IN THE MATTER	Of the Resource Management Act 1991
AND	
IN THE MATTER OF	A Resource Consent Application to discharge agricultural effluent to land from up to 840 cows, to take 85,800L/day of groundwater and to use land for two winter barns, a new agricultural effluent storage facility, and to establish a new dairy farm at 444 Springhills-Tussock Creek Road
BY	Capil Grove Limited
REF	APP-20222055

STATEMENT OF EVIDENCE OF HAMISH LOWE ON BEHALF OF CAPIL GROVE LIMITED

INTRODUCTION

1. My name is Hamish Lowe.

2. I am the Principal Environmental Scientist with Lowe Environmental Impact Limited.

3. My evidence is given in relation to the application for resource consent for the conversion of Capil Grove Ltd's (CGL) Farm 444 from Dairy Support grazing to Dairying.

EXECUTIVE SUMMARY

4. Farm 444 is a farm located in Springhills, Southland, and is owned by CGL.

5. A proposal for Farm 444 has been developed to provide for milking of cows utilising a wintering barn system during wet soil conditions to reduce the effects of nutrient losses to the wider receiving environment. The proposal has been developed to ensure the

effects are less that a baseline farm system and comparable to a recently granted consent for dairy support, and specifically the contaminant load to the catchment decreases.

6. Five resource consents are sought as part of this application, being:
    - Discharge Consent - AUT2022022-01
    - Water Take Consent – AUT2922922-02
    - Winter Barns Consent - AUT2022022-03
    - Land Use Consent - AUT2022022-04
    - Discharge Consent – AUT20222707-06

7. Overseer modelling has shown that the baseline farming system was losing nitrogen at a rate of 32 kg N/ha/y while the proposed system would lose nitrogen at a rate of 28 kg N/ha/y. Phosphorus losses remained constant at 1.9 kg P/ha/y.

8. While calculation of nitrogen and phosphorus loss is possible using Overseer, a number of additional mitigations are not described in Overseer which can further assist with reducing losses; particularly phosphorus. The primary method of reducing phosphorus is to reduce sediment and excreta run off. A number of such mitigations, such as shifting laneways, using wetlands and sedimentation basins and sediment detention structures have been proposed and are incorporated into proposed consent conditions.

9. At a total farm level there will be an increase in stocking resulting in marginal intensification. However, grazing days will decrease, especially during the vulnerable wetter periods of the year. As a result the effects associated with intensification have been offset and, with the proposed mitigation, the farm will have lesser off site effects i.e. the contaminant load to the catchment will decrease.

10. Several key changes have been made to the application since lodgement, including not using the slurry tanker for effluent spreading on Category C soils and dropping the need for ‘stage 3’. These make the assessment of effects clearer.

11. The s42A report is largely consistent with the conclusions reached above. As I understand it, there were two outstanding issues in the report, which are the appropriateness of the use of the slurry tanker on Category C soils and the accuracy

of Overseer modelling. As noted above, the slurry tanker is no longer proposed to be used on Category C soils. I understand the accuracy of Overseer modelling was based on concerns about soil blocking.

12. Overseer has been used to assess effects, particularly nitrogen losses. While there may be concerns with the model's accuracy, it is the best available farm system tool for predicting nutrient losses. It continues to be used around New Zealand by Regional Councils, including Environment Southland.

13. Two peer reviews of the proposed farm system Overseer models have been undertaken. Neither review highlighted inconsistencies with Overseer Input Standards, noting that issues with soil blocking have now been resolved.

14. Positive engagement with iwi has occurred and Te Ao Marama Inc (TAMI) have worked with CGL to refine the draft conditions that were circulated by ES after the pre-hearing meeting. TAMI have contributed significantly to the development of robust conditions with refined and more effective mitigation solutions.

15. Updated draft conditions provided with the s42A report are largely appropriate, but need to be updated to reflect the changes made by TAMI and CGL. Revised draft conditions are attached as Annex E.

16. It is known that the wider catchment has water quality concerns, with a need for land owners to contribute to making improvements. This proposal for Farm 444 provides an opportunity for a modified farming approach to be developed which could be further refined to be used elsewhere in the catchment and region. The regulatory approach used could be enabling, encouraging its use and refinement. This may then provide the opportunity for other farmers to adopt similar mitigation solutions into their farming operations, thereby achieving a catchment improvement in water quality.

QUALIFICATIONS AND EXPERTISE

17. I have the following qualifications relevant to the evidence I shall give:
    (a) Bachelor of Agricultural Science (Honours); and
    (b) Master of Agricultural Science (Honours in Agricultural Engineering).

18. I am a member of several relevant associations, including:
    (a) Water New Zealand;
    (b) New Zealand Land Treatment Collective;
    (c) Soil Science Society of New Zealand;
    (d) New Zealand Institute of Agricultural and Horticultural Sciences (NZIAHS); and
    (e) Environmental Institute of Australia and New Zealand (EIANZ).

19. I have served two terms as an elected council member of the Soil Science Society of New Zealand. I have served on the Biowaste Material National Research Programme advisory board for more than 6 years. I am a past Chairman of the New Zealand Land Treatment Collective technical committee, an elected position I held for four years, and served on the technical committee for 10 years. Following this long-standing relationship with the New Zealand Land Treatment Collective, I now support the Collective by providing management services, a role I have managed for 6 years.

20. I am a Certified Environmental Practitioner, in accordance with the EIANZ accreditation programme. I am a certified Practicing Agriculturalist, in accordance with the NZIAHS accreditation programme. I am a Certified Nutrient Management Advisor in accordance with the CNMA programme. I am also a certified Hearing Commissioner (Chair) in accordance with the Ministry for the Environment's Making Good Decisions programme.

21. At a national level, I have been actively involved in and facilitation of various industry debates about the appropriateness and management of agricultural, industrial and municipal wastewater systems. This has included the appropriateness of their application and discharge into a range of environments. Amongst this has been providing guidance to Regional and District Councils throughout the country and the Ministry for the Environment. I have contributed to a number of waste management guidelines, regional plan processes and was a contributing author to the original IPENZ Practice note 21 (PN21): Farm Dairy Effluent Pond Design and Construction.

22. I have helped to design and deliver a nationally accredited (NZQA) onsite wastewater qualification and assist Massey University with delivering their Farm Dairy Effluent training course. I have been a design accreditation panel member for both the DairyNZ Farm Dairy Effluent System Design Accreditation Programme and Irrigation Design Accreditation programme.

23. I conducted a site inspection Saturday 31 April 2022. I have previously visited the area several years prior and am familiar with the locality and the nature of the soils and land management practices in the general area.
24. My involvement with Farm 444 began in November 2020. At this time I was asked to assist with the due diligence prior to purchasing the property. My actions and guidance is summarised in paragraphs 41 to 47. Subsequently I have assisted CGL with further assessments of other properties being brought, making up the current Farm 444 property. I have been actively involved in helping develop the farm systems and mitigation solutions. This has then involved overviewing the nutrient modelling work undertaken and preparing and managing the resource consents.

CODE OF CONDUCT

25. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014. My evidence has been prepared in compliance with that Code. In particular, unless I state otherwise, this evidence is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

SCOPE OF EVIDENCE

26. My evidence will address:
    a. Overview to the proposed application
    b. Background to Farm 4444
    c. Environment
    d. Farming system description
    e. Changes made to the proposal
    f. Key outstanding issue
    g. S42A Officer's Report
    h. Expert evidence
    i. Iwi engagement
    j. Proposed conditions

BACKGROUND

Overview

27. CGL owns a dairy support farm at 444 Springhills-Tussock Creek Road, Springhills in Southland. The farm is known as Farm 444. Figure 1 shows the general location of the Property.

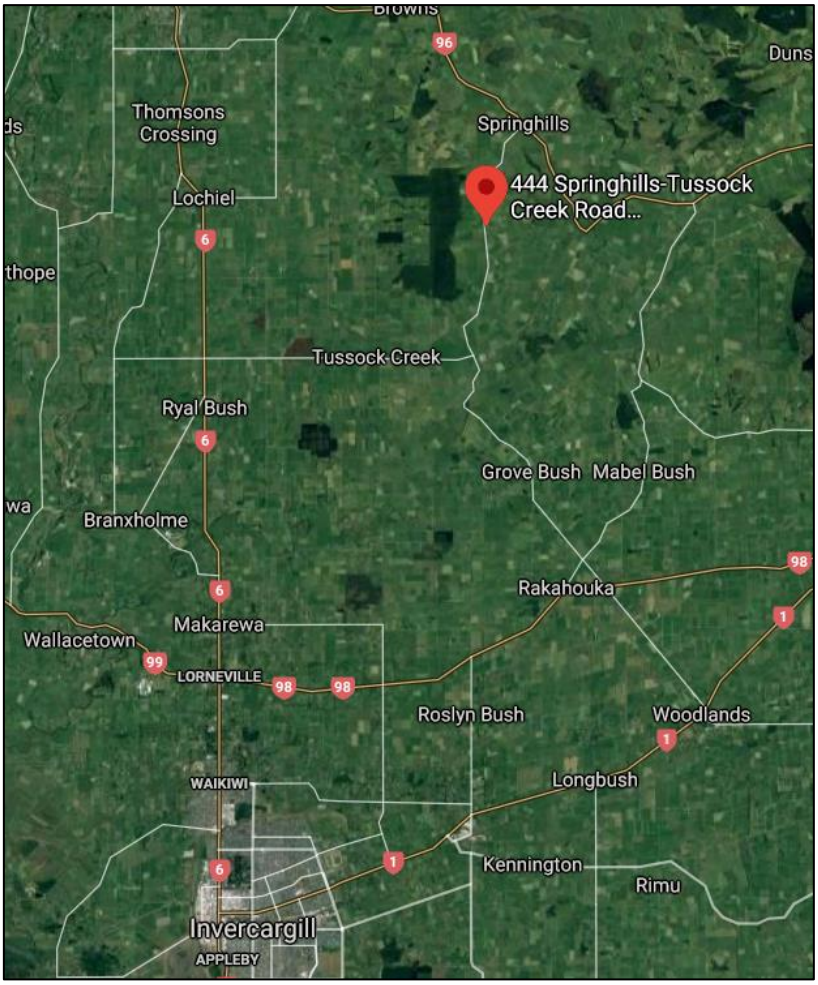


Figure 1: Location of Capil Grove Limited's Farm 444 (Source: Google Earth)

28. Details of ownership and management are provided in the evidence of Carl and Nelson Lindsay.
29. CGL has a consent to use Farm 444 for dairy support grazing, including the use of a wintering barn. This consent was granted on 25 June 2021. CGL now wishes to establish a dairy cow milking operation by combining Farm 444 with adjacent properties which have been purchased. These properties were previously used for sheep farming, dairy support and beef farming, including winter grazing.

