

BEFORE THE HEARING PANEL OF SOUTHLAND REGIONAL COUNCIL

In the matter of sections 88 to 115 of the Resource Management Act
1991

And

In the matter Applications for resource consents by:

T J AND J A DRISCOLL

Applicants

EVIDENCE OF MICHAEL FREEMAN

20 January 2020

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QUALIFICATIONS AND EXPERTISE

1. My full name is Michael Conrad Freeman and I am a Senior Scientist/Planner at Landpro Limited, a firm of consulting planners, scientists, surveyors and engineers. I hold the qualifications of BSc (Environmental Science, University of Warwick) and PhD (Periphyton and Water Quality, Massey University). I am a current Ministry for the Environment Certified RMA decision-maker with a chairing endorsement.
2. I have been involved in resource consents and related Resource Management Act (RMA) planning and regulatory processes since the inception of the RMA in 1991. I was the Director Regulation at Environment Canterbury from 1996 to 2007. Since 2008 I have been directly involved in a wide range of planning and regulatory roles relating to the RMA. This has included preparation of S42A reports for both resource consent and plan hearings, as well as the preparation of a wide range of resource consent applications. I have also served as an RMA decision-maker for various local authorities since 2008.
3. I also have specific expertise in the use of Overseer Nutrient Budgets (Overseer) in planning and regulatory settings having worked with the Overseer team at AgResearch for 2.5 years. I have co-authored and reviewed various technical papers on Overseer, including a major project that resulted in the publication of the report: "Using Overseer in regulation - Technical resources and guidance for the appropriate and consistent use of Overseer by regional councils.
4. I am a member of the Resource Management Law Association (RMLA), and the Environmental Institute of Australia and New Zealand. I am also an Associate Member of the New Zealand Planning Institute.
5. I have been employed by Landpro since January 2018 and have undertaken a wide variety of resource management related work for various clients, including preparing resource consent applications, providing policy and regulatory advice, and consent management services. A significant proportion of my work relates to resource consents for dairy farms in Southland.
6. My colleague Ms Tanya Copeland prepared the original application and assessment of environmental effects (AEE). However, she is on parental leave and I have the responsibility to provide both planning and water quality advice to the hearing panel. I am familiar with the project and resource consent applications and I have personally visited the site. I also acknowledge that I have

been assisted by my colleague Ms Matilda Ballinger, Graduate Planner, to prepare parts of this evidence. This is my evidence and I take full responsibility for all the content of this document.

7. This evidence has been prepared in relation to the resource consent applications by T J and J A Driscoll to use land for dairy farming that was not occurring as of June 2016, to discharge farm dairy effluent to land, to take and use groundwater.

Other sources of information

8. I am of course familiar with my own water quality report and evidence and have also considered the following information:

- (a) The S42A report by Mr Alex Erceg (while this report is signed by Mr Alex Erceg and Ms Aurora Grant, I understand that Mr Erceg has written the report)
- (b) The Overseer modelling reports by Ms Topham, her evidence and the audit undertaken by Irricon.
- (c) Brief of evidence and S42A report dated 11th December 2019 by Ms Abigail Lovett
- (d) Brief of evidence from Mr & Mrs Driscoll

CODE OF CONDUCT FOR EXPERT WITNESSES

9. I have read the Code of Conduct for Expert Witnesses within the Environment Court Consolidated Practice Note 2014 and I agree to comply with that Code. This evidence is within my area of expertise, except where I state I am relying on what I have been told by another person. To the best of my knowledge, I have not omitted to consider any material facts known to me that might alter or detract from the opinions I express.

SCOPE OF EVIDENCE

10. I provide summary information on the following matters:

- Background and proposal
- Application summary
- Existing environment
- Comment on the S42A Report and Recommendations

- Policy and Statutory Planning Analysis
- Matters raised by submitters
- Conditions
- Conclusions

BACKGROUND

11. The following is a brief overview of the proposal as submitted on 28 March 2019, noting that the full description of the proposal is detailed in the Assessment of Environmental Effects (AEE). The key components of the proposal as originally lodged are as follows:

The application site is located at 266 Thomsons Crossing Road East, Winton. The site comprises a 224.5 hectare dairy platform owned by the Applicant. The majority of the property is located within the Lower Oreti Surface Catchment. The applicant purchased a neighbouring sheep block in late 2016/early 2017 (the East Block) and wishes to incorporate this 13.9 ha block into the dairy platform. A small part of the East Block is contained within the Tussock Creek catchment/Makarewa Surface Water Management Zone.

12. The property is generally flat to undulating in slope and is underlain by artificial drainage through much of the property. The property has been run as a dairy farm (including winter grazing) by the applicant.
13. Soils on the property are comprised of Pukemutu and Edendale (Waikiwi on Smap) soils which are known to have various vulnerabilities as indicated in the AEE submitted in support of the application, including a moderate vulnerability to structural compaction and severe vulnerability to waterlogging.
14. Physiographic zones on the property are comprised of Gleyed and Oxidising. Contaminant loss to surface water is the main water quality risk associated with these zones, via both artificial drainage in flatter areas and overland flow in sloping areas where there are slopes.
15. The Environment Southland GIS system indicates that the dairy platform is located within the Oreti River and Tussock Creek catchments. However, the location of surface water catchments illustrated on the Environment Southland GIS system is approximate. A small proportion of the East Block may flow into the Makarewa catchment. There are a number of tributaries of the Oreti River on the property. There are no physical tributaries of Tussock Creek/Makarewa River.

SUMMARY OF APPLICATIONS

16. Applications have been prepared seeking resource consents to use land for a farming activity, discharge effluent to land, and to abstract and use groundwater for dairy purposes. In summary, the applications sought:
- Land Use Consent (RMA S9(2)) – To use land for a farming activity. The proposal seeks to increase the land area of the dairy platform above what existed at 3 June 2016 to include a 13.9 ha block.
 - Discharge Permit (RMA (15(1)(b)) –To discharge dairy shed effluent from 680 cows onto 93.3 ha of land via low rate irrigation and occasionally a slurry tanker.
 - Water Permit (RMA (14(2)(a)) – Phase 1- To abstract 81,600 L/day of groundwater over a 300 day milking season. This abstraction of groundwater is for dairy shed washdown and stock drinking water for 680 cows.
17. A draft Farm Environmental Management Plan (FEMP) was lodged with the application which contains details of Good Management Practices (GMPs) proposed by the applicant to ensure that the farm is operated with industry-accepted good practice. A revised version of the FEMP is attached as Appendix B.
18. Minor (within scope) changes made to the proposal since its submission in October 2018 are reflected in the modelling and focus on measures to reduce N and P loss. These are detailed in the FEMPs, which have been prepared in accordance with the Proposed Southland Water and Land Plan (pSWLP) Appendix N.

Overseer Modelling

19. Overseer modelling has been used to model four baseline years (15/16 – 18/19) at the proposed dairy platform that will operate if consent is granted. Overseer FM version 6.3.2 has since been released (9 September 2019) and nutrient budgets have been re-run in this version. This approach has been used to provide data that is as close as possible to the type of format with which Environment Southland staff are familiar. A summary of Overseer outputs for the dairy platform is detailed in the following tables.
20. The outputs from the baseline models including the 2018/19 year, outside Overseer P loss mitigation and adjustments outside of Overseer to account for Baleage grass wintering and young stock grazed off farm, are all detailed in the December 2019 report by Ms Mo Topham attached to the water quality evidence. The results of that modelling have been independently audited by Irricon and

scored with high robustness for both the current and proposed farm system modelling. The overall results are summarised in the following table:

Table 1 Summary of all modelling of current and proposed farm systems

| | Current Farm System | Proposed Farm System | Reduction |
|-------------------------|---------------------|----------------------|-----------|
| N loss to water(kg/yr) | 11,694 | 10,620 | 9.2% |
| P loss to water (kg/yr) | 230 | 213 | 7.4% |

21. The overall modelling of the proposed farming system at the dairy platform indicates that nitrogen losses to water are predicted to reduce by approximately 9% compared to the baseline combined model. Phosphorus losses to water are estimated to reduce by approximately 7% compared to the baseline combined model and additional mitigations detailed in the FEMP.

Discharge Permit

22. A new discharge permit is sought to replace the existing discharge permit allow for the discharge of farm dairy effluent from 680 cows. This effluent will be discharged across a total area of 93 ha although the actual application area is 73ha once exclusion areas are accounted for. A minor disparity between the actual 73 hectares available for effluent application and the original 93 ha became clear as this evidence was being prepared. I have discussed this matter with Ms Topham to endeavour to understand if this has any significant implications for the nutrient loss modelling. Ms Topham has indicated verbally that she did not consider that this would have a material effect on the modelling because effluent application exclusion areas within paddocks aren't taken into account, due to modelled within paddock movement of nutrients by stock, and fertiliser applications being made on a "per paddock" basis. Ms Topham will be able to speak further on this matter at the hearing.
23. Effluent storage infrastructure at the property consists of lined effluent pond with a stirrer.
24. The volume of deferred storage provided on farm meets the requirements of the Massey University Dairy Effluent Storage Calculator (DESC), as outlined in the application for resource consent. The DESC calculations were undertaken for an earlier proposal for an increase to 700 cows. That proposal was reduced to the current 680 cows.
25. Effluent will be discharged to land via low rate pods and occasionally a slurry tanker. The slurry tanker will apply at depths 5mm per application and will be used occasionally such as when desludging the pond. Low rate pods apply effluent at a maximum rate of 10mm/hr with a 25mm depth and can be used all year round provided soil moisture deficit is adequate. The soils within the FDE disposal area

appear to be classified by Map 1 of Appendix N of the Regional Water Plan as being Category A soils (artificial drainage or coarse soil structure).

Water Permit

26. A new water permit is sought to replace the existing water permit to allow the abstraction of 81,600 L/day over the 300-day milking season and 6,020 L/day over the 65-day winter period. The abstraction rate will be less than 2 L/sec. The water would be used for stock drinking water and shed wash down water from 680 cows during the milking season. This would be abstracted from bore E46/1067 with E46/1059 being used as a secondary bore when needed.

Land Use Consent

27. A land use consent is sought for the proposed farming activity which includes all farming activities located on the land.

28. The proposal is to increase the dairy platform by 13.9 ha and to increase the number of cows milked to 680, an increase of 81 from the currently consented 599 cows.

COMMENTS ON SECTION 42A REPORTS

29. I have read the Section 42A Report prepared by Mr Alex Erceg and the reports prepared by Ms Abigail Lovett. The reporting officer identified a number of relatively minor issues leading to the conclusion that consent should be granted, subject to a number of conditions. Mr Erceg identified five specific issues to be considered:

- (a) The adverse effects from the proposed activities on water quality;
- (b) The level of contaminant losses within the Oxidising physiographic zone;
- (c) The cumulative effects of the proposed activities;
- (d) Certainty as to whether the modelled reduction in losses can be achieved; and
- (e) If an improvement in water quality is more likely than not to occur.

