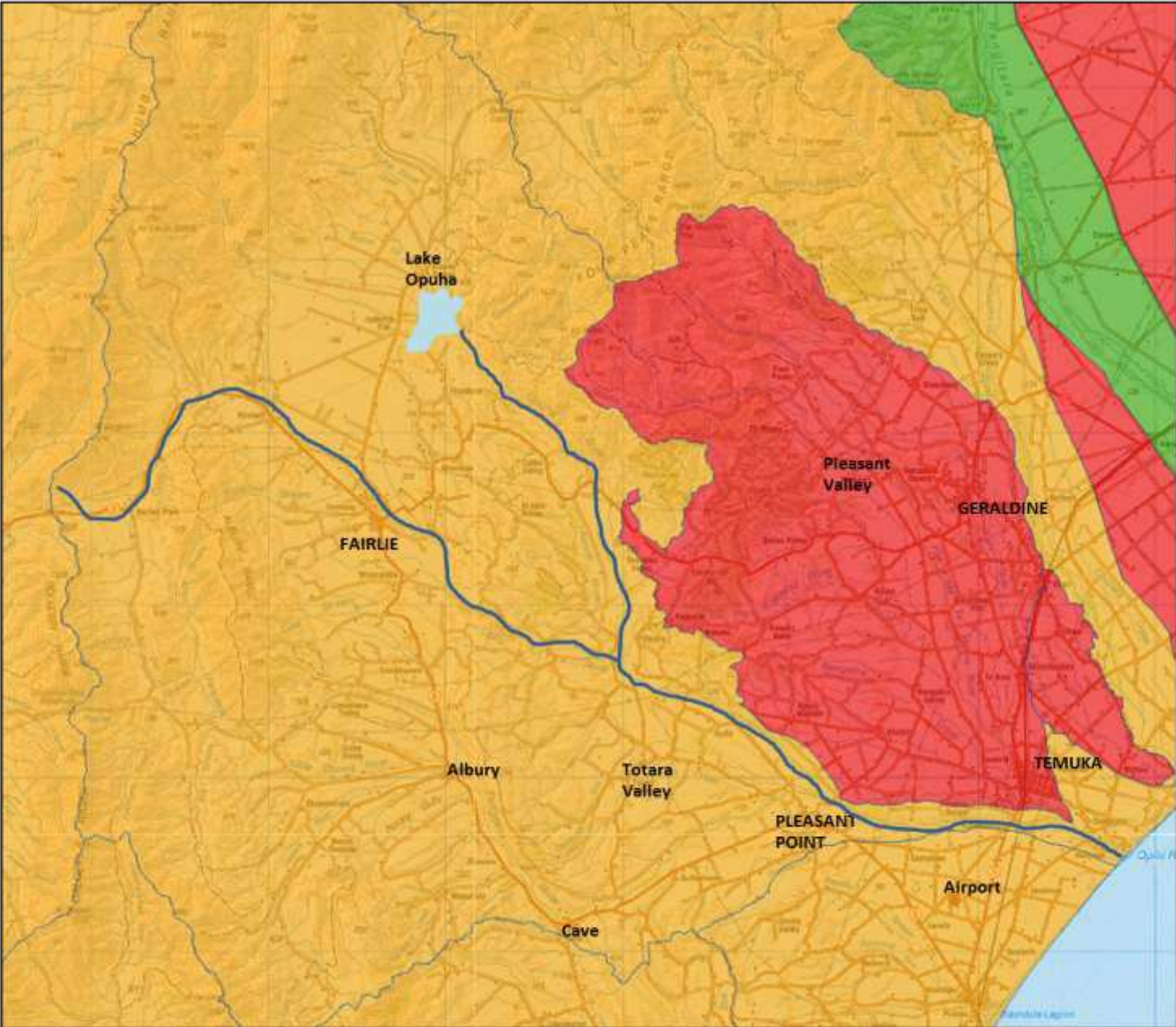
- Promoting compliance (e.g. through providing training, information etc.)
- Inspections and monitoring (e.g. internal and independent audits of FEP performance)
- Deterrence (i.e. enforcement with appropriate penalties to show that there are adverse consequences of non-compliance)

10. Training and support

OWL will provide on-going training and education opportunities for shareholders and farm staff to assist in the achievement of FEP outcomes, and to enable an ongoing process of environmental improvement across the scheme.

OWL recognises that the implementation of the FEP may present some challenges and will support shareholders in working through these. We are interested in your feedback and ideas of activities and specific topics to help you in the future.