30. The proposed dairy cow milking operation on Farm 444 is summarised in the attached summary appended to the consent application cover letter. This is also attached to the evidence of Carl Lindsay. In summary, the system proposed for Farm 444 would eventually milk up to 640 milking cows spread over a total area of 341 ha and utilise two wintering barns to feed supplements and house up to 840 cattle over winter, with the key intention of helping to mitigate soil damage during adverse weather conditions. Note that it is proposed to winter an additional 200 cows from another farm in the barn to that grazed at other times of the year i.e. 640 regular cows plus 200 barn housed cows = total of 840 cows. Note that only 640 cows would be grazed on the property.

31. Part of the conversion will include the installation of a new effluent pond as well as a new groundwater take for the operation to run.

32. The proposed operation has been developed to have off-site effects on the environment, and nitrogen losses, to be lower than the combined previous operations. For the reasons described further below, I consider the proposal will be beneficial to the environment when compared to the existing operations.

Consents sought

33. The following consents are sought for the proposed Farm 444 dairy operation:
    - Discharge Consent - AUT2022022-01
    - Water Take Consent – AUT2922922-02
    - Winter Barns Consent - AUT2022022-03
    - Land Use Consent - AUT2022022-04
    - Discharge Consent – AUT20222707-06

34. A further consent for the construction of effluent ponds is also required, but this is being processed separately.

BACKGROUND TO FARM 444

35. LEI's involvement with the CGL operation and Farm 444 was when approached to undertake a due diligence exercise prior to purchasing the property. Specific guidance provided by LEI was that if a land use change was to be considered it had to be consistent with the direction envisaged with Te Mana o Tei Wai. This would in my

opinion include at some stage in the future a requirement to lessen nutrient loads from current faming activities.

36. Based on an understanding of developing a potential farming system, we assisted the Lindsay's to consider farming practices and mitigation measures that would have a lesser environmental impact than both the current land use and also other typical dairy farming operations.

37. A proposal for a farm system was developed that used cull cows, a wintering barn, cereal grown on site, no young stock and several other mitigation features. This is discussed more in the evidence of Carl Lindsay and a summary that was attached to the consent application cover letter.

ENVIRONMENT

38. Farm 444 has previously been managed as a dairy support, beef and high-intensity sheep block, with sheep milking in the past. The farm (combined properties) occupies an area of 341 ha (313 ha effective). The historical make up of the properties is covered in the evidence of Carl Lindsay.

39. The majority of the (combined) property has low-rolling topography. The soil types on the farm are predominantly Makarewa and Pukemutu (in association with Braxton soils). The farm overlies a Gleyed Physiographic Zone, with a small portion located in a Peat Wetlands and Bedrock/Hill Country Physiographic Zone. The property is mostly poorly drained and is serviced by a network of subsurface drains. The farm has two different soil classifications based on Dairy NZ's Farm Dairy Effluent (FDE) soil risk classification. These are Class A – artificial drainage or course soil structure. and Class C – sloping land (>7^{o} slope), which are both considered high risk for FDE management.

40. The farm is located in the Makarewa River catchment and is within a high FDE surface water risk zone due to small streams crossing the property, which are tributaries of the Makarewa River. The farm is situated in the Makarewa groundwater management zone, which covers a lowland aquifer spanning 66,000 ha. Groundwater quality is generally good in the area, although nutrient enrichment can be a concern in some locations. The farm is categorized as being in a moderate groundwater FDE risk area, and there are no existing bores within the property boundary.

FARMING SYSTEM DESCRIPTION

Initial Intent

41. As discussed in the evidence of both Carl and Nelson Lindsay, the development of Farm 444 has been an iterative process. It initially it started as a due diligence exercise. We then lconsidered structural ways the farming system could be different to lessen impacts beyond the farm gate while maintaining farm profitability. This second aspect is really important, as many farming operations struggle with mitigation solutions if they are not profitable - so creating a profitable system was key to allow mitigation to be afforded.
42. CGL engaged LEI in November 2020 to provide advice that contributed to due diligence on the possible purchase of Farm 444. With the starting position being to identify a viable farming system that would meet or exceed Te Mana O Te Wai's requirement to maintain or enhance water quality.

43. CGL's brief to LEI was not centred on maximising farm profitability, but on identifying the best-suited sustainable farming operation for the property, delivering future-focussed environmental outcomes. LEI has continued to support CGL with nutrient management and consenting advice to develop a farming system suitable for Farm 444.

44. The initial concept is highlighted in Annex A attached to Carl Lindsay's evidence. To achieve the current farming system an iterative approach has been used. After developing the logic of the system we set about quantifying the relative benefit (in most cases) of different mitigation solutions and management decisions. On last count there were 42 Overseer Scenarios!

45. Overseer modelling has shown that the baseline farming system was losing nitrogen at a rate of 32 kg N/ha/y and the proposed system at 28 kg N/ha/y. Phosphorus remained constant at 1.9 kg P/ha/y.

Mitigation

46. The key to achieving a reduced environmental footprint has been the farming system. However, this needs to be supported with a suite of relevant mitigation measures. The challenge faced is that many measures that were consider best management practices are now good management practices and many of them do not have quantifiable benefits, being if you do "y" you will get "x" benefit. In other words, quantifying

environmental improvements is hard at the concept level until there is operational evidence to support it.

47. There are key decision making tools which we know will improve environmental outcomes, however the precise benefit is not known. We know that managing soil moisture and effluent application is a critical requirement for the property. Likewise is avoiding stock being on wet soils through the use of a barn complex. Some reductions can be significant, with research by Christensen et. al (2012)[1] showing that duration controlled grazing can reduce nitrogen leaching by up to 36 % when compared cows spending all their time on paddocks. It is expected that barn type operation could achieve similar reductions to duration controlled grazing.

48. Through the consenting process, including engagement with ES and Te Ao Marama Inc (TAMI), the suite of mitigation options has been refined, with a more comprehensive list of actions included now as consent conditions. These are included in paragraphs 141-144.

49. Several key inclusions are:
    - the relocation of a farm race away from one of the main farm drains, thereby reducing the direct runoff of sediment, phosphorus (and excreta) into surface water; and
    - the installation of sediment detention structures to settle out and reduce sediment entering surface water[2].

CHANGES MADE TO PROPOSAL

50. **No slurry tanker on Category C soils** - There is a technical debate between ES staff and the Applicant as to whether a slurry tanker is a high or low rate application system, and whether it conforms with ES guidance to meet regional rules. As will be discussed

[1] Christensen, C.L., Hedley, M.. J, Hanly, J.A. and Horne, D.J. (2012): Proceedings of the New Zealand Grassland Association 74:

[2] Research by Tanner has shown that detention structures can reduced sediment loads from catchments by up to 59 %. Tanner, C. (2021): The ability of detainment bunds to decrease sediments transported from pastoral catchments in surface runoff. Hydrological Processes 35(8).

in detail below, and the evidence of Brian Ellwood, the use of a slurry tanker on Category C soils is considered a high rate system and as a result ES consider it to be a non-complying activity. To avoid the complexity of managing a non-complying activity, CGL proposes to amend the application to no longer use a slurry tanker for effluent application on Category C soils. The implications of this are discussed in Brian Ellwood's evidence.

51. **Dropping of Stage 3** – when the proposed farming system was developed there were a series of stages to change from the current farming system to the ultimate system. For a range of reasons, including the ensuing time, the intermediate steps have been dropped and progression will be from Stage 0 to Stage 4.

52. I understand that CGL is prepared to consider further on-going refinement of the application (including additional mitigation) that may arise during the consenting process. They also expect this to continue once consent is granted with a requirement developed, with TAMI in conditions, and now in the FEMP, for regular inspection and ongoing improvements of farm infrastructure.

KEY OUTSTANDING ISSUE: ACCURACY OF OVERSEER MODELLING AND IMPLICATIONS FOR ASSESSING LAND INTENSIFICATION

53. With the reduction in the use of the slurry tanker I consider the key outstanding issue leading into this hearing process relates to the accuracy of Overseer modelling and implications for assessing land intensification.

54. There are several key considerations with regard to Overseer use and intensification. These are addressed below.

What is Intensification?

55. A key aspect of the debate surrounding this application is the concept of intensification. In basic terms intensification is doing more at the same place. Translated in terms of the Farm 444 proposal, it is having higher return from the land through using milking cows compared to the current dry stock/dairy support operation. This is covered in more detail in the evidence of Brian Ellwood.

Implications for Intensification

56. Typically intensification, or more accurately greater stocking numbers, is associated with greater adverse effects. This has unfortunately been the legacy of land development in general. However, if managed appropriately effects can be mitigated resulting in the greater output of intensification having a lesser effect beyond the farm and in the catchment.

57. In a catch 22, having a lesser effect in many cases requires investment to undertake the mitigation. That mitigation in some cases can only be afforded by having greater output to pay for the mitigation. This is discussed in the evidence of Carl Lindsay.

Is intensification occurring?

58. Annex B provides a summary of land management under three scenarios:
    a) Existing farms (baseline);
    b) Dairy support system (consented); and
    c) Proposed dairy system.

59. The information provided uses a relative stock unit (RSU) approach to compare the different scenarios of farm management in respect to grazing days. A regional average is also provided which assumes 100 % grazing days. There are several key aspects to this brief analysis:
    - When expressed on an annual basis the total RSU are 19.3 RSU/ha/y for the Baseline year and 16.4 RSU/ha/y for the Proposed system.
    - While there is a summer high RSU when considered on a monthly basis, the critical winter time (June and July) when there is potential for nutrient and sediment loss is significantly less, being 3 RSU/ha grazing for the Baseline year and 0.4 RSU/ha grazing for the Proposed system.