I have endeavoured to clarify and/or address the specific concerns raised as well as other relevant matters raised in these reports. The following table endeavours to summarise the rationale behind each of these concerns and to respond to each of them to ensure that they are satisfactorily addressed.

| Concern | Response |
|---------|----------|
|---------|----------|

| | |
|---|--|
| <p>Potential adverse effects on registered drinking water supplies</p> | <p>The reporting officers have highlighted that there are some registered drinking supplies over 12 kilometres down-gradient of the land that take water from the Oreti River, groundwater or use roof water. These specific water supplies were not explicitly considered in the AEE because of the significant distances involved and/or the lack of a pathway. This matter is addressed in the technical evidence.</p> |
| <p>Effects on Statutory Acknowledgement Areas and Mataitai Reserves</p> | <p>Mr Erceg has highlighted two Statutory Acknowledgement Areas within the receiving environment; the Oreti River Statutory Acknowledgement Area and the Rakiru/Te Ara a Kiwa Statutory Acknowledgement Area. In addition, he highlighted the Oreti Beach Embayment which is covered by the Oreti Mataitai Reserve.</p> <p>These were not explicitly covered in the AEE. However, the proposed activities with reduced losses of contaminants will not adversely affect Tangata Whenua values, traditions or taonga. I also note that TAMI has not made a submission on this proposal.</p> |
| <p>Effects on the Coastal Environment</p> | <p>The reporting officers have concerns about the potential to increase the contaminant loading in receiving environments including the New River Estuary. Water quality evidence and evidence by Ms Topham strongly indicates that the proposed activities would result in a decrease in contaminant loading and therefore a very small contribution to improving the quality of the receiving environment including the New River Estuary.</p> |

| | |
|--|---|
| Effects related to the Oxidising Physiographic Zone | Ms Topham's evidence has shown that with the proposed mitigation the proposed activities are estimated to result in a 7.9% decrease in the nitrogen losses from the Oxidising Physiographic Zone. |
| Cumulative Effects | The reporting officers are concerned about the potential cumulative effects from the East Block as a result of a change in land use. The main concern appears to be that an introduction of the East Block into the landholding may result in cumulative adverse effects on the receiving environment within Tussock Creek catchment and to a much lesser extent the Makarewa River catchment. However, the evidence strongly indicates that with an appropriate comparison against the earlier existing environment (excluding the 2018/19 year) it is very likely that there would be an overall reduction in contaminant losses for the Tussock Creek catchment. |
| Overseer nutrient modelling and associated mitigations | Whilst the reporting officers acknowledge that the modelling shows that it is very likely that there would be a reduction in nutrient losses under the proposed scenario, they are concerned about the certainty of implementation of these measures. These mitigations are specified in the FEMP and proposed consent conditions would require that the FEMP is implemented and reviewed at least once each milking season. The applicant has a very good compliance history and there should be a high level of confidence that the proposed mitigation will be implemented. |

| | |
|---|---|
| <p>Whether increased abstraction from Bore E46/1067 is proposed, and if so, why an assessment of effects for the increased abstraction has not been undertaken.</p> | <p>It is proposed to increase abstraction from 72,000L per day to 81,600L per day. The application stated that the amount sought is 81,600 L/day. There was a minor error in the AEE (page 32) where it stated that there would be no increase in the amount sought.</p> <p>The effects of this have been addressed in the AEE and because the proposed increase is from a groundwater zone with less than or equal to 3% allocation and the rate of take is less than 2 L/s, the effects are insignificant.</p> |
| <p>How soil moisture management is actually implemented or how relevant soil moisture data is used to determine current soil conditions to ensure effects of FDE application are minimised.</p> | <p>Currently, the applicant checks the weather forecast as well as the nearest soil moisture site linked via the ES website. This is the Tussock Creek monitoring site, <7km away. This monitoring site is on Pukemutu soils. As these are the same soils that effluent is being applied to, this monitoring site provides an appropriate representation of the applicant's property. The applicant is concerned about the additional cost of establishing on-site soil moisture monitoring but is prepared to do this if necessary.</p> |
| <p>Effects of effluent application on soil properties</p> | <p>The effluent application would continue to be applied in accordance with established good practices that would not result in any adverse effects on soil properties.</p> |

Statutory Considerations

30. Section 10 of Mr Erceg's S42A report details a comprehensive planning assessment. I consider that that assessment has been very thorough and I largely agree with its conclusions. Therefore this section only focuses on matters where I have a different understanding or interpretation. I have avoided duplication of material where possible.

Part 2 of the RMA

31. I agree with the reporting officer that it is appropriate to refer to Part 2 of the RMA when considering this proposal¹. However, I note that Mr Erceg states that “this is not required”. My understanding is that the Davidson Court of Appeal decision and the recent Environment Court comments about the pSWLP indicate that a Part 2 assessment would be “appropriate and necessary”¹ because there appears to be some concern about the extent to which the pSWLP has been “competently prepared”¹.
32. I consider the proposal is consistent with Part 2 of the RMA. It seeks to enable the applicants to utilise their land for farming in a way that provides for their social and economic well-being, that their staff, families and whanau and the rural economy, while also enabling them to reduce their ‘environmental footprint’ in a manner that will achieve sustainable management as defined in Section 5(2).
33. The applicants acknowledge and respect the long history and relationship Tangata Whenua have with the area. Noting that TAMI have not submitted on the proposal, I consider that the implementation of the proposal will not adversely affect Tangata Whenua values, traditions or taonga.

National Policy Statement on Freshwater Management (2014), amended 2017

34. I generally agree with Mr Erceg’s conclusions and consider the proposal is consistent with the NPSFM, including Policy A4 and policies relating to water quality, quantity and Tangata Whenua interests. I highlight objective A2 as being particularly relevant because it directs that water quality must be maintained or improved. I rely on the expert water quality evidence to conclude that implementation of the proposal will see a small reduction in contaminant loss to water and that this will make a small contribution to improving water quality. Importantly, it will do so compared to the future if consent is not granted (notwithstanding other potential future requirements such as limit setting). I consider that implementation of the proposal would if combined with similar improvements in the catchments, contribute to achieving an improvement in groundwater and surface water quality, which would benefit ecosystem health and human health noting that these are two compulsory values identified by the NPSFM. The proposal inherently recognises the values and connections of Te Mana o te Wai as set out in the NPS.

¹ R J Davidson Family Trust v Marlborough District Council [2018] NZCA 316.

Southland Regional Policy Statement (2017)

35. I agree with Mr Erceg's conclusions.

Regional Water Plan

36. I agree with Mr Erceg's conclusions.

Proposed Southland Water and Land Plan

37. I largely agree with Mr Erceg's conclusions. I have also read the Environment Court's Interim Decision dated 20 December 2019² which changes and proposes some changes to various objectives and policies of the PSWLP. The one area where I disagree somewhat is in relation to the status and application of relevant physiographic policies. Mr Erceg appears to be considering Policy 10 of the pSWLP (as proposed to be changed by the Environment Court) as a strict requirement rather than a policy that a decision-maker must, subject to Part 2, have regard to. Ms Topham has now shown (after Mr Erceg prepared his S42 A report) that nitrogen losses from the Oxidising zone would decrease. However, I am concerned that in terms of the direction of Objective 6 of the pSWLP (both as currently written and as proposed to be changed by the Environment Court) to avoid an inappropriate result the physiographic policies must be considered subservient to this objective. This is because of the need to avoid an application being potentially declined if for example, even if it involves a clear improvement in all possible receiving waters but has, an increase in nitrogen loss from one physiographic zone.

Rule Framework

38. I agree that the overall activity status when bundled is discretionary, therefore, consent can be granted in accordance with Section 104B of the Resource Management Act. I note that the farming proposal is a discretionary activity under Rule 20(e), which does not mention a reference nutrient loss rate (unlike Rule 20(d)) nor does the rule mention the term "landholding". However, I do consider that it is appropriate to use the historical existing environment concept as a reference point for assessing effects but not solely because the approach is used in the definition of a restricted discretionary activity under Rule 20(d).

² Environment Court Decision No. [2019] NZEnvC 208, 20 December 2019

Draft consent conditions

39. I acknowledge and thank Mr Erceg for providing a Word copy of his proposed conditions along with the main S42A report. Ms Ballinger and I have reviewed those conditions and I am in general agreement with those conditions. However, I have made a large number of relatively minor suggested changes that I consider would make some of the conditions more robust and/or practicable and removed some conditions that I consider are not needed. Those specific changes are detailed together with applicable comments in the attached Appendix B.
40. To assist in providing a high level of assurance about the quality of the Lochiel School water supply the applicants have on an 'Augier basis' proffered and agreed to be bound by a suite of otherwise *ultra vires* conditions. The evidence strongly indicates that the proposal would not increase the existing risks to this water supply. However, the applicants want to ensure the users of the water supply have a very high level of assurance about the quality of the school water supply.

"Condition XYZ

- a) The consent holder shall make a payment to Lochiel School that would provide for an increase in the frequency of existing microbiological drinking water supply testing from the current monthly frequency to fortnightly during each and every school term for the duration of this resource consent, unless not required as specified in Condition XYZ(f).
- b) The consent holder shall make a payment to the Lochiel School that would provide for an increase in the frequency of existing drinking water UV treatment maintenance during each and every school term for the duration of this resource consent, unless not required as specified in Condition XYZ (f).
- c) The consent holder shall make a payment to Lochiel School for two drinking water supply water samples to be tested for nitrate-nitrogen with one sample taken in October and one sample taken in March each year for the duration of this resource consent.
- d) All sampling specified in Condition XYZ (a) and (c) shall be undertaken by a suitably qualified person and tested in a laboratory with IANZ accreditation for the relevant analysis and a copy of the results shall be provided to the consent holder and consent authority (Attention: Compliance Manager) each year.
- e) The payment specified in Condition XYZ (a), (b) and (c) shall be made once an invoice is provided to the consent holder signed by the principal of Lochiel School with adequate evidence that the invoice reflects the actual and reasonable costs involved in the specified sampling, testing and maintenance.
- f) If after five consecutive years of the additional maintenance and monitoring undertaken in accordance with conditions XYZ (a),(b) and (d), there have been no breaches during that period of the NZ Drinking Water Maximum Acceptable Values for *Escherichia coli* (as specified in the "Drinking-water Standards for New Zealand 2005 (Revised 2008)" then conditions XYZ (a) and (b) shall cease to apply.

Advice note: This condition was volunteered by the consent holder as part of the application process and has agreed to be bound by it."

Consent Duration

41. A duration of 10 years has been sought for all three applications. I agree with Mr Erceg's conclusions.

Likelihood terminology

42. The S42A report comments (e.g., paragraph 338) that the modelled reduction in losses will "more likely than not be achieved in reality". My understanding based on the comments in the water quality evidence is that the likelihood of there being a reduction is much greater than that, and a more appropriate description is that it is "very likely" that the combination of modelling and compliance with conditions (which it should be assumed) would result in a reduction in contaminant losses to water.

MATTERS RAISED BY SUBMITTERS

43. The application for resource consent was publicly notified. Submissions were received from two parties. Further comment has been provided on submissions below.

| Party | Position |
|-----------------------|-----------------|
| Public Health South | Neutral |
| Ministry of Education | Oppose |

44. A neutral submission was made by Public Health South, who is concerned that adequate conditions are imposed to protect public health.

45. The submission in opposition by the Ministry for Education raised concerns about potential adverse effects on the quality of water taken from the Lochiel School bore, which supplies drinking water to the school. The school is located approximately 1.5 km south south-east of the property. The Ministry seeks that the application is refused unless:

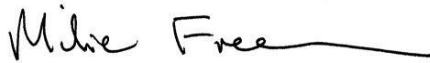
"-the applicant establishes that the water quality of Lochiel School will not be adversely affected or likely to be adversely affected by the discharge of contaminants from the proposed operation. This could include appropriate monitoring of the applicant's discharged in which the location, proposed depth and frequency of sampling and testing and the proposed trigger levels are specified. "

46. The AEE and the water quality evidence strongly support the conclusion that the proposal will result in an extremely small improvement to the quality of groundwater in the area. However, as the water quality evidence indicates this is not the same as establishing that the groundwater-sourced Lochiel School water supply would not be adversely affected. I don't consider that this is an appropriate test or threshold for these applications. Therefore the technical evidence strongly indicates that it is not feasible to provide the assurances that the Ministry of Education representatives appear to be seeking.
47. In an email to various parties dated 20 December 2019, the Ministry of Education representative has proposed the following additional condition be added to the condition suite proffered by the applicants (detailed above and provided in advance to the Ministry of Education representatives):
- “g) The applicant shall submit a management plan for the approval of Environment Southland which shall include but not be limited to;*
- i. The monitoring regime as described in Conditions 61-63*
 - ii. Appropriate trigger levels for the measurements of the samples*
 - iii. Further actions to be taken if the trigger levels are breached. Such actions may include further sampling, notification of any affected parties, and practicable measures to address any breaches of the trigger levels.”*
48. I do not consider that such an additional condition is appropriate, firstly, because the proposed conditions would provide for an *ultra vires* 'secondary approval' not subject to any specific requirement or technical assessment. This would be contrary to established case law and national guidance on resource consent conditions³. The proposal also appears to be putting an onus on one farm to monitor and respond to regional groundwater nitrate-nitrogen quality and take action if some yet to be determined trigger level specified by an Environment Southland officer is breached. It would not be reasonable to hold one farm responsible for the quality of groundwater that is influenced by hundreds of farms and other activities that are beyond the control of the applicant/consent holder.
49. Therefore I do not consider that the Ministry of Education request is reasonable or justifiable and the proposed consent condition should not be accepted.

³ <https://www.qualityplanning.org.nz/node/912> particularly the sections on 'secondary approvals'.

CONCLUSIONS

50. The granting of the resource consent applications is highly likely to result in a reduction in contaminant losses to water compared to the existing environment and importantly, compared to the situation if consents are not granted. A key objective of the pSWLP and higher planning instruments is to improve water quality in the receiving environments and a strong case has been made that this will be achieved by granting the applications.

A handwritten signature in black ink that reads "Mike Freeman". The signature is written in a cursive style with a long horizontal line extending to the right.