Appendix 1: Land and Water Regional Plan – Nutrient Allocation Zones



Appendix 2. Checklist of Evidence and Records

Irrigation management
<p>Rainfall records Soil moisture monitoring records (moisture probe, neutron probe, aquaflex) Irrigation application records and/or water order records Application depth and uniformity records (e.g. bucket test results) Soil temperature monitoring records Water budget Water use checklist Irrigation run-off records Irrigation system performance evaluation records (DIY or certified) Upgrade plan with actions taken Records of irrigation incidents and actions taken Records of mechanical failure/repair Irrigation maintenance records Soil type and infiltration rate mapping Staff training programme &/or records Staff questioning of irrigation scheduling and operation Irrigation scheduling and management information is available to staff</p>
<p>System design report System commissioning report/certificate Independent evaluation report Operation and maintenance manuals</p>
Nutrient management
<p>Nutrient budget Soil test results, rec. fertiliser programme &/or Nutrient Management Plan Fertiliser application records (N and P fert) Critical source area (P and sediment) map Records of supplements imported/exported Stocking rates and detail of stock management Production/yield records Spreading company name/Spreadmark certificate Proof of Placement records</p>

Soils management
<p>Field observation Soil compaction test records Records of management induced erosion events. Soil health testing results or photos Soil aeration records Visual Soil Assessment (VSA) records</p>
Collected animal effluent management
<p>Regional Council compliance report Effluent consent Effluent application area map (including risk assessment map) Effluent application records/diary Soil moisture records Bucket test information Staff training programme and/or records Proof of Placement records Incident / breakdown / maintenance records Commissioning certificates Staff questioning of effluent management operations</p>
Riparian, Wetland & Biodiversity Management
<p>Planting plan and map Field inspection or waterways and wetlands Map of any legally protected areas on farm</p>

Bold - Essential records - that the auditor will need to see

Unbold - Optional records

Appendix 3. Responsibility and Approval form

Responsibility for Implementing the Farm Environment Plan			
<p><i>As the person responsible for implementing this plan, I confirm that the information provided is correct.</i></p> <p><i>I am committed to ensuring that all activities on our property are undertaken in an environmentally sustainable manner with cultural values considered and cultural outcomes delivered. I agree to monitor our performance in meeting the management objectives and outcomes in this Plan, and take appropriate actions to address any areas where improvement is needed.</i></p> <p><i>I understand that no responsibility has been abdicated to OWL through this FEP, and that all resource consents and regulatory requirements are still the responsibility of the consent holder.</i></p>			
Name (Plan implementer):		Signature:	
Position (e.g. owner/manager):		Date:	
Owner, lessee and lessor commitment			
<p><i>As the owner and where relevant the lessee, of the land covered by this Farm Environment Plan, I agree to the Plan Implementer (as specified above) being given responsibility to implement this FEP. I am committed to ensuring that all activities on the property are undertaken in an environmentally sustainable manner.</i></p>			
Name of Owner (and Lessee)		Signature:	Date:
<p><i>As the lessor of some or all of the land covered by this Farm Environment Plan, I agree to the Plan Implementer (as specified above) being given responsibility to implement this FEP this plan. I am committed to ensuring that all activities on our property are undertaken in an environmentally sustainable manner with cultural values considered and cultural outcomes delivered.</i></p>			
Name of Lessor		Signature:	Date:
Technical review and approval by Opuha Water Ltd			
I have reviewed the plan and have found it to be:			Comments
* Technically sound and feasible	Yes	No	
* Addresses the identified environmental risks	Yes	No	
* Able to meet the plan objectives	Yes	No	
Name (Plan reviewer):		Signature:	Date:

This form will be uploaded onto the database as a record of agreement between the FEP implementer, property owner / lessee/lessor and Opuha Water Ltd. Any changes made to the Farm Environment Pan will require a new form to be signed. This FEP does not abdicate any responsibility to OWL; all resource consents and regulatory requirements are still the responsibility of the consent holder.

Appendix 4. Useful References

IrrigationNZ Knowledge Centre	An internet information resource for all things irrigation in NZ. It contains fact sheets, articles, presentations, reports, current research projects, practical irrigation tools, links to other websites, field days and workshops.	http://www.irrigationefficiency.co.nz/
Irrigation Calibrations & Efficiency Tests	Guidelines and worksheets for a series of do-it-yourself, in-field irrigation system calibrations e.g. 'the bucket test'.	http://www.pagebloomer.co.nz/resources/
DairyNZ Farming Resource Centre	Online information and resources relating to nutrient, effluent and water management	http://www.dairynz.co.nz/page/pageid/2145861020/Environment
Environment Canterbury – Farming Advice and Information	An online resource to provide farmers with ideas about how to improve their on-farm environmental management. There are simple solutions and techniques to help with most on-farm environmental issues.	http://ecan.govt.nz/advice/your-business/farming/pages/default.aspx
Beef and Lamb NZ	Workbooks and guidelines targeted at environmental issues on sheep and beef farms.	http://www.beeflambnz.com/farm/tools-resources/land-and-environment-planning-toolkit/
Farmers' Guide to Soil Moisture Monitoring	Why, and how, to measure soil moisture	http://myirrigation.co.nz/
Managing waterways	DairyNZ Farmfacts about managing waterways	http://www.dairynz.co.nz/publications/farmfacts/sustainable-dairying-land-and-water-management/?subject=5010
Water use	DairyNZ Farmfacts about managing water use	http://www.dairynz.co.nz/publications/farmfacts/sustainable-dairying-land-and-water-management/?subject=5011
Nutrient Hotspots	DairyNZ Farmfacts about managing nutrient hotspots	http://www.dairynz.co.nz/publications/farmfacts/sustainable-dairying-land-and-water-management/?subject=5011,5012