60. The Proposed system has a lower grazing RSU than the average Southland farm, being 16.4 RSU/ha/y compared to 17.4 RSU/ha/y for the average. A key consideration here is many Southland farms have a high winter RSU increasing the potential for nutrient losses.

Is Overseer appropriate to use?

61. The *Overseer whole-model review – Assessment of the model approach*[3] prepared for the Ministry for Primary Industries and Ministry for the Environment in 2021 brought into question the use of Overseer. Despite many discussed limitations it is in my view a comprehensive nutrient management tool that can be used to assess and predict nutrient losses from farming operations. ES require its use when applying for resource consents. A recent review of other Regional Councils approach to Overseer use, 5 out of 9 councils require it's use during consenting and the remaining 4 say its use is optional; no council does not accept its use (Annex C).

62. In my view Overseer is an appropriate tool to use for describing land management options, albeit having a need to understand the model's limitations.

Complexity of Overseeing modelling and reviews

63. Overseer modelling can be complex and users should be appropriately trained and skilled in its use. To assist with this process, during resource consent applications Regional Councils will often have the models peer reviewed. Part of the review process is a consideration as to whether the model is consistent with user input standards[4].

Farm 444 Irricon peer review

64. As part of the initial assessment of the Farm 444 dairy consent application, ES had the Overseer models peer reviewed by Nicky Watt of Irricon. As is usual, there are questions and answers exchanged between author and reviewer. One of my colleagues working on the model (Victoria Jones) had several discussions and exchanges with Ms Watt to ensure there is a common understanding of the system modelled.

65. After several iterations of questions and answers, an outstanding matter came down to how land use blocks were described in the models; specifically, the accuracy of how soil types were applied and the need for them to be consistent between the blocks.

[3] https://www.mpi.govt.nz/dmsdocument/46360-Overseer-whole-model-review-Assessment-of-the-model-approach
[4] https://docs.overseer.org.nz/fm/OverseerUserGuide.pdf

This was important as there is a need to compare the 'Baseline' with the 'Proposed'. In such comparison it is desirable to try and keep key farm resource information, such as soil properties' consistent.

66. A challenge for this modelling exercise is the Baseline consisted of several smaller farms coming into a single larger farm, meaning that some of the land management blocks had to be combined. After several iterations Ms Jones refined the Overseer model and shared them with Ms Watt. Via the ES reporting officer, it was noted *"The Auditor is happy with the revised budgets and would like to see online versions to see changes".* These were provided on 29 June 2022. On 8 July 2022 we received a further suggestion from the auditor about making a further refinement, specifically as it related to soil blocking. We indicated that we were not going to provide a further update as the margin of error was 3 % and the Overseer User Guide sought an accuracy of only 5 %. Our reasoning for not providing the further updates was you can continue to make refinements but it does not change the outcome. This happened to be the case when we changed the model to reflect the refinements initially suggested by Ms Watt. Specifically the Overseer nitrogen leaching was 32 kg N/ha/y and after refinement was still 32 kg N/ha/y.

67. Based on the initial review of the Overseer models, I understand the soil blocking aspect was the only issue outstanding from the ES auditor.

S42A OFFICER'S REPORT

68. The s42a Officer's report was received on 2 May 2023. Technical issues requiring addressing are detailed below.

Overview

69. The s42A is largely consistent with the discussions that have occurred throughout the processing of this application. My understanding is there are only two outstanding issues, namely:
    - The activity status associated with using the slurry tanker; and
    - Certainty of effects as a result of Overseer modelling and the resulting implications for intensification and adverse effects.

70. Both of these issues are addressed above (slurry tanker paragraph 50 and overseer and intensification paragraphs 53 to 60).

71. All significant outstanding Policy and Planning considerations raised in the s42A report are in my view related to these two issues. There are no new issues raised. There are however a number of technical issues that require clarification, which is provided below. Where there is agreement, I do not plan on repeating.

Activity Status

72. The activity status of the applications is covered in the evidence of Brian Ellwood.

Degree of Effect

73. The s42A report discuss the degree of effect[5]. Specifically, it is noted that:

- "…applicant has proposed good management practices that will be adopted to minimise adverse effects arising from the activity"[6]
- "Therefore, I consider the adverse effects on water quantity to be less than minor."[7]
- "Therefore, I consider the adverse effects on soil health to be less than minor."[8]
- "The applicant has demonstrated that there will be sufficient storage available in the newly constructed ponds when the land is not suitable to discharge effluent to. The new ponds will be synthetically lined with leak detection systems. The effluent discharge area is proposed to increase to include all new blocks of land recently purchased except Sharks Tooth block, which will accommodate the extra effluent generated from milking cows and the additional winter barn. Effluent can be discharged at low rates and depths, which is consistent with the key policies in avoiding and mitigating effects on water quality."[9]

74. I agree with the above conclusions. However, in a number of locations[10] in the s42A report (and the s95 report) a conclusion has been reached that the effects are more than minor. However, no evidence is cited to support these positions. For example, the s42A report also notes:

---

[5] s42A: section 3.3.2
[6] s42A: section 3.3.2.1 Discharge.
[7] s42A: section 3.3.2.2 Water Quantity
[8] s42A: section 3.3.2.4 Odour
[9] s42A: section 3.3.3.1
[10] s42A: section 4.1.2.3

- "In my opinion, the removal of intensive winter grazing, utilising winter barns and milking cull cows, as opposed to raising replacement heifers, will not avoid, remedy or mitigate all potential or actual adverse effects that arise from the conversion of land to dairy farm land."[11]

- *"I consider the dairy farm conversion activity and associated incidental discharge to land will be likely to have significant adverse effects on freshwater quality, and consequently the ability of the receiving environment to meet the reasonably foreseeable needs of future generations, and on the life-supporting capacity of the land and any ecosystem associated with it."*

75. It is unclear what these statements are based on. If they are related to the slurry tanker being on Category C soils, this is now removed from the application. If they are related to the Overseer analysis, as addressed above and further below, there is calculated reduction in nitrogen leaching proposed compared to the current farming system (paragraph 45). In addition, there are a number of mitigation measures over and above the current system which will reduce phosphorus and sediment loss from the property (paragraphs 46-49).

Overseer interpretation

76. The s42A report discusses the implications of using Overseer and the modelled inaccuracies[12]. There is commentary of the peer review undertaken by Ms Watt which has led to the conclusion reached. Specifically, *"Thus, Ms Watt cannot confirm that the Overseer Best Practice Data Input Standards have been followed."*

77. I consider this conclusion has been taken out of context. The uncertainty relates specifically to one aspect that relates to the 'blocking of soils'. I have covered blocking issue in paragraphs 65 to 67. With the exception of this comment I understand that Ms Watt has no other inconsistencies with the Overseer Best Practice Input Standards.

78. Further, ES engaged Mr Edkins to undertake an additional review of the Overseer analysis. He largely concluded in his evidence that the approach taken is consistent with the Overseer Input Standards, with the exception of management of blocking of

[11] s42A: section 3.3.3.2
[12] S42a: Section 3.3.2.1 (Page 13) – Land Use – Expanded dairy farm

the soils. I have had correspondence with Mr Edkins and I am confident these issues will be resolved prior to the hearing. It is proposed that a joint witness statement is prepared prior to the hearing to formally record positions, but in email correspondence to date, Mr Edkins has noted *"I have made some suggestions on how the blocking could be adjusted in the modelling to make the comparison more robust, but with the PAW issue resolved there may not be sufficient uncertainty to justify the work."*[13]

79. I should note that there are three separate issues worth clarifying at this point:
    - Overseer has inherent variability. This is well covered in the intergovernmental review. Despite the limitations it is still a very good model and as noted in paragraph 61 is still used by Regional Councils.
    - Understanding of the modelled farm and how that is described – models can be complex and there is often a lot of time and thought given to how a specific farm system is set up. Typically, there is a consistent approach, albeit different users will describe the farm system in a slightly different way. This is not a bad thing, or wrong, as long as they follow a consistent approach, which is why the Overseer Input standards were developed.
    - Consistency with Overseer input standards - when comparing farming systems it is imperative that there is a consistent approach with the modelling; hence the development of the Overseer Input Standards.

80. Issue 1) above can not be addressed further. Issue 2) does not appear to be an issue, noting that at the time of writing this evidence I am having further discussions with Mr Edkins. Issue 3) while there may be clarification sought and refinement given the farming systems, neither Ms Watt or Mr Edkins have suggested Overseer Input Standards have not been met.

81. Based on the analysis above, given I do not consider the soil blocking is an issue, and the best practice standards are followed, the conclusion reached in the s42A is inaccurate.

<u>Good Management Practices</u>

[13] Email from Rueben Edkins 19/05/23

82. Table 6 in the S42A report provides a table of Good Management Practices and mitigation measures. Following this table the report correctly notes that a number of the Good Management Practices are embedded Overseer. It then notes the importance of mitigation. I agree with the comments provided, none of which suggest that Overseer should not be used or the use of the proposed mitigation measures are inappropriate. I do note, as stated in paragraph 61, that ES requires the use of Overseer.

Phosphorus Losses

83. The s42A report discusses phosphorus losses and their implications[14]. The report correctly identifies risk factors and identifies there is uncertainty regarding stock runoff from laneways.

84. Laneways and other stock congregation areas are key sources of phosphorus (and sediment) reaching surface water. This is recognised in the proposal, and is discussed in detail elsewhere. However, specifically the following measures are being put in place which will reduce phosphorus loss, especially when compared to the current farming system (noting that many of these practices cannot be described (or are not provided for) in Overseer and as a result the actual losses will be much less than the Overseer predictions:
    - Shifting of laneway – one of the main laneways is adjacent to a drain. This laneway will be shifted. A new laneway will be created away from the drain. This was considered and developed into a condition during discussions with TAMI.
    - All lane runoff shall now pass over a grassed/vegetation area. In places this may require the lanes to be reshaped with runoff passing in a direction away from the drains to allow water to pass over land to be filtered before reaching drains (paragraph 142). This was considered and developed into a condition during discussions with TAMI.
    - Water from stock congregation areas (eg gateways) will pass in a direction away from the drains to allow water to pass over land to be filtered before reaching drains (paragraph 142). This was considered and developed into a condition during discussions with TAMI.