MIKE FREEMAN
SENIOR SCIENTIST/PLANNER
20 January 2020

Appendix A – Farm Environmental Management Plan (Draft)

FARM ENVIRONMENTAL MANAGEMENT PLAN

A: Property Overview

| | | | |
|---|--|------------------------------|-------------|
| Contact Person(s) | Tim and Jocelyn Driscoll | Plan Prepared By | Landpro Ltd |
| Contact Phone | 022 076 9093 | Date | 20 Jan 2020 |
| Email Address | driscolldairy@gmail.com | Date of Next Review | 20 Jan 2021 |
| Physical Address | 266 O'Shannessy Road, Winton | | |
| Consent Numbers and Expiry Dates | TBC | | |
| Farm Area | 224.5 ha | Peak Milked Herd Size | 680 |
| Legal Descriptions | Pt Secs 29 & 30 Blk I Winton Hundred, Secs 43 – 45 & 54 Blk I Winton Hundred, Lots 1 & 2 DP 449518 | | |

This FEMP sets out the management practices that will be implemented and adopted to actively manage the operation of the property to ensure that environmental risks are managed appropriately, and resource consent conditions complied with.

Objectives of this plan:

- Comply with all legal requirements related to land use and discharge.
- Take all practicable steps to minimise the risk of harm to onsite and nearby water resources.
- Take all practicable steps to ensure that there is an adequate supply of soil nutrients to meet plant needs.
- Take all practicable steps to minimise the risk of harm to significant vegetation and/or wildlife habitat.

This will be achieved through;

- Identifying and documenting contaminant pathways for the property (based on Physiographic Zones);
- Identifying relevant good management practices (GMP) and where they are required to be implemented to minimise environmental risks; and
- Documenting evidence to be provided to show adherence with consent conditions.

As the person responsible for implementing this plan, I confirm that the information provided is correct:

Name:.....Signed:.....Date:.....

B: Site Plans

This FEMP contains various site plans identifying key features of the subject property in accordance with Part B(3) of Appendix N of the proposed Southland Water and Land Plan, 2018. The following table can be used as a reference point for locating these features.

Table 1: Schedule of where key features have been mapped

| | Plan(s) where features are mapped |
|---|--|
| Site boundary | All site plans in this FEMP |
| Physiographic zones, variants and soil types | Figure 1: Physiographic zones and variants present |
| Lakes, rivers, streams ponds, artificial watercourses, modified watercourses and natural wetlands | Attachment B: Existing Waterways and Critical Source Areas (from Environment Southland Farm Activity Focus Plan) |
| Other critical source areas (gullies, swales etc) | Attachment B: Existing Waterways and Critical Source Areas (from Environment Southland Farm Activity Focus Plan) |
| Land with a slope greater than 20 degrees | N/A |
| Existing and proposed riparian vegetation and fences (or other stock exclusion methods) adjacent to waterbodies | Attachment B: Riparian Fencelines and Planting (from Environment Southland Farm Activity Focus Plan) |
| Places where stock access or cross water bodies (including bridges, culverts and fords) | Attachment B: Riparian Fencelines and Planting (from Environment Southland Farm Activity Focus Plan) |
| Known subsurface drainage system(s) and the location of drain outlets | TBC |
| All land that may be cultivated over the next 12 months | TBC |
| All land that may be intensively winter grazed over the next 12 months | TBC |

C: Physiographic Zones and Key Contaminant Pathways

This section of the FEMP documents the physiographic zones and variants present across the property and key contaminant pathways associated these. The Physiographic Plan (figure 1) shows the location and extent of the physiographic zones on the property.

Table 2: Key transport pathways and contaminants for each physiographic zone

| Physiographic Zone | Key Contaminant Transport Pathways (✓) | |
|--------------------|--|---------------------|
| | Deep Drainage | Artificial Drainage |
| Oxidising | ✓ | - |
| Gleyed | - | ✓ |

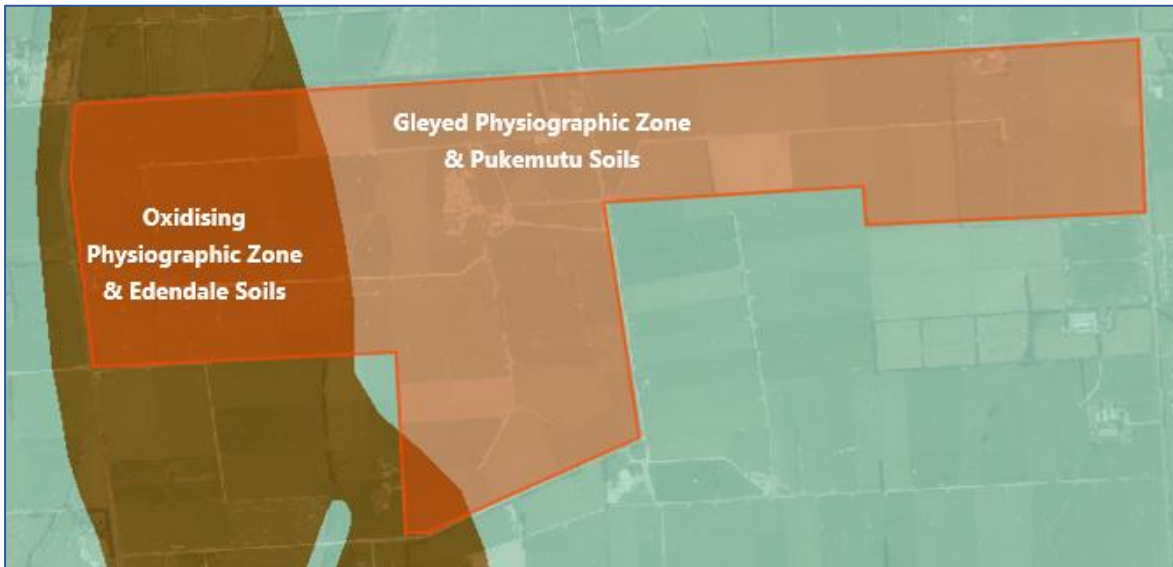


Figure 1: Physiographic Zones and variants present

Figure 1 shows that:

- The Oxidising physiographic zone is the predominant physiographic zone in the western part of the farm.
- The Gleyed physiographic zone is the predominant physiographic zone in central and the eastern part of the farm;
- No variants of either of these physiographic zones are present.
- The key contaminant pathway on the western-most portion of the property is deep drainage and the key contaminant pathway for the rest of the farm is artificial drainage.

D: Good Management Practices

The table below outlines general good management practices which will be undertaken across the whole farm over the 12-month period from the first exercise of the land use consent for expanded dairying. Critical Source Areas (CSAs) for this property consist predominantly of drains and waterways, as shown on the attached maps. *Table 3: Good Management Practices for the Farm*

| Mitigation | Good Management Practice | Area where most effective |
|---|---|---------------------------|
| Protect soil structure (will also help to reduce P and N loss) | 1. Wintering majority of herd off-site | Whole farm |
| | 2. Re-sow bare soils as soon as possible | |
| | 3. Use stand-off pads for springer cows when soils are saturated | |
| | 4. No grazing of livestock from May-Aug on East Block | East Block |
| | 5. No wintering of stock (June-July) on East Block | |
| Reduce N loss to water | 6. No supplements fed on East Block | |
| Manage Critical Source Areas (will also help to reduce P loss) | 7. Avoid working CSAs and their margins following periods of heavy rain or when water is lying in them. | CSAs (see Attachment B) |
| | 8. Leave grassed areas (or native vegetation) around CSAs | |
| | 9. All riparian margins to be fenced and planted | |
| | 10. When winter grazing, leave CSA areas to be grazed last. For sensitive areas leave a 20m buffer. | |
| Additional P loss reduction GMPs | 11. Reduce use of P fertilizer where Olsen P values are above agronomic optimum. | Whole farm |
| | 12. Reduce the risk of run-off to laneways and other sources by ensuring crossings are designed and maintained adequately | |
| Additional GMPs to reduce accumulation of N in soil | 13. Reduce nitrogen fertiliser on current dairy platform | Whole farm |
| | 14. Time N fertilizer application to meet crop demand using split applications | |
| | 15. Increased use of barley (or other like feed) through in-shed feeding | |
| | 16. Optimise timing and amounts of FDE application | FDE disposal area |

| | | |
|---|--|--|
| Avoid preferential flow of FDE through drains | 17. Defer effluent application when soil conditions unsuitable | |
| | 18. Apply effluent at low rates and depths | |

The GMPs above have been chosen as being the most optimal methods for minimising the risks associated with the key contaminant pathways identified for the property, which are deep drainage in the western-most portion of the property (oxidising physiographic zone) and artificial drainage for the rest of the farm (gleyed physiographic zone).

Practices that protect soil structure and ensure appropriate management of CSAs to ensure that the risk of sediment and nutrient loss via overland flow is minimised are included in the table above (particularly GMPs 1-9, 11, 16, 17)

Cultivation practices are included in the table above (particularly GMPs 3,8, 9, 10, 11, 17, 18). Areas to be cultivated over the forthcoming 12-month period are shown on [Attachment X](#).

Winter grazing practices are also included in the table above (particularly GMPs 2, 7, 16). Areas planted for winter grazing over the forthcoming winter are shown on [Attachment X](#).

Riparian management practices are included in the table above (particularly GMPs 7, 8, 9) and addressed in more detail below.

Additional mitigations that are above and beyond the GMPs will be put in place. These are described in the following table. The location of these mitigations are shown on Attachment C.

| Mitigation | Additional Mitigation | Area where most effective |
|---|---|---------------------------|
| Protect soil structure (will also help to reduce P and N loss) | 1. Stand springer (calving) cows on the calving pad during period of high soil moisture content to minimise soil damage and leaching risk. | Whole farm |
| Manage Critical Source Areas (will also help to reduce P loss) | 2. Increased buffer width along the laneway at the southern end of the property (paddock 5) Approx. E1240942 N4874091 | CSAs (see Attachment B) |
| | 3. Water to be directed through vegetated areas to allow for filtering. As above | |
| | 4. Additional riparian planting. Various location, see Attachment C | |
| Additional P loss reduction GMPs | 5. Change in phosphorus fertiliser from a water-soluble super phosphate fertiliser to a non-water-soluble serpentine super or reactive phosphorus rock on the Eastern Block. | Eastern Block. |
| | 6. Reduce Olsen P levels from 32 to 30. | Whole Farm |
| | 7. Improvement of kickboards on bridges/culverts. Bridge E1240535 N4874788 Bridge E1240427 N4874409 Culvert E1240172 N4874765 Culvert E1240927 N4874158 | |
| | 8. Careful management of bridges/culverts through improvements in structures. As above | |
| Additional GMPs to reduce accumulation of N in soil | 10. Effluent applied in accordance with GMPs (less than 150 kg N/ha/yr/ at times when ground conditions are appropriate.) | Whole farm |

| | | |
|--|---|-------------------|
| | 11. Correct fertiliser application, at correct rate and not in close proximity of laneways, as per fertiliser recommendation for maintenance fertiliser. >7 degrees soil temper and not when soil is saturated | |
| | 12. Regular soil testing (at least every 3 years) | FDE disposal area |

E: Riparian Management

The majority of the property is contained within the Lower Oreti Surface Water Management Zone, and the eastern-most portion is contained within the Tussock Creek catchment/Makarewa Surface Water Management Zone. The Makarewa River is a tributary of the Oreti River.

There are several tributaries of the Oreti River on the property. The tributaries discharge to the Oreti River approximately 3.6 km downstream of the property boundary. As shown on Attachment B, there are no tributaries of Tussock Creek/the Makarewa River on the subject property.

All waterways across the property have been fenced to prevent stock access, as shown on Attachment B. An unnamed tributary of the Oreti River runs through the property in a north-south direction and this is maintained by Environment Southland's catchment team. Any drain cleaning works facilitated by the consent holder will be undertaken in accordance with Environment Southlands *Drainage and Channel Maintenance Fact Sheet*.

Where appropriate and as part of good grazing management, temporary fencing will also be erected to prevent any point source discharges occurring. This includes fencing off swale areas where they may directly discharge to surface water. Such practices will be adopted as set out elsewhere in this plan as part of the management of CSAs, and as set out in the Environment Southland Factsheet on *Critical Source Areas*, and *Dairy NZ Wintering in Southland and South Otago Guide*.

Several small culvert crossings exist on the property, as shown on Attachment B. These will all be inspected over the next 12 months and additional containment and diversion mechanisms will be installed as necessary to ensure there is no direct run-off of effluent from any crossing to water, in accordance with the GMPs outlined in the table above.

F: Farm Dairy Effluent

This section of this plan documents the methods that will be employed in the operation of the Farm Dairy Effluent (FDE) System to ensure that the discharge of effluent occurs in accordance with conditions of consent.