[14] s42a: Section 3.3.2.1 (Page 15) – Phosphorus

- Water from around culverts and bridges will as far as practically possible be directed off the structure and over land to be filtered before reaching drains (paragraph 142). This was considered and developed into a condition during discussions with TAMI.
- To ensure that the above actions are not a onetime set and forget, the conditions provide for regular inspections of structures and overland flow paths (paragraph 142).
- As a result of engagement with TAMI, the FEMP has been modified to require ongoing inspection, review and consideration of new options to further reduce sediment runoff (paragraph 142).

85. It should be noted that the majority of instances where there is runoff from paddocks, laneways, facilities and structures occurs during and after prolonged wet periods. These are times where the cows are proposed to be housed in the barns by CGL.

86. I consider that the mitigations proposed, including the development of refined conditions will significantly mitigate and lessen phosphorus and sediment runoff to surface waters compared to the current operations.

87. In the same section, the s42A report refers to the effectiveness of barley, noting "However, barley is not a high use P crop when compared to brassica fodder crops and so I cannot be certain if the crop will in fact absorb excess P."

88. The intent of this measure seems to have been misunderstood by the reporting officer. Brassicas are grazed insitu. Barley is harvested and removed from site. The issue is not the removal rate, but the fact that during brassica grazing (typically high intensity winter grazing) there is a risk of phosphorus/sediment loss from runoff. Also, the phosphorus removed by the animals is minimal, with a large portion of what is eaten left on site as excreta. With barley, while the uptake is a lot less, harvesting allows for most of the phosphorus taken up by the plants to be removed, and at a time of year when there will be minimal (if any) surface runoff. Essentially, the risk for surface runoff is reduced and the net removal from the paddock will be higher with barley.

89. There is a subsequent commentary in the s42A report about microbes and sediment loss[15]. The mitigation factors described above will apply here also, with significant reduction in microbes and sediment leaving the farm.

90. Further, as set out in the conditions (paragraph 141), additional mitigation is to be included through the use of detention structures, riparian areas and sediment traps. These assist with mitigating effects from paddocks in general and not just from farm structures.

91. I note that many of the mitigations discussed above were discussed at the pre-hearing and have subsequently included conditions following discussions with TAMI. I understand these conditions have not been taken into account by Ms McRae in reaching her conclusions in the s42A report.

Fertiliser Cap

92. The s42A report makes reference to a fertiliser cap[16], and in particular adopting a maximum similar to that used in the Overseer modelling. The report notes that this proposed cap is less than the NES-F. This recommendation is reflected in the draft conditions, but there is no technical justification for it the adoption of a justification or the loading rate.

93. I support the use of a cap, but not that modelled in Overseer. This is primarily as Overseer uses annually average data, meaning there will be a variability - with 50 % time being more and 50 % less. An alternative cap is proposed in the conditions we address in Paragraph 142. We have however, suggested that the cap include both organic and synthetic fertiliser.

Mitigation measures

94. There are a number of references to mitigation measures in the s42A report[17]. As noted in the evidence of Mr Carl Lindsay the farm system has been engineered around doing better, which is achieved by good design and adoption of mitigation measures. To that effect, one of the most significant mitigation measures is having the stock off the paddocks when soil conditions are excessively wet. Many farms don't have the

[15] s42a: Section 3.3.2.1 (Page 16)
[16] s42a: Section 3.3.2.1 (Page 15)
[17] s42a: Sections 3.3.3.2 and 3.7.1.4.

ability for stock to be removed, and consequently pugged soil leads to sediment and excreta in runoff. The use of the barn is a key mitigation tool in this regard, making an improvement over and above the current and other farms in the area.

95. There were a series of mitigation measures set out in the Farm Management and Conversion Environment Plan. Subsequent to the draft conditions being provided by Ms McRae, further valuable discussions with TAMI have bolstered mitigation measures with the inclusion of riparian areas, sediment traps and detention facilities. The revised draft conditions also set out the need for appropriate management of road and race runoff, and the regular inspection and reporting of farm structures adjacent to waterways. Surface water monitoring has also been included. As noted above, I understand these measures have not yet been taken into account by Ms McRae.

Monitoring

96. The s42A report makes reference to groundwater monitoring[18]. While initially proposed with draft conditions, the updated reporting officer conditions provided with the s42A has revoked this requirement.

97. I am of the opinion that some form of monitoring is appropriate, and as noted in the section below on draft conditions (paragraph 141) suggested inclusion of surface water monitoring. I note that background water quality monitoring has already started despite not having a requirement to do so.

Effects Conclusion

98. The s42A effects conclusions consider[19]:

- the effects from the slurry tanker application on Category C soils to be at least minor;
- the water abstraction to be consistent with key water quantity policies;
- the winter barn allows cows to stand off paddocks and effluent to be captured;
- the increase in RSUs will result in localised losses due to intensification; and
- the increases in losses will result in instream effects.

[18] s42A: section 3.3.4.1
[19] s42A: section 3.3.3.1

99. Dealing with specific outstanding issues in this conclusion:

- a slurry tanker will no longer be used on Category C soils. Therefore concerns about effluent runoff and drainage risk related specifically to the slurry tanker in these circumstances no longer apply;
- it is unclear what is meant by *"localised losses due to intensification"* as this has not been defined or quantified in the s42A report. While there may be more cows on the farm, the effects have been mitigated by ensuring they are avoided at high risk conditions. What is not acknowledged and quantified is the positive benefits of the removal of stock and the reduction of contaminant loads to the catchment. In addition, and unfortunately the reporting officer was not aware at the time of writing, significantly more mitigation measures are now proposed.
- Increase losses will 'potentially' increase effects, but the key here is it has not been demonstrated there will, in fact, be an increase in loss. I should highlight that the whole farming system has actually been designed around reducing losses.

100. A concluding comment has been made: "In my opinion, the removal of intensive winter grazing, utilising winter barns and milking cull cows, as opposed to raising replacement heifers, will not avoid, remedy or mitigate all potential or actual adverse effects that arise from the conversion of land to dairy farm land."

101. Based on the analysis above I consider there is no technical justification, basis or evidence for reaching this conclusion.

Consent Term

102. Consent term for this application is addressed in the evidence of Brian Ellwood.

Additional Expert evidence

103. I note in Ms McRae's evidence she has not commented on the other briefs of evidence that have been provided on behalf of ES. If they influence her recommendations, specifically what guidance she is has sought from them is unclear.

EXPERT EVIDENCE

104. At the same time the s42A report was released we were provided with three statements of evidence on behalf of ES. The Applicant was not made aware that these statements were being provided and there was no prior engagement between the Applicant and the expert witnesses. As a result, there are some misunderstandings

and incorrect assumptions in the evidence statements. Nevertheless, I respond to these evidence statements below.

Evidence of Mark Hamer

105. The evidence provided by Mark Hamer relates to water quality issues and implications for farming activities.

106. As mentioned previously, the proposed farming system at Farm 444 has been developed with the primary intention to lessen water quality impacts from the current farming systems. I note at paragraph 5 of Mr Hamer's evidence he states he has reviewed the surface water information in the application. Limiting a review to these sections potentially means that the wider system proposal, with the intent to improve surface water quality, may not have been fully appreciated.

107. At Paragraph 13 Mr Hamer states "Due to the subsurface drainage it is likely the adverse effects will largely be in waterways adjacent to the proposed activity." Mr Hamer is implying there will be adverse effects. It is unclear the basis for this conclusion. Specifically, with regard to subsurface drainage it is unclear why effects would be any different to the current farming system. Further, the proposed Farm 444 system is based on reducing subsurface contaminant losses, and with the proposed mitigation, reducing surface runoff effects from the farm and entering the catchment. There is no analysis provided in his assessment to conclude the effects at this property will be adverse, or any different to the current farming system.

108. In Paragraph 14 Mr Hamer provides a discussion about the relationship between intensification and instream ecological habitat. I support this view. However, the relevance to the proposed Farm 444 has not been established by Mr Hamer. He could be implying the proposal is for intensification and this will lead to a deterioration in water quality.

109. As shown previously in paragraph 56 intensification is not necessarily linked to an increase in off site effects. While there may be more cattle, they are managed in a way where there is designed to be a lesser environmental foot print. The overarching intention for Farm 444 is to reduce environmental effects in the wider catchment.

110. Mr Hamer does not conclude the effects will be more than minor, or provide a comparison with the current farming system.

Evidence of Alexandra Badenhop, Brian McGlynn and Simon Bloomberg

111. The three authors of this evidence traverse a range of related subjects. I will address these issues by subject matter.

Overseer

112. The Authors note[20] *"The assertion that the change in land use to intensive dairy farming would improve groundwater and stream water quality and ultimately improve conditions in the catchment is entirely predicated on the results of the Overseer model which…."*.

113. This proposition is fundamentally incorrect. The starting point with the choice and development of the proposed farming system was time spent developing the farm system and how it was to be managed. This is described in the evidence of Carl Lindsay. Overseer was then only used as a tool to quantify the potential nutrient loss of a pre-determined farming system. While 'tweaks' have been made to the system based on modelling results, Overseer was not used to design the farming system.

114. The authors have a very clear and strong view on the appropriateness of Overseer, largely informed by the report from the Science Advisory Panel. They state that it is inappropriate to use and cannot adequately model nutrient losses[21].

115. Despite the conclusions reached by the authors, as noted in my paragraph 61, ES and a number of other Regional Councils currently utilise Overseer for assessing land use, albeit with known limitations. Further, ES has commissioned two reviews of the Overseer modelling for this application and the s42A author does not dismiss the use of Overseer[22] and in fact relies on it in her evidence to show changes in nutrient losses[23].

116. Many of the conclusions reached around the appropriateness of Overseer in the evidence of the three experts are correct, within reason. All models have a degree of uncertainty, primarily as they are predicting things that may happen. Models rely on

[20] Badenhop, McGlynn and Bloomberg evidence: paragraph 30
[21] Badenhop, McGlynn and Bloomberg evidence: paragraphs 23, 30 and 34
[22] s42A: section 3.3.2.1 (top of page 13)
[23] s42A: section 3.3.2.1 (Table 5)

algorithms and relationships that describe activities and events in the past and use this to predict the future; and by virtue of being predictive will have a degree of uncertainty associated with it.

117. I do however refer back to my paragraph 47 where I referenced work done at Massey University comparing Overseer with field trial considering the effects of deferred grazing. This study showed Overseer underestimated the benefit deferred grazing. The purpose of noting this is Overseer can both over and underestimate nutrient losses, but in this case it has underestimated the benefits of deferred grazing.

118. Overseer is no different and for long term users we have always known there is a level of uncertainty and have been very hesitant in allowing it to be used in a regulatory context. However, in my opinion Overseer is a very useful and competent farm model to describe nutrient losses as influenced by land use.

119. While alternative models such as APSIM, SWIM, LUCI and Decision Support System for Agrotechnology Transfer (DSSAT) could be used, Overseer, despite its limitations, is the best tool we have available to estimate nutrient losses from farming systems in New Zealand. This reality is why the Regional Councils listed in paragraph 61 continue to use Overseer, albeit being more aware of the limitations of its use.

120. If ES is wanting to drive change in land management and use, which is what the experts appear to be alluding to in their evidence, some tool is required to predict and quantify potential changes. If we want physical and measurable improvements in the environment we need to use the assistance of our collective predictive knowledge – this means we need to make the most of technology we have available. While there are limitations, Overseer is the best predictive tool we have.

Environment

121. The three Authors consider site conditions and in particular the potential for drainage and soil conditions[24]. It is unclear what this analysis addresses, specifically as the limitations that they describe are well known and the result is the need to adapt

[24] Badenhop, McGlynn and Bloomberg evidence: paragraphs 35 to 37

farming operations (in general) to match. The issues equally apply to existing farming operations, and not just Farm 444.

122. The proposed operation of Farm 444 acknowledges some of these limitations and chooses to put the cows off paddocks when the soils are wet and avoid irrigation when the soils are vulnerable. In a broad sense the proposal is consistent with the concerns raised by the three authors and changes are suggested with the proposed Farm 444 system to mitigate the potential effect that the three authors have identified i.e. the basis of the changes and system design is to address and assist manage the issues they have raised.

123. It is unclear what the specific issue is they are referring to and what needs changing for this application. Many of the issues raised relate to farming in general and not just in the immediate vicinity of Farm 444. In a broad sense I agree the issues are relevant and require consideration, but are best considered at a Regional Plan level rather than an individual consent application.

Soil nutrient losses

124. The three authors discuss the mobilisation of nitrate to surface water in the gleyed and wetland conditions[25]. On this specific technical issue it should be noted that there is a balance where these soils also provide for high rates of denitrification, which use natural processes to reduce nitrates reaching surface water. The information provided by the three authors does not consider this aspect but rather only highlights potential risks, and therefore does not present the full picture.

Effluent

125. The three Authors discuss the effluent system, timing of application, and storage[26]. The dairy industry have worked hard on this issue for over 15 years now and have a well tested updated guidance document[27]. I have been involved in the early development of this guide, was a contributing author of several sections in PN21 and more recently as a DairyNZ Effluent Design certifier. Introductions of this material has really shifted performance on farms.

[25] Badenhop, McGlynn and Bloomberg evidence: paragraph 37
[26] Badenhop, McGlynn and Bloomberg evidence: paragraphs 44 and 45
[27] Farm Dairy Effluent (FDE) Design Standards and Code of Practice Version 3, September 2015

126. In addition to industry guidance and the design accreditation scheme, a tool called the Dairy Effluent Storage Calculator (DESC) has been developed for farmers to use[28]. Most Regional Councils, including ES, evaluate consent application against the output of this model to determine the adequacy of storage.

127. This process has been undertaken for Farm 444, and I understand that the s42 Reporting Officer has no issues with the DESC or the proposed pond volume. In fact at section 3.3.2.1 she notes:

> *"Potential adverse effects of discharging effluent onto land include contamination of groundwater and contamination of surface waterways. The applicant has proposed good management practices that will be adopted to minimise adverse effects arising from the activity:*
> *• the new effluent storage ponds will be sufficiently sized (total pond volume = 18,180 m3 and DESC 90th percentile requirement = 16,136 m³) when conditions are not suitable for discharge;*
> *• the new effluent storage ponds will be synthetically lined and have leak detection systems;*
> *• adhering to buffer distances from surface waterways and bores; • application of effluent at low rates and depths; and*
> *• use of a slurry tanker as required."*

128. The further information requested[29] by the three Authors is unnecessary as the approach taken is consistent with consenting undertaken elsewhere in Southland and nationally.

Drainage and water levels

129. The three Authors' evidence discuses drainage, as influenced by soils and rain events[30]. What is not considered in the evidence is the impact or consequence of the proposal, over and above the existing farm system. There is limited ability to change soils and the climate, however mitigation has been suggested to better manage the impact of the farming operation (paragraphs 46 to 49). These mitigation measures will contribute to mitigating the effects of the proposed system, particularly ensuring that the effects are less than the current operation and providing a positive effect of lessening the contaminant load entering the catchment.

[28] https://www.dairynzdesc.co.nz/
[29] Badenhop, McGlynn and Bloomberg evidence: paragraphs 44 and 45
[30] Badenhop, McGlynn and Bloomberg evidence: paragraph 39

130. The three Authors state that *"These comments all provide evidence that groundwater levels are very close to the ground surface and fluctuate significantly through the year, and that in some years, near surface saturation (as evidenced by flow into the drain) may occur for most of the year."*[31]

131. There has been a clear misunderstanding by the three Authors of the information provided which may have led them to make the wrong conclusion in this instance. The bore referred to is artesian. It is not reflective of shallow groundwater levels, and is not indicative of soil saturation. Further, the area of the bore, and much of the property for that matter, is sloping. The geology and soil forming process, including slope, do not provide for a shallow groundwater resource. Shallow groundwater should not be confused with low permeability soils that create seasonally wet condition i.e. the wetness is not shallow groundwater, but soils that can not drain fast.

Wetlands

132. The relevance of the wetland discussion[32] to the proposal is unclear. Wetlands covered vast areas of Southland. Unfortunately, they don't anymore. Remnant areas require protection as provided for under the NES-F. The three Authors seem to be suggesting that the change of land use means that the "Pasture Exclusion" clause no longer applies. The "Pasture Exclusion" criteria clearly applies if there is more than 50 % coverage of exotic pasture species[33]. The coverage of exotic pasture species at an estimate would be well in excess of 75 %. The idea that the pasture exclusion does not apply to a land use change consent is not explained by the three Authors, and is not supported by Ministry for the Environment guidance cited by the Authors.

General

133. As with Mr Hamer, the three Authors do not conclude the effects will be more than minor, or provide a comparison with the current farming system.

---

[31] Badenhop, McGlynn and Bloomberg evidence: paragraph 38
[32] Badenhop, McGlynn and Bloomberg evidence: paragraphs 46 to 47
[33] https://environment.govt.nz/assets/publications/Defining-natural-wetlands-and-natural-inland-wetlands.pdf - section 3.2 (c)

Evidence of Rueben Edkins

134. Mr Edkins has undertaken a peer review of the Overseer modelling. This is in addition to the earlier review by Ms Watt as referred to in the s42A report. Ms Watt's review did not raise unresolved issues with the Overseer modelling other than the issue of soil blocking.

135. As noted above, Mr Edkins has also raised the issue of soil blocking and also seeks clarification on a number of issues. As noted above, I have had correspondence with Mr Edkins and I am confident these issues will be resolved prior to the hearing. It is proposed that a joint witness statement is prepared prior to the hearing to formally record positions.

IWI ENGAGEMENT

136. Following notification, a submission was received from Te Ao Marama Inc (TAMI), requesting the following:

- *"Decision Sought*

  10. Ngā Rūnanga seek that there is:

  - *Further information is supplied by the applicant to enable an assessment by mana whenua to ensure there are less than minor adverse effects on the environment."*[34]

137. Since receiving the submission the Applicant has engaged proactively with Te Ao Marama. I have personally been involved in this engagement. This included a series of discussions to identify specific issues, a pre-hearing meeting and subsequent exchanges of information and ideas to incorporate their requests into proposed conditions.

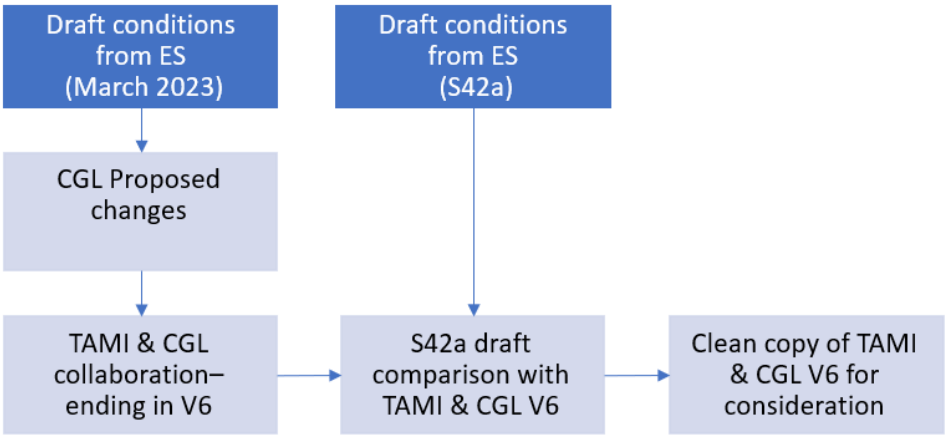
138. Draft conditions were issued by ES for the purposes of engagement. We reviewed these and responded with some proposed changes, with willingness to openly refine the conditions. Between 16 March and 28 April, a conditions table was exchanged with TAMI. A copy of the conditions development with TAMI is provided in Annex D. This includes a table showing the iterations of developing the conditions.

[34] Submission of Te Ao Marama Inc: page 2

139. This collaboration with TAMI has resulted in the modification of a number of the conditions specifically to incorporate and bolster mitigation measures. TAMI's participation in this process was valuable, and the changes made I believe will further enhance environmental outcomes on the farm.

PROPOSED CONDITIONS

140. As noted previously, draft consent conditions were issued by ES following the pre-hearing meeting. These have been refined with input from TAMI. With the s42A report, a further set of conditions has been provided. The iteration of conditions can be summarised by the following diagram.