Table 4: Effluent System Overview

| | | | | | |
|---|---|----------------------------------|---|-------------------------|--|
| Total Effluent Disposal Area (ha): | 93.3 | Available Storage Volume: | 3,261 | Storage Type: | Lined pond with mechanical stirrer installed in the pond |
| Effluent Application Method(s): | RX Plastics Maxi Pods Slurry tanker may also be used on rare occasions | | Maximum Rate and Depth of Application: | 10 mm/hr 25 mm depth | |

Table 5: FDE Good Management Practices (existing and proposed to continue to be undertaken on farm)

| Mitigation | Good Management Practice | Monitoring |
|--|---|---|
| Reduction in effluent generation | <ul style="list-style-type: none"> Reduce water use in shed by reusing clean water where possible Treat the herd gently to avoid upset | N/A |
| Effluent applied only when soil conditions are appropriate | <ul style="list-style-type: none"> Sufficient storage provided so that when soils are at or above field capacity and/or during adverse weather conditions, effluent can be stored in the effluent storage pond until conditions are suitable for application Monitoring of soil moisture and temperature will be used to determine soil water deficits for sustainable application depths, from data obtained from the ES website. The Tussock Creek monitoring site is an appropriate representation of the soil conditions on the property. Paddocks will be inspected before effluent application to check that soil water deficit exists. Low rate application will be used at all times. Large effluent area (11ha per 100cows) to reduce risk of over applying nutrients. This area is ~3x the minimum required by ES. | Record irrigation dates, times, areas on the Irrigator run sheet (attached) |

| Mitigation | Good Management Practice | Monitoring |
|--|---|--|
| Avoidance of direct effluent disposal or runoff to sensitive areas | <ul style="list-style-type: none"> • Effluent discharge will observe a range of buffers from sensitive receiving environments as shown on the Appendix I plan attached to the discharge permit • Low rate effluent discharge will avoid ponding and/or runoff • Effluent will not be discharged onto any land areas that have been grazed within the previous 5 days • Effluent disposal will be to an area of at least 4 ha/100 cows | Record irrigation dates, times, areas on the Irrigator run sheet (attached) |
| Avoidance of effluent contamination in tile drains | <ul style="list-style-type: none"> • Low rate effluent discharge to reduce the risk of through-drainage and associated risk of effluent entering water • Mapping of tile drain locations as they are come across | N/A |
| Efficient and effective collection, storage and delivery infrastructure at all times | <ul style="list-style-type: none"> • Monthly/frequent system checks will be undertaken using the Monthly Effluent Check Sheet attached • All parts of the effluent system will be checked and maintained regularly • Leaks will be repaired immediately • Fail safe systems will be kept in place and kept in good working order i.e. automatic alarm and shut off system • Application Rates shall be assessed annually thereafter in accordance with the methodology specified in <i>Dairy NZ Staff Guide to Operating Your Effluent Irrigation System – Low Rate System</i> | <p>Record all repairs and maintenance</p> <p>Monthly Effluent Check Sheets filled out and signed</p> |
| Staff appropriately trained in operation and understand the effluent system | <ul style="list-style-type: none"> • All staff involved in the management of the effluent system are fully trained in its use • All staff are familiar with and understand the conditions of consent • All new staff will be taken through the "Staff Training Guide" (attached) • Staff to take immediate action if incident or breakdowns occur including; <ul style="list-style-type: none"> - Rectifying the problem - Cleaning up if possible | <p>Keep signed training record in the back off this FEMP</p> <p>Ensure both farm manager and employee sign to confirm training</p> |
| Application that is not offensive to neighbours | <ul style="list-style-type: none"> • Wind conditions will be checked to ensure the effluent can be discharged without resulting in spray drift and odour beyond the property boundary | Complaints received by Environment Southland |

| Mitigation | Good Management Practice | Monitoring |
|------------|--|------------|
| | <ul style="list-style-type: none">• Observation of buffers to dwellings not located on the property (200 m) and property boundaries (20 m) | |

G: Compliance & Reporting

This section sets out the records which are required to be kept which will enable the Consent Holder to demonstrate compliance, as well as detailing the reporting requirements of the consents. The Consent Holder will also participate in annual compliance monitoring inspection programs that are to be implemented by Environment Southland.

Table 6: Records to be kept by the consent holder

| Record | Date of most recent version |
|--|-----------------------------|
| Nutrient budget | |
| Fertiliser application records | |
| Soil sampling results | |
| Water meter certification | |
| Water abstraction records | |
| Effluent system Staff Training Record | |
| Effluent system monthly maintenance check sheets | |
| Effluent proof of placement | |
| Effluent application depth test results | |

Annual reporting requirements are set out in the conditions of resource consent and include;

- Prior to the first exercise of the Effluent Discharge Consent the Consent Holder shall notify Environment Southland of the operator of the effluent system
- A review of the nutrient modelling which includes a comparison of the four-year rolling average nitrogen and phosphorus losses with the baseline contaminate loss rates.
- The Farm Environmental Management Plan shall be reviewed annually, and any amendments reported to Environment Southland by 31 June each year
- The Consent Holder shall provide records from the Water Permit to ES by 31 May each year

H: Annual Review & Audit of FEMP

This FEMP shall be reviewed on an at least annual basis. The review shall include (but not be limited to) an assessment of;

- Verification of compliance with conditions of consent
- Details of the implementation of GMPs and identification of any new GMPs that would be appropriate to employ on the farm to manage risks identified
- Review of the data obtained from the monitoring undertaken in accordance with this FEMP and any changes to farming practice required as a consequence
- A report detailing items above shall be submitted to the consent authority each year including an updated version of the FEMP if any amendments made

I: Industry Guidelines

A complete list of the industry guidelines which have been referenced in the development of this FEMP are listed below. The Consent Holder is also referred to the following general sources for guidance in respect to the operation and management of their property.

Environment Southland www.es.govt.nz

Dairy NZ www.dairynz.co.nz

Fonterra www.fonterra.com

Dairy NZ – A staff guide to operating your effluent irrigation system – Low Rate System

Dairy NZ – A farmer’s guide to managing farm dairy effluent – A good practice guide for land application systems

Dairy NZ – Wintering in Southland and South Otago – A land management guide to good environmental practice

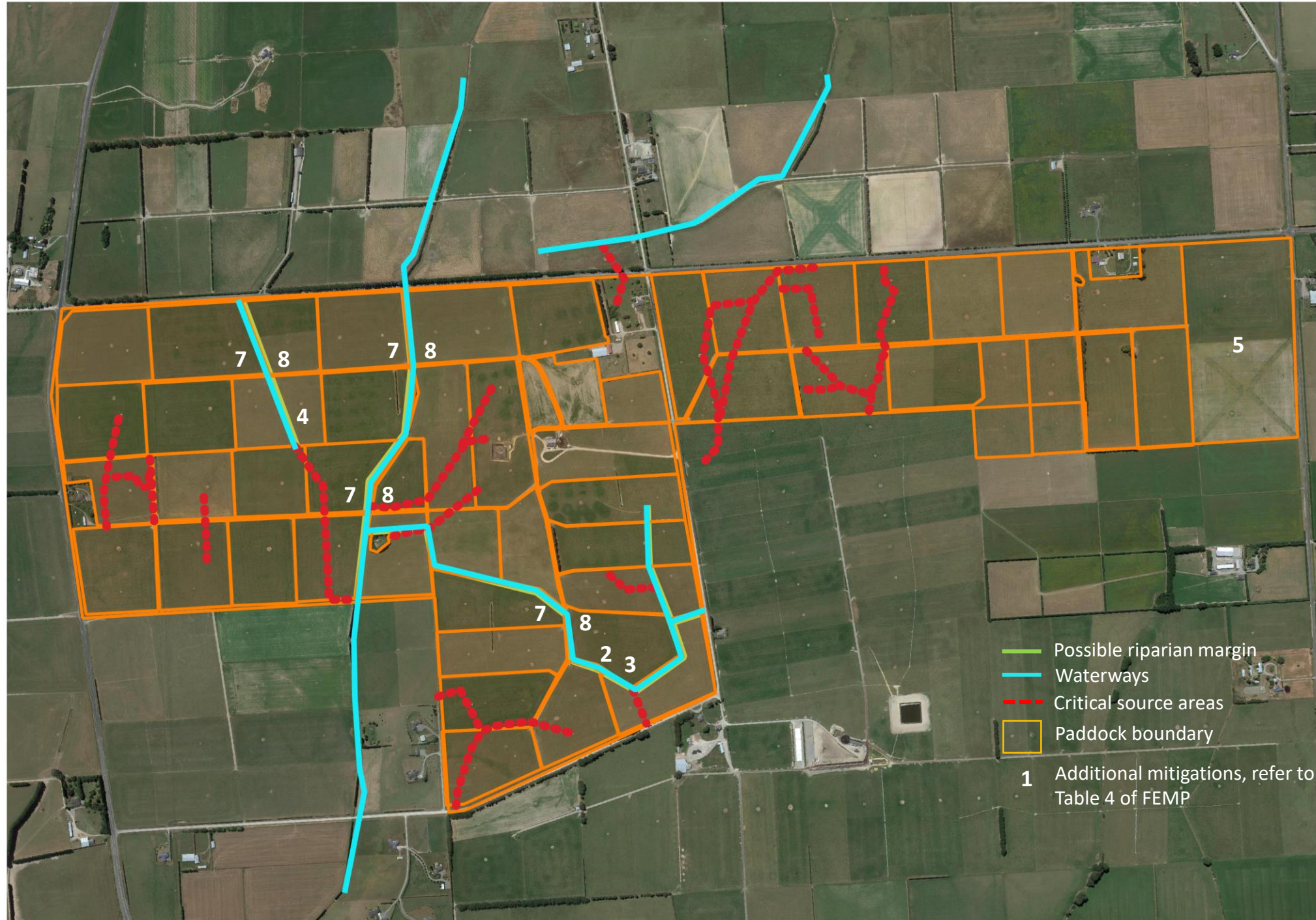
Dairy NZ – Land management on Canterbury Dairy Farms – Managing land to reduce sediment and phosphorous loss

Environment Southland Factsheet – Critical Source Areas

Environment Canterbury – Information Sheet for Farmers on OVERSEER®

Sustainable Dairying: Water Accord

Attachment B – Farm Plans



Attachment D – Effluent Management

Dairy Shed Effluent Monthly Check Sheet

On a monthly basis the following checks and measures must be undertaken. The details of the monthly check shall be recorded on this sheet, and at the completion of the inspection the sheet shall be filed for future reference. If there are any matters requiring follow up work i.e. you note that an effluent nozzle needs replacing, please make a note of these, and ensure that the actions are followed up immediately.

Employee Name:

Date of Inspection:


| Task | Done? (Y/N) | Any further action required? |
|--|-------------|------------------------------|
| Clean out stone trap | | |
| Clean out sump | | |
| Check all inlet and outlet pipes to storage pond to ensure they are free of debris to prevent blockages. | | |
| Check the pond's leak detection system for the presence of effluent (visual and odour) | | |
| Check effluent nozzles are clear and in good working order | | |
| Check effluent irrigator pipe is in good working order and does not have any leaks | | |
| Check well-head(s) remain capped and in good condition | | |

Effluent Orientation and Training Record

Season ___/___

| Effluent Competencies | Employee name | Employee name | Employee name |
|--|---------------|---------------|---------------|
| General | | | |
| Understands the regional council rules and farm policies for effluent management | | | |
| Understands health and safety around the effluent system | | | |
| Understands record keeping for irrigator runs and maintenance | | | |
| At the Dairy | | | |
| Use of stormwater diversion system | | | |
| Good hosing practice and water management | | | |
| Animal handling to minimise effluent volume | | | |
| Cleaning the stone trap | | | |
| Sump, pump & pond monitoring and management (including float switches) | | | |
| In the Paddock | | | |
| When to irrigate: assessing soil and weather conditions | | | |
| Where to irrigate: runs, paddock rotations, high risk vs low risk soils etc (mark on farm map) | | | |
| Where not to irrigate: near waterways, drains, boundaries, slopes etc (mark on farm map) | | | |
| How the irrigator works, how to use it, set up, hose layout and performance checks | | | |
| Measuring the depth of effluent application | | | |
| Irrigator, pump maintenance/cleaning | | | |
| Greasing and general maintenance requirements (how and when) | | | |
| How to check and replace rubber nozzles and seals (same time as dairy rubber ware) | | | |
| Tyre pressure and condition | | | |
| Pipe-work, hose and hydrant condition | | | |
| Wire-rope, cam and ratchet condition | | | |
| Other | | | |
| | | | |

| | | | |
|--------------------|--|--|--|
| Trainer signature | | | |
| Employee signature | | | |
| Date | | | |

 *Date when staff become competent in each skill. If all training provided in one day, tick and date at the bottom.*

Appendix B – Proposed resource consent conditions (marked up S42A officer proposed)

DISCHARGE PERMIT – AUTH-20181765-01

Purpose: To discharge dairy shed effluent to land

Location: 266 O'Shannessy Road, Winton

Legal description of land at the site: Part Section 29 Block I Winton Hundred
 Part Section 30 Block I Winton Hundred
 Section 43 Block I Winton Hundred
 Section 44 Block I Winton Hundred
 Section 45 Block I Winton Hundred

Expiry date: XYZ 2030

Commented [MF1]: The format has been tweaked to ensure that the purpose and legal descriptions are not included as conditions but put into the standard ES format. This should minimise duplication and/or condition cross referencing errors.

1. This resource consent must not be exercised until Discharge Permit AUTH-301043 is surrendered or has expired.
2. This resource consent must be exercised in conjunction with Land Use consent AUTH-20181765-03.
3. ~~This consent authorises~~ the discharge of dairy shed effluent ("agricultural effluent") to land shall be via an effluent disposal system consisting of a concrete stone trap and synthetically lined effluent storage pond via low rate pods and a slurry tanker, as described in the application for resource consent (APP-20181765) and all subsequent information.

Commented [MF2]: What adverse effect would this address? May be useful feedback on this issue from the Woldwide Hearing decisions that could be provided at the hearing. I don't consider that the condition serves a purpose and could result in uncertainty. However, I think that this is more of an issue for the land use consent.

Commented [MF3]: The proposed wording is not a condition. It is a description. The purpose needs to be split out. Purpose = "To discharge dairy shed effluent to land."

Advice Note:

Routine monitoring inspections of this property may occur up to two times a year. This number does not include any other required inspections and may be combined with the inspections required for [Discharge Permit Land Use Consent AUTH-20181765-03](#).

4. The discharge of agricultural effluent to land shall be limited to:
 - (a) the discharge to land of agricultural effluent generated from milking up to 680 cows twice a day from 20 July to 20 June;
 - (b) the discharge to land of agricultural effluent via a low rate pod system;
 - (c) the discharge to land of agricultural effluent via a high rate slurry tanker; and
 - (d) the discharge to land of agricultural effluent to ~~the an~~ area of ~~70 hectares as land as described in the table below and as specified in per~~ the plan attached as Appendix 1.

| | |
|---|---|
| Property Address | 266 O'Shannessy Road, Winton |
| Legal Descriptions of Discharge Area | Part Section 29 Block I Winton Hundred Part Section 30 Block I Winton Hundred Section 43 Block I Winton Hundred Section 44 Block I Winton Hundred Section 45 Block I Winton Hundred |

5. ~~Notwithstanding these conditions,~~ This permit shall be exercised in accordance with the Collected Agricultural Effluent Management Plan. Where there is inconsistency between the Collected Agricultural Effluent Management Plan and the conditions of this consent, the conditions of this consent shall prevail.

Commented [MF4]: Contradictory to have the "notwithstanding" at the start.

Effluent Discharge Management

6. The discharge of agricultural effluent shall not exceed;
 - (a) for the low rate pod system, a depth of application of 25 millimetres per application, and an instantaneous rate of 10~~0~~ millimetres per hour; and
 - (b) for the slurry tanker, a depth of application of 5 millimetres.
7. The minimum return period for the discharge of agricultural effluent to land shall be 28 days.
8. Nitrogen loading onto any land area as a result of the exercise of this consent must not exceed 150 kilograms of nitrogen per hectare per year.
9. The stored or discharged agricultural effluent shall not cause any:
 - (a) odour that is offensive or objectionable ~~in the opinion of a Council Compliance Officer~~; or
 - (b) spray ~~d~~Drift;beyond the boundary of the property as ~~per shown in~~ the plan attached as Appendix 1.

Soil Moisture

- ~~10. Within 6 months of the exercise of this consent, the Consent Holder must;~~
 - ~~(a) have a soil moisture sensor installed in a representative area of the Pukemutu Soils as per the plan attached as Appendix 2; and~~
 - ~~(b) have the soil moisture sensor calibrated by a Suitably Qualified Person.~~
- ~~11. Within fi ve working days of the installation and calibration soil moisture sensor, the Consent Holder must notify the Consent Authority that the soil moisture sensor has been installed.~~
- ~~12. The discharge of agricultural effluent must not occur when:~~
 - ~~(a) 10. prior to the installation of the soil moisture sensor, soil moisture is at or near field capacity at or greater than field capacity as identified at the Tussock Creek Soil Moisture Monitoring Site accessed via the Southland Regional Council's website; and~~
 - ~~(b) subsequent to the installation of the soil moisture sensor, soil moisture is at or near field capacity as identified by the soil moisture sensor required by Condition 10.~~

Agricultural Effluent Storage System Management

- ~~13.11.~~ The discharge shall occur via a synthetically lined agricultural effluent storage facility of between 2,670 cubic metres and 3,261 cubic metres capacity.
- ~~14.12.~~ Prior to 30 December 2029 the Consent Holder shall obtain written confirmation from a Suitably Qualified Person, in accordance with Appendix P of the proposed Southland Water and Land Plan (Decisions Version 2018) or any subsequent replacement versions, that the synthetically lined effluent storage pond meets the relevant pond drop test criteria in Appendix P.

Commented [MF5]: We consider that use of the nearby ES soil moisture monitoring site would be sufficient and the applicant would prefer that this condition was changed to reflect that. The ES site is approximately 6.6 km south south west of the site with the same soil type, Pukemutu. It may be appropriate to require specific site soil moisture testing where comparable soil moisture sites are not available.

Commented [MF6]: The term "near" is too uncertain to be used in a condition.

~~15-13~~. The Consent Holder must inspect the leak detection chamber of the effluent storage pond not less than monthly to check for any evidence of leakage.

~~16-14~~. A record of the inspections required by Condition ~~153~~ must be maintained by the Consent Holder and included in the Management Plan required by this consent.

~~17-15~~. If the leak detection chamber inspections or the Pond Drop Test required by conditions ~~142~~ and/or ~~153~~ or any other inspection identifies that:

- (a) the incidental discharge is not within ~~the the pond~~ drop test criteria of Appendix P of the proposed Southland Water and Land Plan Decisions Version 2018 (or any subsequent replacement versions); or
- (b) there is any visible leakage ~~outside of the normal operating parameters of the leak detection system; identified in the leak detection chamber; or~~
- (c) there are visible cracks, holes or defects that would allow effluent to leak from the facility;

Commented [MF7]: Modified to address overlap and uncertainty.

the Consent Holder must notify the Consent Authority- as soon as reasonably practicable ~~of them~~after becoming aware of the incident.

~~18-16~~. Within five working days of notifying the Consent Authority under condition ~~175~~, the Consent Holder shall advise the Consent Authority in writing of the steps that will be taken to ensure that the structure is made suitable for ongoing use, including:

- (a) any additional testing to be undertaken;
- (b) an outline of the proposed works to be undertaken to remediate the structure;
- (c) the timeframe for completion, which shall be no longer than 3 months;
- (d) Where the timeframe is expected to exceed 3 months;
 - i. the Consent Holder shall notify the Consent Authority that they will exceed the timeframe set out in Condition ~~185~~(c) and provide an expected date of completion;
 - ii. a Chartered Professional Engineer shall undertake an assessment of the pond and submit a report to the Consent Authority, outlining the defects in the pond and the remedial works to be undertaken, a detailed completion timeframe and the suitability of the pond for use during the remediation works;
 - iii. the Consent Holder shall submit a plan for their temporary operating procedures to the Consent Authority including what is required under Condition ~~168~~(f) and how they will manage their effluent;
 - iv. if the pond is deemed not suitable for use under Condition ~~168~~(d)(ii), the Consent Holder shall empty the pond and continue not use it, until the pond has been certified to be within the normal operating parameters of a leak detection system or the pond drop test criteria set out in Appendix P of the proposed Southland Water and Land Plan Decisions Version 2018 (or any subsequent replacement versions) and this certification has been received by the Consent Authority.
- (e) identification of whether the works will require consent for reconstruction of the structure;
- (f) the additional mitigation measures that will be employed to minimize the adverse effects of the leaking structure prior to remediation being undertaken; and
- (g) testing, certification, or inspections to be completed following the works to demonstrate that the structure is able to comply with the conditions of this consent.

System Management

~~19.17.~~ The Consent Holder must notify the Consent Authority the identity of the Person in Charge of the agricultural effluent disposal system:

- (a) prior to the first exercise of this consent; and
- (b) no more than five working days following the appointment of any new Person in Charge.

~~20-18.~~ The Consent Holder must install and maintain:

- (a) an operational alarm that alerts the Person in Charge to any system failure that could cause the over-application, overflow or spilling of agricultural effluent (e.g. sudden pressure drop, irrigator stoppage; and/or
- (b) an operational automatic switch-off system that prevents any over-application or spilling of agricultural effluent ~~pipeline~~.

~~21-19.~~ Where the agricultural effluent reticulation system is installed in such a way that effluent can be siphoned when pumping ceases, the Consent Holder shall install and maintain an anti-siphon device in the agricultural effluent pipeline.

~~22-20.~~ In the event of the failure or mismanagement of the agricultural effluent disposal system, or any other event that may result in a discharge of agricultural effluent that may have significant adverse effect on water quality, particularly in the region of the abstraction point of a registered drinking-water supply, the Consent Holder shall notify, as soon as reasonably practicable, the following:

- (a) the Consent Authority (ph 03 211 5115 or 03 211 5225 after hours); and
- (b) the Southland District Council (ph 0800 732 732)

Exclusions

~~23-21.~~ This consent does not authorise the discharge of:

- (a) dairy shed effluent collected during 20 June to 20 July (inclusive); or
- (b) effluent collected from a feed pad, calving pad, wintering pad or barn; or
- (c) effluent collected from an underpass; or
- (d) silage leachate.

~~24-22.~~ No discharge shall occur within:

- (a) 20 metres of any surface watercourse;
- (b) 100 metres of any water abstraction point;
- (c) 200 metres of any place of assembly or dwelling not on the subject property; and
- (d) 20 metres from any property boundaries.

Where there is inconsistency between the plan attached as Appendix 1 and the conditions of this consent, the conditions of this consent shall prevail.

~~25-23.~~ The stored or discharged agricultural effluent shall not enter any surface watercourse in any way, including:

- (a) directly;
- (b) indirectly;
- (c) by overland flow;
- (d) via entrainment by stormwater or run-off; or
- (e) via a pipe.

Commented [MF8]: Consent doesn't authorise this, so it unnecessary to state what a consent doesn't authorise. I suggest that the condition be deleted.

~~26. The stored or discharged agricultural effluent shall not:~~

- ~~(a) form ponds or flow on the land surface; or~~
- ~~(b) cause contamination of water; including:~~
 - ~~i. the formation of any conspicuous scums or foams, or floatable or suspended materials, change in colour or visual clarity; or~~
 - ~~ii. rendering fresh water unsuitable for consumption by farm animals; or~~
 - ~~iii. resulting in any significant adverse effects on aquatic life.~~

Collected Agricultural Effluent Management Plan

~~27-24.~~ The Consent Holder shall have and maintain a Collected Agricultural Effluent Management Plan which may be incorporated as part of the Farm Environmental Management Plan required by Land Use Consent AUTH-20181765-03 provided all the requirements of condition 25 are met.

~~28-25.~~ The Collected Agricultural Effluent Management Plan shall:

- (a) provide concise and clear direction to the Person in Charge and other staff on the operation of the agricultural effluent system;
- (b) identify environmental risks of agricultural effluent discharges specific to the farm including, but not limited to, locations of drains, surface waterways, sub-surface drainage and critical source areas in the agricultural effluent disposal area;
- (c) identify how the above environmental risks are avoided;
- (d) describe how each component of the agricultural effluent system is maintained and have regard to the information provided in the pond storage calculations provided in the application;
- (e) describe how agricultural effluent in storage is managed;
- (f) describe how agricultural effluent is managed when soils are at or above field capacity and/or during adverse weather conditions; and
- (g) describe how any stormwater diversion on the system is set up and managed.

Advice Note

~~The Collected Agricultural Effluent Management Plans (CAEMP) may be combined with the Management Plan required by Land Use Consent AUTH 20181765-03 provided all the requirements required by Condition 27 are met.~~

~~29-26.~~ The Collected Agricultural Effluent Management Plan shall be reviewed at least once each milking season; and the current version shall be available to the Consent Authority on request, either

- ~~(a) an updated version shall be provided to the Consent Authority by 31 May each year; or~~
- ~~(b) the Consent Holder must notify the Consent Authority in writing that no changes have been made by 31 May each year.~~

~~30-27.~~ The Collected Agricultural Effluent Management Plan may be amended at any time, provided it continues to adhere to the matters listed in Condition ~~25~~7 of this discharge permit and the Consent Holder provides the amended version to the Consent Authority within one month of the amendment.