141. The Table in Annex D shows the refinement of conditions that occurred with TAMI. In summary, the following is noted:

Discharge consent - AUT2022022-01

- Condition 26 – the deletion of a groundwater monitoring is proposed; and
- New condition BA – is the inclusion of surface water monitoring.

Discharge consent - AUT2022022-03

- Condition 6 – the removal of the barn area as there are no effects that relate to barn size. Specifying a size limits design options. The critical aspects are the number of cows and effluent management; and
- Condition 7 – as above, but for the new barn.

Land use - AUT2022022-04

- Condition 6 – there was a suggestion to limit grazing during winter months. However as noted in Table 4.3 of the application there has always been the intention to have the ability of cows to graze outside during the winter if soil

conditions permit. To assist manage grazing of wet soils, which could occur in summer, a new consent condition (AA) has been created which places a limit on the soil conditions that grazing is used;

- New condition AA – sets out soil moisture criteria to require cows to be put in the barn;
- Condition 9 – a preference was to make cultivation slope 10^{o} to make consistent with the NES-F;
- Condition 13 – CGL have suggested refinement of the fertiliser limits to acknowledged that there is a need for a maximum and an average, with the average complying with the NES-F. CGL have also included organic fertiliser nitrogen into the maximum allowable and not just synthetic fertiliser;
- Condition 22 – an overhaul of the ES suggested condition is proposed to make it clearer and assist regulatory compliance;
- Condition 23 – revisions are suggested to manage regulatory compliance easier. It is more focused to manage laneway runoff;
- Condition 24 - an overhaul of the ES suggested condition is proposed to make it clearer and assist regulatory compliance. It is also more specific in terms of inspections, ongoing reporting and record keeping. It also links to setting out these requirements in the FEMP;
- Condition 26 – minor wording is suggested to clarify when the second barn can be operational;
- New condition AB – limits the number of cows on the property until the second barn is built;
- Condition 27 – CGL suggest this condition is removed. It is considered that the new soil moisture condition will be a better regulatory of deciding when the barn should be used;
- Condition 33 – FEMP requirements have been beefed up requiring ongoing assessments and improvements;
- Condition 34 – FEMP provisions have been bolstered, specifically inclusions of details for riparian planting, sediment detention structures and wetland and settling structures. Additional FEMP requirements have been added;
- Condition 30 – specific measures and locations for riparian planting have been provided;
- New condition AD – specific measures for sediment detention structures have been provided;

- New condition AC - specific measures for wetland and sediment settling structures have been provided; and
- Condition 31 – the removal of plantain has been proposed, with the inclusion of a more generic approach, which aligns with a new requirement in the FEMP to consider alternative crops.

142. The s42A report has updated conditions. Changes from the initial draft provided and our response to those include:

Discharge consent - AUT2022022-01

- Condition 3 – inclusion of a land area is supported;
- Condition 26 – the deletion of a groundwater monitoring site is supported, but the inclusion of surface water monitoring is proposed – see TAMI developed conditions;

Land use - AUT2022022-04

- Condition 7 – change to the person in charge is supported;
- Condition 9 – change of land slope from 7^{o} to 10^{o} is supported;
- Condition 15 – change of Overseer version is supported;
- Condition 20, 29 and 30 – consequential changes to numbering supported;
- Condition 31 (new) – the installation of sediment control structures is supported, however the wording developed with TAMI is preferred;

143. No changes are proposed with the Winter Barn consent (AUT2022022-03) and Water Take consent (AUT2022022-02). However, it should be noted that the above changes should be applied to the TAMI refined conditions, as set out in Annex D.

144. Based on the changes reached with TAMI and the comments on the refined conditions provided with the s42A report, we have attached a clean set of conditions as Annex E.

CONCLUSIONS

145. Several key changes have been made to the application, including not using the slurry tanker for effluent spreading on Category C soils and dropping the need for 'stage 3'. These make the assessment of effects clearer.

146. Going into the hearing I consider the key outstanding issues is the accuracy of Overseer modelling and implications for assessing land intensification.

147. At a total farm level there will be an increase in stocking resulting in marginal intensification. However, grazing days will decrease, especially during the vulnerable wetter periods of the year. As a result the effects associated with intensification have been offset, and with the proposed mitigation the proposed farm will have lesser off site effects and contribute to an improvement in catchment water quality.

148. Overseer has been used to assess effects, particularly nitrogen losses. While there may be concerns with the model's accuracy, it is the best available farm system tool for predicting nutrient losses. It continues to be used around New Zealand by Regional Councils, including Environment Southland.

149. The farm system and Overseer review evidence of Mr Edkins is consistent with work we have undertaken. However, there are a couple minor matters that will be addressed prior to the hearing.

150. Engagement with iwi has occurred and TAMI have constructively worked with CGL to refine draft conditions that were circulated by ES after the pre-hearing meeting. TAMI have contributed significantly to develop robust conditions with refined and more effective mitigation solutions.

151. It is known that the wider catchment has water quality concerns, with a need for land owners to contribute to making improvements. This proposal for Farm 444 provides an opportunity for a modified farming approach to be developed which could be further refined to be used elsewhere in the catchment and region. The regulatory approach used could be enabling, encouraging its use and refinement. This may then provide the opportunity for other farmers to adopt similar mitigation solutions into their farming operations.

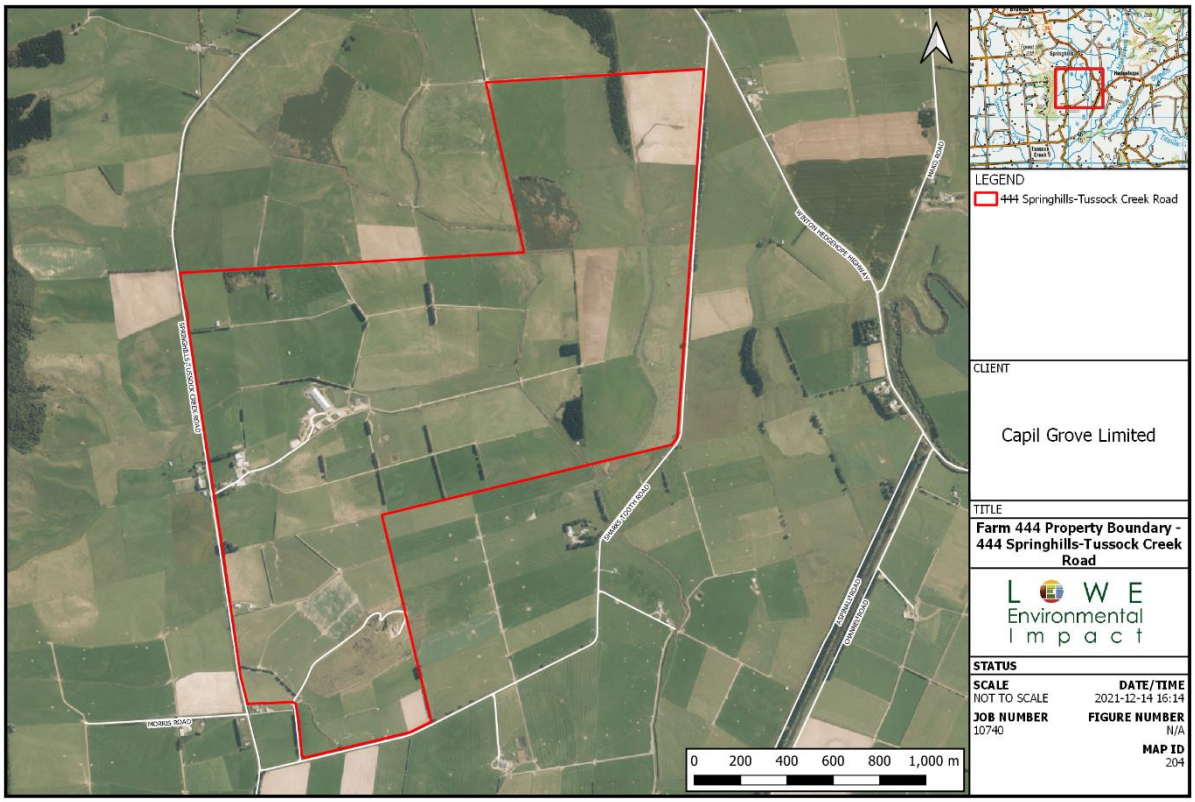
Hamish Lowe

23 May 2023

List of Annexures:

- **Annex A: Farm Map**
- **Annex B: Farm 444 Grazing Day Comparative Assessment**
- **Annex C: Memo - Continued use of Overseer for regulatory purposes**
- **Annex D: Condition table developed with TAMI**
- **Annex E: Clean set of consent conditions**

Annex A: Farm Map



Annex B: Farm 444 Grazing Day Comparative Assessment

MEMORANDUM **Job 10740**

To: Hamish Lowe

From: Asha Skidmore

Date: 19 May 2023

Subject: Farm 444 Grazing Day Comparative Assessment

This memo was created to analyse the implications of increasing cow numbers on Farm 444 (combined farms) and examine how the proposed wintering barn system would impact on the amount of time cows would spend outside grazing as part of the dairy farm proposal. A coparision is made to the current (consented dairy support) operation, as well as comparing to the baseline farm system and a typical standard operation where cows are grazing outside year-round in Southland.

The proposed wintering system at Farm 444 has the ability to winter all the cows in barns resulting in a reduction of total days that cows spend on pasture (grazing days). This will have positive implications on stock health, pasture management, and environmental impacts.

The changes in stock numbers between the proposed operation and past operations are discussed in this memo, along with seasonal changes.

BACKGROUND

Capil Grove Limited (CGL) is looking to establish a dairy cow milking operation from five properties that have previously been used for sheep farming (including more recently sheep milking), dairy support (dairy replacement and cow grazing) and beef farming.

CGL has recently been granted consent to use the 444 Farm (177 ha) for dairy support – being grazing and a barn housing of up to 456 cattle.

However, as a result of recent sales and purchase opportunities, CGL wish to convert Farm 444, and combine purchased farms, to a dairy milking platform over 341 ha. Part of this proposed operation is to continue housing dairy cattle in wintering barns over the wintering period.

This conversion from the original sheep milking/dairy support/beef operation, in combination with the other purchased properties, provides the potential to increase production while also mitigating the negative impact on the environment from the original farming operations.