Commented [MF10]: Shifted to become part of the relevant earlier condition to provide legal certainty. An advice note does not provide legal certainty, so I think it would be prudent to include this as part of the relevant condition.

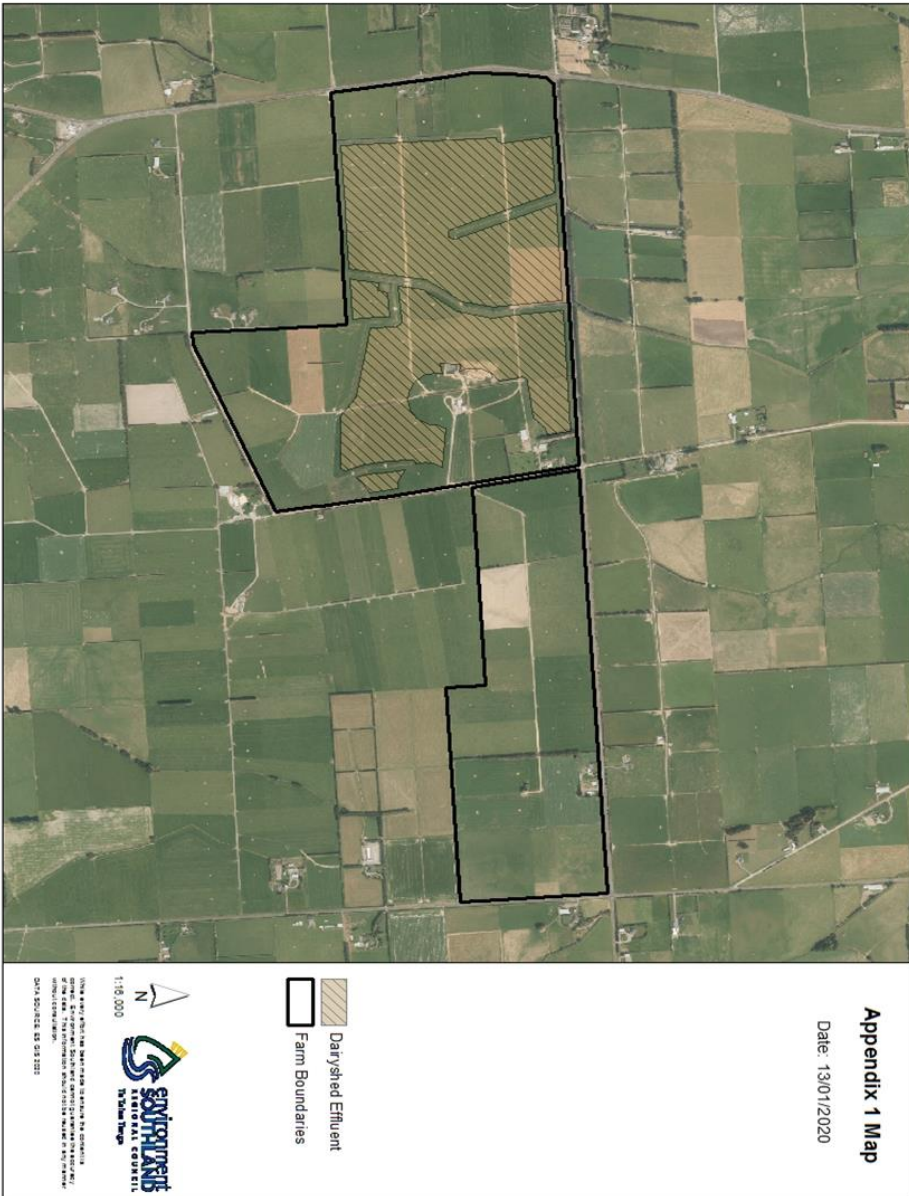
Commented [MF11]: Not necessary to keep providing copies of CAEMP.

~~31-28~~ Once the Collected Agricultural Management Plan is received as ~~per required by~~ Condition ~~286~~ ~~or~~ ~~Condition 29~~, this version will supersede the Collected Agricultural Effluent Management Plan supplied in accordance with Condition ~~287~~.

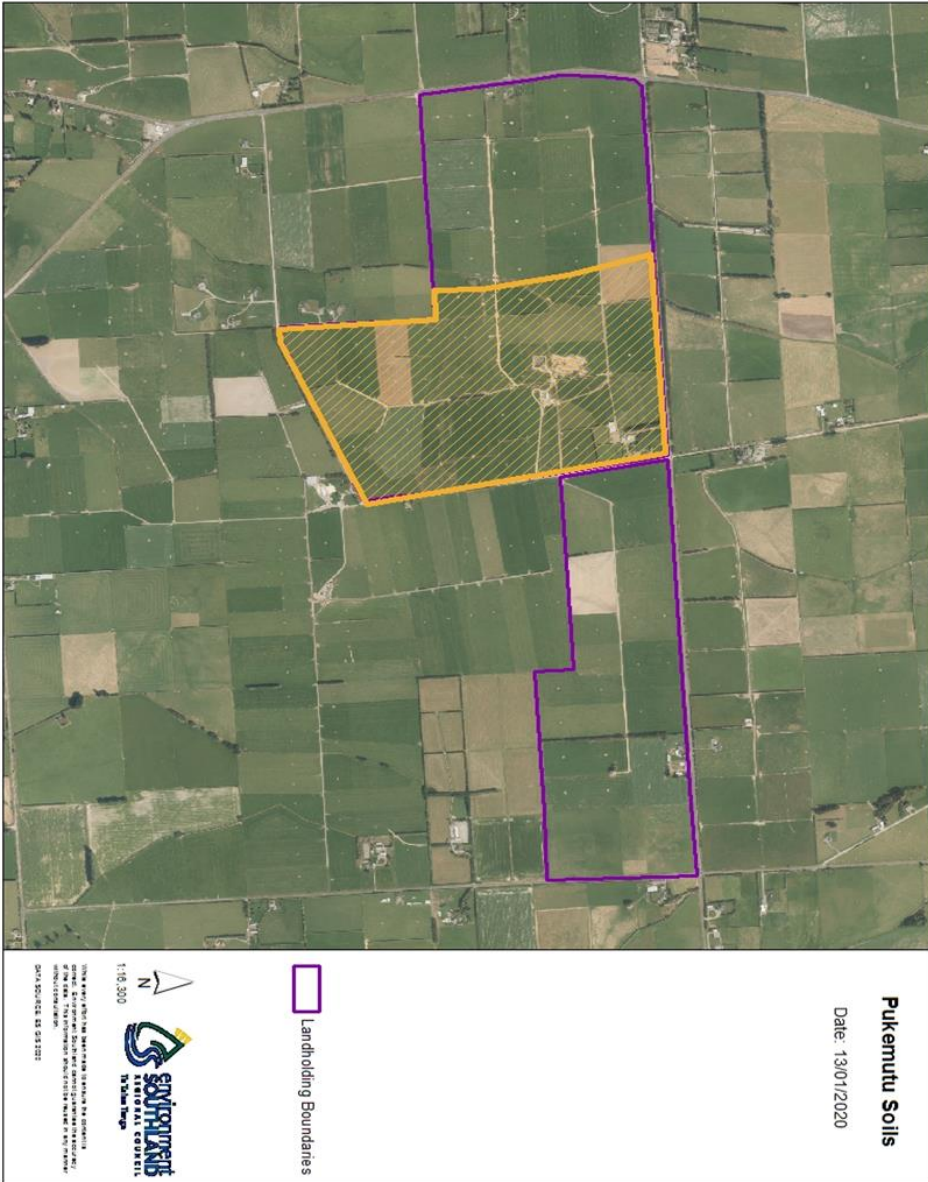
~~32-29~~ The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period 1 February to 30 September each year, or within two months of any enforcement action being taken by the Consent Authority in relation to the exercise of this consent, for the purposes of:

- (a) determining whether the conditions of this permit are adequate to deal with any adverse effect on the environment, including cumulative effects, which may arise from the exercise of the permit, and which it is appropriate to deal with at a later stage, or which become evident after the date of commencement of the permit;
- (b) ensuring the conditions of this consent are consistent with any National Environmental Standards, Regulations, relevant plans and/or the ~~Environment~~ Southland Regional Policy Statement;
- (c) amending the monitoring programme to be undertaken;
- (d) adding or adjusting compliance limits;
- (e) ensuring the Oreti Freshwater Management Unit meets the freshwater objectives and freshwater quality limits set in an operative regional plan; and
- (f) requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment arising as a result of the exercise of this permit.

Appendix 1 – Agricultural Effluent Discharge Area



Appendix 2 – Pukemutu Soils



WATER PERMIT – AUTH-20181765-02

Purpose: To take and use groundwater for stock drinking water and dairy shed wash down

Location: 266 O'Shannessy Road, Winton

Legal description of land at the site: Sections 43 & 44 Block I Winton Hundred

Expiry date: XYZ 2030

1. This consent must not be exercised until Water Permit AUTH-301044 is surrendered or has expired.
2. This resource consent authorises the abstraction and use of groundwater ~~for stock drinking water and dairy shed wash down~~ from the following bores:

(a) Bore E46/1067, located as described in the table below: and

| | |
|------------------------------|--|
| Property Address | 266 O'Shannessy Road, Winton |
| Legal Description | Section 43 Block I Winton HUN |
| Map Reference (NZTM 2000) | 1241040E 4874813N |

(b) Bore E46/1089, located as described in the table below:

| | |
|------------------------------|--|
| Property Address | 266 O'Shannessy Road, Winton |
| Legal Description | Section 44 Block I Winton HUN |
| Map Reference (NZTM 2000) | 1240876E 4874516N |

3. The total combined rate of abstraction shall not exceed:

- (a) 2 litres per second; and
- (b) 81,600 litres per day; and
- (c) 25,172 cubic metres per year.

Advice Note

~~The Consent Holder must needs to ensure that the bore that water abstraction occurs from can meet the following conditions: requirements of the relevant regional rule for bore construction which require the~~

~~The bore or well design and headwork's to prevent:~~

- ~~i. the infiltration of contaminants; and~~
- ~~ii. the uncontrolled discharge or leakage of water to the ground surface or between aquifers.~~

~~Should the bore not meet the above conditions, the Consent Holder shall apply to the Consent Authority for a Resource Consent for the use and maintenance of the bore.~~

Commented [MF12]: Needs to be written as an advice note, not a condition. Not appropriate to be a condition.

4. Prior to the first exercise of this consent, the Consent Holder shall install a backflow prevention device or take other appropriate measures to ensure water and/or contaminants cannot return to the water source.
5. The Consent Holder must have and maintain a water meter to record the water take, within an error accuracy range of +/-5% over the meter's nominal flow range.
6. If the Consent Holder replaces the water meter required by Condition 5, the Consent Holder must forward a copy of the installation certificate to the Consent Authority within one month of installing the new water meter.
7. The water meter must be installed in a straight length of pipe, before any diversion of water occurs. The straight length of pipe shall be part of the pump outlet plumbing, easily accessible, have no fittings and obstructions in it. There shall be a straight length of pipe on either side of the water meter, on the upstream side there shall be a distance that is 10 times the diameter of the pipe and on the downstream side there shall be a distance of 5 times the diameter of the pipe.
8. The Consent Holder shall ensure the full operation of the water meters at all times during the exercise of this consent. All malfunctions of the water meter during the exercise of this consent shall be reported to the Consent Authority within five working days of observation and appropriate repairs shall be performed within five working days. Once the malfunction has been remedied, a Water Measuring Device Verification Form completed with photographic evidence must be submitted to the Consent Authority within five working days of the completion of repairs.
9. The Consent Holder shall:
 - (a) if a mechanical insert water meter is installed, have it verified for accuracy each and every year from the first exercise of this consent; or
 - (b) if an electromagnetic or ultrasonic flow meter is installed, have it verified for accuracy every five years from the first exercise of this consent.
10. Each verification must be undertaken by a Consent Authority approved operator and a Water Measuring Device Verification Form shall be completed and supplied to the Consent Authority with receipts of service.
11. These water meter verifications must be supplied within five working days of the verification, and at any time upon request.
12. The Consent Holder must maintain a record of the ~~total-daily~~ volume of water abstracted each month and provide this record to the Consent Authority ~~by 31-May each year and at any other time~~ on request.
13. Prior to the exercise of this consent, the Consent Holder shall notify the Consent Authority of the person who is in charge of the operation this consent. If the person in charge changes during the term of this consent, the Consent Holder shall notify the Consent Authority of the new operator no later than five working days after that person takes responsibility.

Commented [MF13]: This won't provide for assessing compliance with the instantaneous or daily rate limits. We can suggest a better condition.

Commented [MF14]: It is considered onerous and unnecessary to provide annual usage data for such minor takes. We understand that such data are not currently used for any quantitative resource assessment. In addition just monthly data would not allow for an assessment of actual daily takes.

14. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period 1 February to 30 September each year, or within two months of any enforcement action being taken by the Consent Authority in relation to the exercise of this consent, or on receiving monitoring results, for the purposes of:
- (a) adjusting the consented rate or volume of water under Condition 3, should monitoring under Condition 12 or future changes in water use indicate that the consented rate or volume is not able to be fully utilised;
 - (b) determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage;
 - (c) ensuring the conditions of this consent are consistent with any National Environmental Standards Regulations, National Policy Statement, Water Conservation Order, relevant plans and/or any relevant Regional Policy Statement; or
 - (d) adjusting or altering the method of water take data recording and transmission.

LAND USE CONSENT – AUTH-20181765-03

Purpose: To use land for a farming activity

Location: 266 O’Shannessy Road, Winton

Legal description of land at the site: Part Section 29 Block I Winton Hundred
 Part Section 30 Block I Winton Hundred
 Section 43 Block I Winton Hundred
 Section 44 Block I Winton Hundred
 Section 45 Block I Winton Hundred
 Section 54 Block I Winton Hundred
 Lot 1 DP 449518
 Lot 2 DP 449518

Expiry date: XYZ 2030

1. This consent must not be exercised until Discharge Permit AUTH-301043 is surrendered or has expired.
- ~~2. This consent must be exercised in conjunction with Discharge Permit AUTH-20181765-01.~~
- ~~3. Except as modified by conditions of resource consent, the activities authorised by this resource consent shall be carried out in accordance with the application for resource consent (APP 20181765), and all subsequent information provided during the application and the Farm Environmental Management Plan required by this consent.~~
- 4.2. For the avoidance of doubt, in the event that any inconsistency between the conditions of resource consent and the information and plans, including the Farm Environmental Management Plan (FEMP) submitted as part of the application, the conditions of resource consent shall prevail.

Advice Note:

Routine monitoring inspections of this property may occur up to two times a year. This number does not include any other required inspections and may be combined with the inspections required for Discharge Permit AUTH-20181765-01.

- ~~5. The use of land for farming purposes shall occur on the landholding at 266 O’Shannessy Road, Winton, as shown on the plan attached as Appendix 1, and consisting of:~~
 - ~~(a) A block of land referred to as the “Existing Platform”; and~~

| | |
|---------------------------|---|
| Legal Descriptions | Part Section 29 Block I Winton Hundred Part Section 30 Block I Winton Hundred Section 43 Block I Winton Hundred Section 44 Block I Winton Hundred Section 45 Block I Winton Hundred Section 54 Block I Winton Hundred Lot 1 DP 449518 |
| Map Reference (NZTM 2000) | 1240897E 4874621N |
| Property Address | 266 O’Shannessy Road, Winton |

Commented [MF15]: Deleted the “inconjunction” condition. See earlier comments. Still not clear what this condition requires or what specific adverse effect it would address.
 If it requires the land use consent to only be exercised at the same time that a discharge is occurring then there will be many times during a year where this will not be complied with.

Commented [MF16]: Still not clear what this condition requires or what specific adverse effect it would address.
 If it requires the land use consent to only be exercised at the same time that a discharge is occurring then there will be many times during a year where this will not be complied with.

Commented [MF17]: The nutrient output conditions should provide flexibility for the consent holder to modify the farm system but stay within the nutrient loss limits. Other conditions also provide appropriate constraints/limits.

Commented [MF18]: FEMP condition deleted because it was inconsistent with the later FEMP conditions. Should keep all FEMP conditions together.

(b) — A block of land referred to as the “East Block”:

| | |
|---------------------------|------------------------------|
| Legal Descriptions | Lot 2 DP 449518 |
| Map Reference (NZTM 2000) | 1242743E 4874818N |
| Property Address | 266 O’Shannessy Road, Winton |

6.3. The farming activities shall be limited as follows:

- (a) a maximum milking herd of no more than 680 cows; and
- ~~(b) no more than 7 hectares of bailage/pasture wintering; and~~
- ~~(c)(b) no more than 252 milking age cows wintered on the land, holding as described in condition 5 in June and July (inclusive);~~

Commented [MF19]: Just needs to be specific to the land. The consent doesn’t need to delve into the “landholding issues”.

Commented [MF20]: Accept that a high level ‘belts and braces’ approach provides extra assurance. However, we consider that this should be limited to the number of cows. Other farming flexibility should be provided for within the nutrient budget limits, with the exception that there will need to be some additional controls on the East Block because that is not nutrient limited separately

Exclusions

7-4. There shall be no intensive winter grazing of stock on the land ~~holding as described in Condition 5.~~ Intensive winter grazing is defined as the grazing of stock between May and September (inclusive) on forage crops (including brassica, beet and root vegetable crops), excluding pasture and cereal crops

Advice Note

Intensive winter grazing is defined as Grazing of stock between May and September (inclusive) on forage crops (including brassica, beet and root vegetable crops), excluding pasture and cereal crops.

8-5. The Consent Holder shall graze all young dairy stock, ~~i.e., 4 – 22 months old,~~ off the landholding as described in Condition 5-land at the site.

Advice Note

~~Young stock are defined as stock aged from 4 months old up to 2 years old.~~

9-6. The East Block must not:

- ~~(a) be subject to intensive winter grazing or winter grazing in June and July (inclusive);~~
- ~~(b)~~(a) be grazed by livestock in the months of May to August (inclusive); or
- ~~(c)~~(b) have supplement fed on the block.

Nutrient Management

~~10-7.~~ The Consent Holder shall implement a soil testing regime to determine the soil fertility status over the landholding and to develop fertiliser recommendations ~~developed in line with~~ the ~~based on the~~ soil testing results.

11-8. The Consent Holder shall maintain a record of their soil testing regime, soil testing results and fertiliser recommendations and provide this record to the Consent Authority upon request.

12-9. The Consent Holder shall:

- (a) manage the application of fertiliser in accordance with:
 - i." The Code of Practice for Nutrient Management (With Emphasis of Fertiliser Use) Fertiliser Association, 2013, ISBN 978-0-47328345-2"; or
 - ii. any subsequent updates.
- (b) not apply fertiliser:
 - i. to land during the period 1 June–31 July inclusive;
 - ii. within 10 m of a surface water body (where there is no riparian strip/margin);
 - iii. within 10 m of any wetland boundary;
 - iv. ~~within 10 m of any significant indigenous biodiversity site;~~
 - v. within 20 m of any bore;
 - vi. when soil moisture capacity is exceeded; and
 - vii. directly to land within a riparian strip/margin.

10. The Consent Holder shall:

- (a) ensure that representative Olsen P ~~levels-values~~ in the soils are maintained within the range of 30–32; and

Commented [MB21]: Are these restrictions necessary. They have been proposed in the AEE as the future farm system and as mitigations to keep the nutrient loading down. However if there is a restriction on the nutrient loading then not having these restrictions will allow the applicant to maintain flexibility, necessary with changing climatic conditions, advances in technology, fluctuations in rainfall etc. They are still locked into keeping the nutrient losses below the baseline level by Condition 14 but with increased flexibility the applicant may be able to find a system that results in further reduction in nutrient losses without being locked into one system.

Commented [MF22]: Deleted the advice note to clarify that the definition is binding but also changed definition to match operational requirements and Overseer modelling definitions.

Commented [MF23]: IWG covered in wider restriction in Condition 4.

Commented [MF24]: Needs a definition. We are not aware of any on the site.

(b) take representative soil samples at least once every three years and have those samples analysed for Olsen P by a laboratory with IANZ accreditation for Olsen P; and
~~13-~~(c) shall make the results available to the Consent Authority on request.

Commented [MF25]: Modified to make more certain and technically robust and to provide for the information to be provided to the consent authority.

Nutrient Modelling

~~14.11.~~ The Consent Holder must ensure that nitrogen and phosphorus losses to water from farming activities undertaken on the ~~landholding as described in Condition 5, land~~ are maintained at, or below the baseline contaminant loss rates of:

- (a) ~~457~~ kg/ha/yr nitrogen; and
- (b) ~~1.209~~ kg/ha/yr phosphorus.

as estimated by the ~~four-~~year rolling average loss rates using OVERSEERFM® version ~~2.9.2.26.3.2~~, undertaken in accordance with the generally accepted best practice modelling including the applicable Best Practice Data Input Standards/OverseerFM User Guide. The four year rolling average is defined as the average of the most recent four consecutive years' results starting from 1 July 2020.

Advice Note

The baseline loss rate for nitrogen and phosphorus is the discharge below the root zone as modelled with OVERSEERFM® version ~~2.9.2.26.3.2~~, the farm system inputs described in the application, and in accordance with the OVERSEER® Best Practice Input Standards as of 8 May 2019. The baseline loss rate for nitrogen and phosphorus is also the discharge modelled by a subsequent version of OVERSEER® in accordance with Condition 14.

The determination of whether the contaminant loss rates have been met will be made using the contaminant loss from the most recent year, modelling using the latest version of OverseerFM.

~~15.12.~~ Each and every year for the duration of this consent, using the current version of OverseerFM and in accordance with the generally accepted best practice modelling and the current Best Practice Data Input Standards, the Consent Holder must model:

- (a) the ~~four~~three-year rolling average of nitrogen and phosphorus loss rates;
- (b) the nitrogen and phosphorus loss rates for the previous year from 1 July to 30 June inclusive;
- (c) the predicted nitrogen and phosphorus loss rates for the upcoming year from 1 July to 30 June inclusive; and
- (d) re-model the baseline contaminant loss rates ~~under-specified in Condition 114~~ in the current version of Overseer.

~~16.13.~~ The remodelled baseline contaminant loss rates, modelled in accordance with Condition ~~125~~(d) shall supersede replace the baseline contaminant loss rates ~~under-specified in Condition 114~~.

~~17.14.~~ A report must be provided to the Consent Authority by 30 September each year summarising the results of Overseer nitrogen and phosphorus loss modelling required by Condition ~~125~~. The report must include:

- (a) a review of the Overseer input data to ensure that the annual nutrient budget reflects the farming system;
- (b) an explanation of any differences between that nutrient budget and the annual nutrient budget of all previous years of farming undertaken under this consent;
- (c) a comparison of the ~~four-year rolling average~~ nitrogen and phosphorus losses ~~in that budget~~ with the baseline contaminant loss rates ~~specified~~ in Condition ~~114~~; and

Commented [MF26]: This is the core science version number. The 2.9.2.2 is just the broader software number that will include GUI version changes that don't affect the actual nutrient cycle modelling.

- (d) the names and summaries of the relevant qualifications and experience of the person(s) who prepared and (if relevant) reviewed the nutrient budget.

~~18-15.~~ If in any given year, the nitrogen or phosphorus loss rate as modelled in accordance with Condition ~~127~~ exceeds the baseline nitrogen and phosphorus loss rates ~~by greater than 10%~~ set under Condition 14, the Consent Holder must, by 30 November of that year, prepare a report for the Consent Authority that must include:

- (a) any reasons or causes of the exceedance;
- (b) the measures that will be taken to ensure that nutrient losses are reduced to ensure compliance with the baseline contaminant loss rates.
- (c) a detailed description of the measures to be taken; and
- (d) for any mitigations proposed, a detailed mitigation plan (taking into account contaminant loss pathways) that identifies:
 - i. the mitigations to be undertaken;
 - ii. the physical works required to complete the mitigations;
 - iii. the proposed implementation timeframes for each mitigation;
 - iv. the operation of the mitigation; and
 - v. the mitigations' potential effectiveness.

Commented [MF27]: This condition is meant to be a first step in management of nutrient losses. A small exceedance of the target requires action. Any more significant exceedance would be subject to normal compliance and enforcement processes.

~~19-16.~~ The measures and mitigations identified in the report required by Condition ~~158~~ must be:

- (a) incorporated into the Farm Environmental Management Plan ~~required by Condition 29~~; and
- (b) undertaken within the timeframes specified in the report required by Condition ~~158~~.

~~20-17.~~ Upon completion of the mitigation measures ~~as per required under~~ Condition ~~169~~, the Consent Holder must:

- (a) submit to the Consent Authority, photographs (date and time stamped) of the completed works; and
- (b) supply the Consent Authority the GPS coordinates of the location of the mitigation measure.

~~21-18.~~ All Overseer Modelling required by this consent must be undertaken by a person who is a Certified Nutrient Management Advisor (CNMA) under the Nutrient Management Advisor Certification Programme (NMACP).

~~22-19.~~ The Consent Holder may use an alternative model that has been demonstrated to be equivalent to Overseer provided:

- (a) the evidence to demonstrate equivalence is provided to the Consent Authority at least six months prior to submitting the relevant annual report as required by Condition ~~157~~; and
- (b) the use of the alternative model is approved by the Chief Executive of the Consent Authority.

Mitigation Measures

~~23-20.~~ The Consent Holder must undertake maintenance of the existing and any new dairy lanes ~~and culvert crossings~~, as required, to ensure they are contoured to ensure that run-off is directed

~~onto vegetated areas before minimise run-off of nutrients or effluent and ensure that any run-off occurs onto vegetated areas where it will not enter any surface water body entering any surface water body.~~

~~24-21. In addition to Condition 203, all practicable measures shall be taken at where practicable, the Consent Holder should ensure the run-off of dairy effluent from dairy lanes and culvert crossings to prevent runoff from any dairy lane discharging directly into surface water is prevented.~~

Commented [MF28]: Original wording was not practicable/feasible. Run-off will enter surface waters. The aim of this condition should be to ensure that there is no direct runoff from lanes to surface water.

25-22. The Consent Holder must not construct any new dairy lanes within 10 metres of a surface waterbody.

Commented [MF29]: Reworded to make clearer and to make it clear that under some rainfall scenarios a direct discharge could not be completely prevented.

26-23. The Consent Holder shall:

- (a) fence all surface water bodies to ensure stock exclusion; and
- (b) have and maintain riparian strips alongside surface waterbodies.

Records and Reporting

27-24. The Consent Holder must have and maintain a record of the following practices undertaken each year between 1 July and 30 June:

- (a) fertiliser application, including rates;
- (b) types of crops and total area of cropping, including winter feed/forage crops;
- (c) cultivation methods;
- (d) stock units with references to type, age and breed;
- (e) effluent application areas;
- (f) all other inputs to the OVERSEER® nutrient budgeting model.

28-25. The records required by Condition 2457 shall be supplied to the Consent Authority upon request.

Farm Environmental Management Plan

29-26. The Consent Holder shall have and maintain a Farm Environmental Management Plan (FEMP). The FEMP shall, in accordance with Appendix N (Decisions Version) of the Proposed Southland Water and Land Plan (or any replacement Appendix in an updated version of the plan), to demonstrate how the following outcomes are to be achieved:

Commented [MF30]: Tweaked to have proper plan reference and to cover future potential changes.

- (a) nutrients are used efficiently and nutrient loss to water is minimised;
- (b) contaminant losses from critical source areas are reduced;
- (c) cultivation is undertaken in a manner that minimises the movement of sediment and phosphorus to waterways;
- (d) intensive winter grazing occurs in a way that minimises the loss of sediment, phosphorus and microbiological contaminants to waterways; and
- (e) agricultural effluent and other discharges are managed in a way that avoids or minimises the loss of contaminants to water. Irrigation water is applied to meet plant demands and minimises the risk of leaching and run-off.

30-27. The FEMP must include, but not be limited to:

- (a) a site map showing the location of critical source areas; physiographic zones; permanent or intermittent rivers, streams, lake, drains, ponds or wetlands; where known the location

- and depth of any subsurface drainage systems including outlets, riparian vegetation and fences adjacent to waterways and stock access points across waterways;
- (b) details of the implementation and maintenance of mitigation measures required by the conditions of this consent;
 - (c) details of the implementation and maintenance of Good Management Practices, including adoption of changing industry good management practices. This includes where the implementation of these is to avoid, remedy or mitigate any farm specific environmental risks to water quality shown through any monitoring undertaken on the property voluntarily or as required by the conditions of this consent;
 - (d) a review of the data obtained from the monitoring undertaken in accordance with the Farm Environmental Management Plan and any changes made, or to be made, as a consequence of that monitoring.

31-28. The FEMP must be reviewed at least once each milking season and can be modified at any time by the Consent Holder; and either

- (a) an updated version shall be provided to the Consent Authority by 31 May each year; **or**
- (b) the Consent Holder must notify the Consent Authority in writing that no changes have been made by 31 May each year.

Advice Note

The results from the review of the FEMP will be assessed by the Consent Authority to ensure that the FEMP will still achieve the objectives specified in the FEMP and the FEMP has been prepared in accordance with Appendix N of the Southland Water and Land Plan (Decisions Version) (or any updated version of the plan).

32-29. The Consent Holder must operate in accordance with the FEMP at all times. Where there is inconsistency between the FEMP and the conditions of the consent, the conditions of this consent shall prevail.

Auditing

33-30. The Consent Authority may require the Consent Holder to have the farming activity as authorised by this consent independently audited by a person who is a Certified Nutrient Management Advisor or Farm Environmental Plan Auditor or a Suitably Qualified Person who has demonstrated an equivalent level of expertise.

34-31. The audit shall:

- (a) assess the performance of the farming activity occurring on the property against:
 - i. the objectives and good management practices specified in the FEMP;
 - ii. any additional mitigation measures implemented on the property either voluntarily or as required by the conditions of this consent; and
 - iii. the baseline contaminant loss rateses specified in Condition 114.

35-32. The audit must determine the level of confidence of achieving each objective set out in the FEMP. This level of confidence shall be categorised into the following:

- **High** - the objective is probably being achieved
- **Medium** - the objective is possibly being achieved

- **Low** - it is unlikely that the objective is being achieved.

~~36-33.~~ The audit shall record the justification for each level of confidence assessment, including noting the evidence, or lack of, used to make the determination.

~~37-34.~~ Where an objective has received a Medium or Low level of confidence, the audit shall include the actions required for the farm to meet the objective and a timeframe whereby these actions need to be undertaken.

~~38-35.~~ Where an objective has received a Medium level of confidence (and the farm has received no Lows), the audit shall also determine whether or not the farm is on-track to achieve the objectives.

~~39-36.~~ The audit report shall be provided to the Consent Authority within three months of the date of the Consent Authority issuing a requirement to undertake the audit.

~~40-37.~~ The frequency of audit requirements may be annually except where, for two consecutive years, an audit report has concluded that all objectives are probably being achieved (received a high level of confidence). In that situation no further audit will be required for at least three years.

~~41-38.~~ Where the audit identifies actions required to be undertaken for the farm to meet the objective the Consent Holder must implement these actions within the timeframes stated in the audit.

~~42-39.~~ Upon completion of any changes made and/or mitigations implemented as required by the audit, the Consent Holder shall confirm in writing, including photographs (date and time stamped) to the Consent Authority that these actions have been completed and implemented.

~~43-40.~~ Upon completion of all the changes made and/or mitigations implemented as identified in the audit, the Consent Holder must ensure the measures are properly maintained, continue to function and are not removed or altered for the duration of this consent (and any subsequent variation versions).

Groundwater Quality Monitoring

~~44. The Consent Holder must install a minimum of XX 50 millimetre diameter PVC groundwater monitoring bores located as described below:~~

41. The Consent Holder shall take representative samples of groundwater from bore E46/1089 or any replacement bore installed in this general location. The samples shall be taken by a suitably qualified and experienced person using methods described in the National Environmental Monitoring Standards, Water Quality Sampling Guidelines (NEMS, 2019).

~~45. The bores are to be screened to a depth of 2 metres below the static groundwater level.~~

~~46-42. Samples shall be collected twice per year for the duration of the consent – once in October and once in March.:~~

- ~~(a) from the exercise of this consent, monthly for the first 12 months; and then~~
- ~~(b) quarterly for the remainder of the duration of this consent, at the start of;~~
 - ~~i. January;~~
 - ~~ii. April;~~

Commented [MF31]: Monitoring of single short-term shallow monitoring bores will not provide meaningful information on either the effects of land use or effluent application. It is recommended that ES change its approach to reliance on long-term bores to establish a more representative understanding of groundwater quality in the region. I have discussed this concern with Ewen Rodway informally.

- ~~iii. July; and~~
- ~~iv. October.~~

~~47-43.~~ Samples shall be analysed by an IANZ accredited laboratory for:

- (a) Escherichia coli ~~and;~~
- (b) Nitrate-nitrogen;
- ~~(c) Nitrite nitrogen;~~
- ~~(d) Total Kjeldahl Nitrogen;~~
- ~~(e) Total Phosphorus; and~~
- ~~(f) Dissolved Reactive Phosphorus.~~

~~48-44.~~ The results of the groundwater monitoring shall be provided to the Consent Authority, within ~~five-15~~ working days of ~~receipt of results, sampling.~~

Commented [MF32]: Changes made to make the sampling more applicable, relevant and useful long-term.

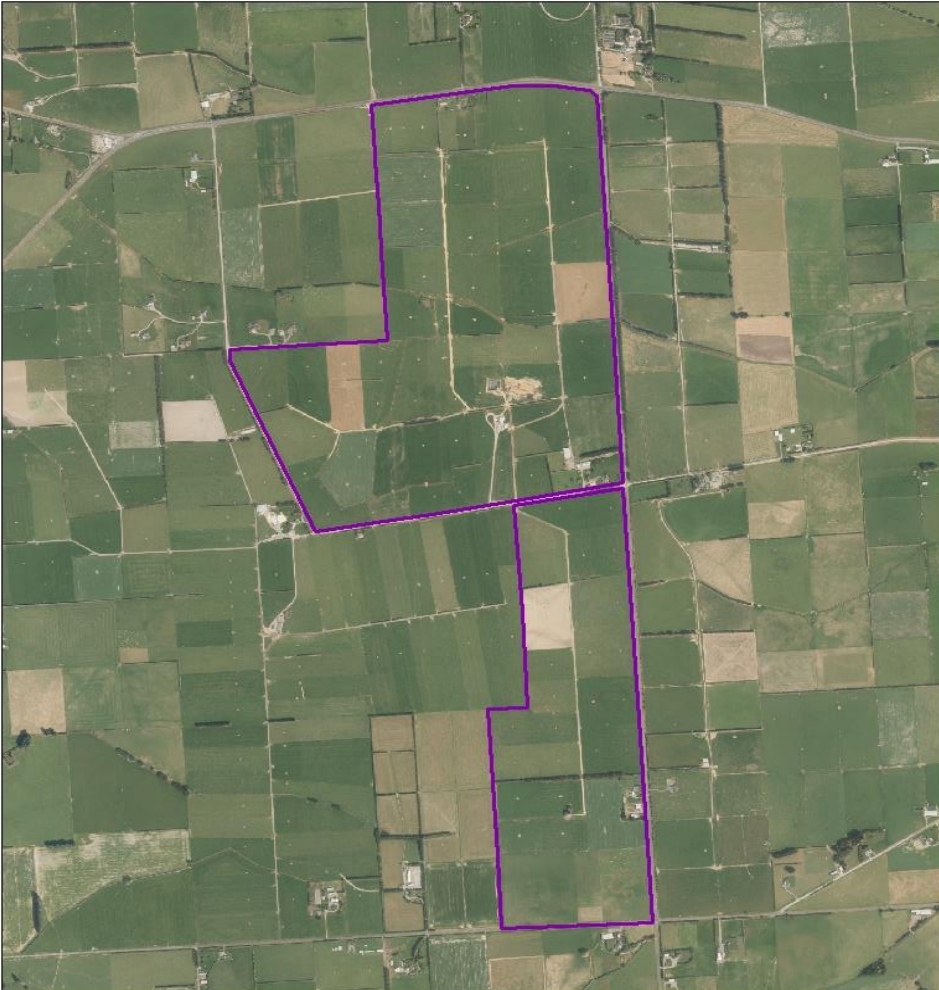
Lapse and Review

~~49-45.~~ The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the consent holder of its intention to review the conditions of this consent during the period 1 February to 30 September each year, or within two months of any enforcement action being taken by the Consent Authority in relation to the exercise of this consent, or on receiving monitoring results, for the purposes of:

- (a) determining whether the conditions of this permit are adequate to deal with any adverse effect on the environment, including cultural effects on Te Rūnanga o Ōraka Aparima and/or cumulative effects, which may arise from the exercise of the permit, and which it is appropriate to deal with at a later stage, or which become evident after the date of commencement of the permit; or
- (b) ensuring the conditions of this consent are consistent with any National Environmental Standards Regulations, relevant plans and/or the Environment Southland Regional Policy Statement.

Appendix 1 – Landholding Boundary

Commented [MF33]: This Appendix/map is not referred to in any condition and therefore should be deleted. The land is specified as part of the consent specification.



Appendix 1 Map

Date: 13/01/2020



Landholding Boundaries



THIS MAP IS FOR INFORMATION ONLY AND DOES NOT CONSTITUTE AN OFFICIAL STATEMENT OF THE COUNCIL'S POLICY OR POSITION ON ANY MATTER. THE COUNCIL ACCEPTS NO LIABILITY FOR ANY LOSS OR DAMAGE, INCLUDING CONSEQUENTIAL LOSS OR DAMAGE, ARISING FROM THE USE OF THIS MAP. DATA SOURCE: ES 051202