To assist with assessing grazing impacts, data from the Farm 444 Consent Application and Assessment of Environmental Effects (2022) has been used to assess the current and proposed operation of the farm.

Two separate calculations have been made to assess the amount of time cows will spend on pasture during the winter months. They are:

1. A 'grazing days' calculation has been used and is the unit associated with comparing the total number of days cows are grazing outside on pasture. Specifically, it is a measure of each day a cow spends on pasture. It is calculated by multiplying cow numbers by the number of days on pasture.
2. Because two assessed farming systems have different grazed areas and have different amount of livestock on them, a calculation based off scenario farms in Overseer has been used to compare the different farm systems on a relative stock unit (RSU)/ha/month basis. This calculation applies a % of the time that cattle spend indoors.

OVERVIEW OF EXISTING FARMS (BASELINE)

As noted above, the existing farms bring together a mix of land uses. The original Farm 444 was a 177 ha high intensity sheep grazing and milking property. The adjacent property was called the Tuffin Block and was a 112 ha property running beef and used for dairy support. This included winter grazing. These properties were to be combined to form the Dairy Support property with 177 ha consented and 112 ha operating as a pre NES-F dairy support permitted actiivty (discussed below).

In addition, there was the Hancox Farm, being a 37 ha property used for high intensity dairy grazing, including winter grazing. Adjacent to that was the Shark Tooth property, being a 9 ha property also used for dairy support and winter grazing. A third additional property was the Harwood farm which was 15 ha and used for sheep grazing, which include a small area of winter grazing.

OVERVIEW OF DAIRY SUPPORT SYSTEM (CONSENTED)

CGL has recently been granted consent to use the Farm 444 for dairy support – being grazing and barn housing of up to 456 cattle. It was proposed that there would be up to 220 cows in the wintering barn over winter as dry cows. The remaining cows are on the paddocks. It should be noted that this operation is for a lesser land area (177 ha) than the proposed Farm 444 dairy unit and therefore a direct comparison of total grazing days is not appropriate, but the trend is important.

Use of the wintering barn is summarised from Table 4.2 of the AEE and shown in Table 1.

Table 1: Current Barn Cow Numbers and Time Spent in the Barn

Month	Cow Numbers	Average hours per day
May	55	16-20
June	220	18-24
July	205	18-24
August	70	16-24
September	30	12-20

This information has been used to provide data for the calculations in Table 2 which sets out the grazing days.

Table 2: Current Operation using the Barn Cow Numbers from AEE

Month	Cows on Farm	Cows in Barn	Cows on pasture	Total Grazing days	
				Min	Max
January	456	0	456	14,136	
February	456	0	456	12,768	
March	456	0	456	14,136	
April	456	0	456	13,680	
May	456	55	401	12,715	12,999
June	456	220	236	7,080	8,730
July	456	205	251	7,781	9,370
August	456	70	386	11,966	12,689
September	456	30	426	12,930	13,230
October	456	0	456	14,136	
November	456	0	456	13,680	
December	456	0	456	14,136	
Total				**149,144**	**153,690**

Table 3 describes the minimum and maximum time that a 'barn' cow will spend inside the barn vs on pasture (as Table 1 depicts that wintering in the barn does not always occur 24 hours of the day). Total days (barn cows) on pasture is a result of multiplying (cows in barn * days on pasture) to get grazing days for 'barn' cows.

OVERVIEW OF PROPOSED DAIRY SYSTEM

With the proposed Farm 444 operation, following the construction of the new proposed wintering barn, 840 cows can be housed over winter. This is 200 cows from Capil Grove Farm and 640 milking cows on Farm 444.

Use of the wintering barn for the proposed barn operation is summarised from Table 4.3 of the AEE shown in Table 3. While months are nominated below, this does not preclude: 1) cows being housed in the barn at other times of the year as required, and 2) cows being outside on the paddocks in winter if the conditions provide.

Table 3: Proposed Barn Cow Numbers and the time in Barn

Month	Cow Numbers	Average hours per day
May	640-840	16-20
June	840	18-24
July	840	18-24
August	840	16-24
September	640-840	12-20

This information has been used to provide data for the calculations in Table 4. It is our understanding that the 200 cows from Capil Grove Farm are indoors 24 hours a day the whole time they are on the farm and therefore are not accounted for in this assessment as they do not spend any time outside during their time on the farm.

Table 4: Proposed Operation using the Barn Cow Number

Month	Cows on Farm	Cows in Barn	Cows on Pasture	Total Grazing days	
				Min	Min
January	640	0	640	19,840	
February	640	0	640	17,920	
March	640	0	640	19,840	
April	640	0	640	19,200	
May	640	640	0	3,307	6,613
June	640	640	0	0	4,800
July	640	640	0	0	4,960
August	640	640	0	0	6,613
September	640	640	0	3,200	9,600
October	640	0	640	19,840	
November	640	0	640	19,200	
December	640	0	640	19,840	
Total				**142,187**	**168,267**

Table 3 describes the minimum and maximum time that a 'barn' cow will spend inside the barn vs on pasture (as Table 4 depicts that wintering in the barn does not always occur 24 hours of the day).

COMPARISON OF CURRENT AND PROPOSED SYSTEM.

Grazing Days – Winter Period

Even with an increase in cow numbers, there is a reduction of total grazing days over the winter period when compared to the current scenario for both minimum and maximum time on pasture scenarios. This is despite the current scenario having a lesser land area. Total grazing days in the proposed system decrease by between 24,432 to 45,966 during the winter months (Table 4). This has positive environmental implications as there will be a reduction of nitrogen and phosphorus losses as the wintering barns allows for the collection and application of cow dung (major source of phosphorus) and urine (major source of nitrogen) which would otherwise be deposited on soils during peak drainage and runoff periods, typically late autumn and winter. Instead of allowing these nutrients to enter waterways, the effluent is collected and evenly applied to the land during spring and summer under controlled conditions. Thus, a reduction of winter days the cows spend on pasture in the proposed system is likely to minimise the loss of contaminants via leaching and runoff events.

Table 5: Proposed Operation Total Grazing Days

	Change		
		Time on Pasture	
Month		Min	Max
May	26%	-9,409	-6,386
June	0%	-7,080	-3,930
July	0%	-7,781	-4,410
August	0%	-11,966	-6,076
September	25%	-9,730	-3,630
Total		-45,966	-24,432

RSU/ha/Month Comparison

The above analysis presents total grazing days and compares the operations as an entirety. This however, doesn't take into account different stock classes and the areas over which the animals graze. Figure 1 presents a summary of data from Overseer modelled farms on a RSU's basis and removes the stock wintering in the barn. The data is presented on a per ha basis to make all systems comparable for the differing land areas. Note that an average was taken (not min and max) when calculating the grazing time spent outside.

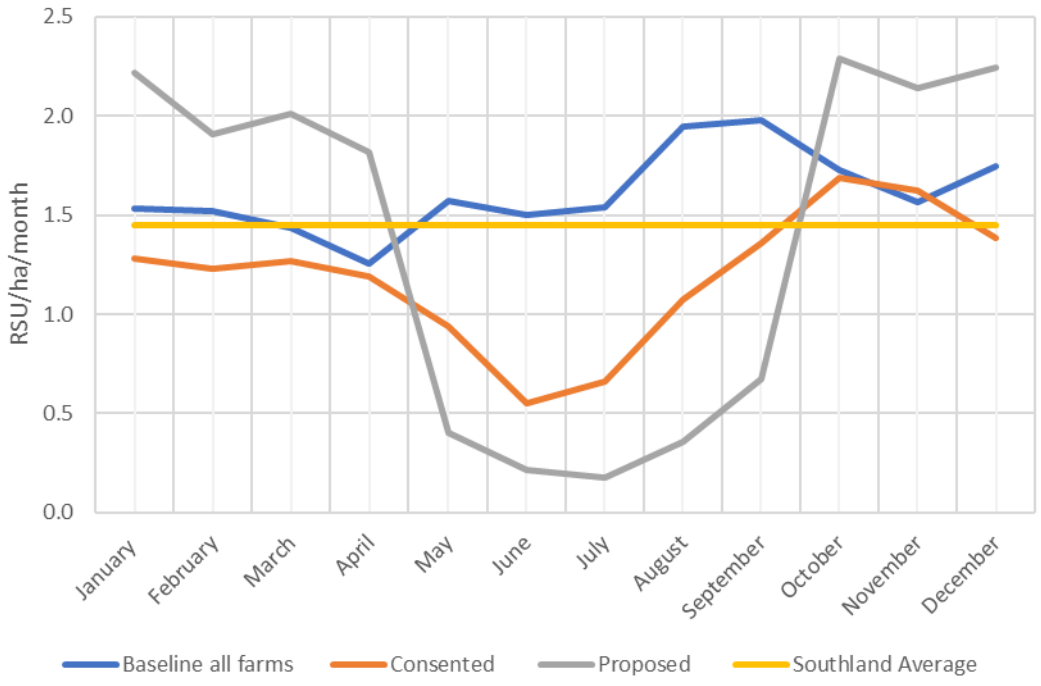
Baseline RSU's is also presented, showing what the RSU profile looked like before the current farm wats consented. This system had animals grazing outside all year round, hence a flat line through the year.

DairyNZ (2023) has calculated the average Southland dairy farm has an average of 2.9 cows/ha based off the latest benchmarks (2021/22 season). This equates to approximately 1.45 SU/ha/month represented by the yellow line in Figure 1. Again, animals are assumed to be grazing outside all year round.

The consented farm operation (orange) shows a reduction in SU's over the wintering period when compared with outside grazing. The consented farm operation also has lower RSU/ha/month than the Southland average and baseline of all farms.

For the proposed system, the graph shows lower grazing days than all other scenarios farm over the critical winter period. With an increase of cows for the new proposed system and implementation of a new winter barn, the graph shows a small increase of RSU's over the summer months but a large reduction of grazing days during the winter months with the lowest RSU's occurring June – August.

Figure 1: Grazing Day Scenarios



Average SU/ha Based off Figure 1.	
Baseline all farms	19.3
Consented	14.2
Proposed	16.4
Southland Average	17.4

ENVIRONMENTAL IMPLICATIONS OF WINTERING BARNS

Having cows in wintering barns allows for better management and control over the herd and farm during the winter months. In terms of the environment, positives of wintering barns are described below.

Wintering barns allow for better control and management of cow effluent instead of faeces and urine being deposited randomly in a paddock. Urine being in a highly concentrated form, is prone to leaching losses, and in winter this can rapidly reach surface waterways. Wintering barns have systems in place to collect and store excreta in an effluent pond. From there the collected material can be applied to paddocks when conditions are suited to ensure efficient use of the nutrient. This reduces the risk of runoff or leaching into water sources, preventing water pollution and protecting the local ecosystem during the months that the barn is used. Applying effluent in appropriate conditions also allows for the reduction of synthetic fertiliser use as there is recycling of nutrients from excreta collected.

Wintering barns can also contribute to animal health and soil conservation. Being in barns over winter cows stay warmer and need less energy/food to stay warm. This means they stay in better condition. By housing cows in a controlled environment during the winter, there is also less likelihood of pugging, soil compaction and erosion that may occur when cows are continuously grazing in the same area for an extended period of time – a practise often seen during winter grazing of crops which is a common practise in Southland.

Annex C: Continued use of Overseer for regulatory purposes

MEMORANDUM **Job 10740**

To: **Hamish Lowe**

From: **Asha Skidmore**

Date: **9 May 2023**

Subject: **Continued use of Overseer for regulatory purposes**

Evidence provided by Environment Southland for the Farm 444 consent application lodged by Capil Grove Limited has brought into question the appropriateness of the ongoing use of the Overseer nutrient management tool, especially as a result of the Science Advisory Panel review of the model1. This memo summarises the current use of Overseer by a selection of Regional Councils, despite the findings of the Science Advisory Panel review.

Question – is it appropriate for Environment Southland to use Overseer

In light of evidence produced by Alexandra Badenhop, Brian McGlynn and Simon Bloomberg for Environment Southland in support of the s42A report, a review of how other regional councils use Overseer was undertaken. The evidence produced suggested Overseer should not be used, which is contrary to applicant requirements by Environment Southland.

Nine regional councils were contacted (excluding Environment Southland). The contact was made directly with staff in either their consent or rural land management teams. They were questioned about consent applications for dairy farming, such as dairy farm intensification or land use change, and asked if an applicant required to submit Overseer assessment as part of there environmental effects assessment.

In summary, all councils rely on Overseer to some extent. Table 1 provides a brief summary.

[1] https://www.mpi.govt.nz/dmsdocument/46360-Overseer-whole-model-review-Assessment-of-the-model-approach

Table 1: Use of Overseer by a selection of Regional Councils

Council	Is Overseer Required in Consent Applications?
Bay of Plenty Regional Council	Yes
Environment Canterbury	Yes
Hawkes Bay Regional Council	Optional
Horizons Regional Council	Yes
Northland Regional Council	Yes
Otago Regional Council	Optional
Taranaki Regional Council	Optional
Waikato Regional Council	Yes
West Coast Regional Council	Optional
	5/9 Yes, 4/9 Optional, 0/9 Not accepted

All regional councils allow the use of Overseer by dairy farm resource consent applicants. Just over half require its use, with the balance saying it is optional. Most importantly, no regional councils reject Overseer analyses for nutrient modelling as part of consent applications.

A detailed summary of feedback from the contacted regional councils is provided in Attachment A.

ATTACHMENTS:

- Further detail of Overseer use by Regional Councils

Attachment A: Further detail of Overseer use by Regional Councils

Council	Phone Call Response	Information about Overseer on Council Website	Conclusion Is Overseer Required in Consent Applications?
Bay of Plenty Regional Council	-	Farming discharge consents: Consent forms (boprc.govt.nz) 3C Land use activities in catchments Lakes Ōkāreka, Rotoehu, Ōkaro, Rotorua and Rotoiti Overseer nutrient budget file is required (part 2; section 3) 3B Discharge farm dairy effluent to land Effluent block report from the farm Overseer file should be included if it is available (part 2; section 2.2)	YES
Ecan	Yes, modelling of Overseer or equivalent model for dairy farm consent is required	Farming application forms: 5. Lodge my application | Environment Canterbury (ecan.govt.nz) Section 4.41A CON501: "The contribution that the preparation of accurate nutrient budgets and Farm Environment Plans make to the attainment of the water quality outcomes is recognised by: a. requiring the preparation of nutrient budgets in accordance with the OVERSEER Best Practice Data Input Standards;"	YES
Hawkes Bay Regional Council	Optional – a risk matrix is required (Tukituki production land use activities)	Form 'B' – Assessment of Environmental Effects Tukituki Production Land Use Activities https://www.hbrc.govt.nz/assets/Document-Library/Consents/Application-Forms/Application-Form-B-Tukituki-Activities-June-2022.pdf "You may also have Overseer Nutrient Budgets and where these are used to support the application, they should be published to the Council using OverseerFM."	OPTIONAL
Horizons Regional Council	Yes; require effluent report, storage calculator from Overseer	Overseer Information https://www.horizons.govt.nz/managing-natural-resources/overseer "In common with a number of councils, Overseer numbers are embedded in the One Plan and in resource consents in the region - particularly for intensive land use … Horizons will continue to administer its regional plan – the One Plan." Application for Resource Consent: Intensive Farming Form B: Activity Information and Assessment Form Consents - Horizons Regional Council Overseer Nutrient Budget or OverseerFM References is required with the form.	YES
Northland Regional Council	Yes, Overseer evidence will need to be submitted as part of their AEE for farming consent applications.	-	YES

Council	Phone Call Response	Information about Overseer on Council Website	Conclusion Is Overseer Required in Consent Applications?
Otago Regional Council	Awaiting response from phone call	Technical requirements to demonstrate no increase in load or concentration of contaminants from land use changes technical-requirements-demonstrate.pdf (orc.govt.nz) "What do we need, to be satisfied there is no increase in catchment nitrogen load? Most applicants are likely to assess changes in nitrogen loading with nutrient budgets modelled using Overseer. To demonstrate that nitrogen load will not increase the applicant should: •provide robust nutrient budgets with modelled estimates of nutrient load losses from all properties associated with the application that show how the nutrient loads in the catchment under the proposed land use will be the same as, or lower than they were at September 20203 or the relevant baseline period." Overseer or equivalent model is required.	OPTIONAL – Can use equivalent model
Taranaki Regional Council	-	Discharge Farm Dairy Effulent to Land Microsoft Word - FRODO-#3091239-v1-Application_form_-_Dairy_Discharge_-_Form_No_100_-_2022_version_-_CURRENT.docx (trc.govt.nz) Section 9.1 "You must submit an up to date Dairy Effluent Storage Calculation (DESC)2 , completed by a suitably qualified person, to determine the volume of storage required on the property." DESC required; Overseer likely optional	OPTIONAL
Waikato Regional Council	Awaiting response (phone call required to fill out request forms)	Form B: Agricultural Intensification and Land Use Change Form-B-Agricultural-intensification-and-land-use-change.pdf (waikatoregion.govt.nz) Required: OVERSEERFM map (farm blocks) 15: "Provide an assessment of the baseline(s) and proposed scenario and publish in OVERSEERFM to Waikato Regional Council Modelled Assessment (nitrogen): Council accepts the use of OVERSEERFM as a decision support tool to estimate nitrogen loss for pastoral systems. However, given the inherent limitations of this model, we strongly urge you to also provide supplementary evidence and information."	YES
West Coast Regional Council	-	Application for Resource Consent Under the NES Freshwater On-Farm Activities Discharge Animal Effluent to Land/Water Permit Form (wcrc.govt.nz) Overseer is not mentioned, however the applicant must: "Show how the use of the converted dairy farmland will not increase the concentrations of contaminants in the receiving environment compared to concentrations as at 2 September 2020."	OPTIONAL

Annex D: Condition table developed with TAMI

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

CONDITIONS RELATING TO CAPIL GROVE DAIRY FARM CONSENTS

Schedule of consent condition changes:

Version	Date	Reason for Change-	Made by
1	6/03/2023	Initial conditions proposed by ES	ES
2	10/03/2023	Revised and modified by Capil Grove	Capil Grove
3	29/03/2023	Revised and commented by Te Ao Marama	Te Ao Marama Inc
4	31/03/2023	Capil Grove changes and comments on comments (v3) post discussion with TAMI on Friday 31 March	Capil Grove
5		TAMI comments on V4	Te Ao Marama Inc
6	26/4/2022	Capil Grove changes and comments on TAMI v5 comments	Capil Grove

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow v6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
1	This consent shall not be exercised until Land Use Consent AUTH-20211143-01 has been surrendered or expires.			
2	Except as modified by conditions of resource consent, the activities authorised by this resource consent shall be carried out in general accordance with the application for resource consent (APP-20222055) and all subsequent information provided during the application and the Farm Environmental Management Plan required by this consent.			
3	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.			
4	This consent shall be exercised in conjunction with Discharge Permit AUTH-20222055-01, Water Permit AUTH-20222055-02, Land Use Consent AUTH-20222055-03, and Land Use Consent AUTH-20222554, or any subsequent replacement permits. Advice Note: Routine monitoring inspections of this consent may occur up to once a year. This number does not include any other required inspections.			

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow V6 highlighted in green	Capil Grove comments V4 highlighted in yellow V6 highlighted in green	Te Ao Marama Inc comments V5 highlighted in aqua please
5	The use of land for farming shall occur on the landholding at 444 Springhills Tussock Creek Road, Springhills, as shown on the plan attached as Appendix 1, and comprising of Part Lot 2 DP 2005, Lot 1 DP 12811, Section 298 Forest Hill HUN, Lot 2 DP 13790, Lot 1 DP 4795, Section 517 Forest Hill HUN, Lot 3 DP 13790 and Lot 1 DP 13793, at or about map reference (NZTM 2000) 1249823E 4872356N.			
6	The farming activities shall be limited as follows: (a) a maximum milking herd of no more than 640 cows; (b) a maximum winter milking herd of no more than 640 cows; and (c) no milking age cows on the land during June and July (inclusive). Advice Note: Milking age cows on the land refers to mature age milking cows on pasture paddocks, however if mature age milking cows are being quarantined outside of the winter barn to prevent contagious ailments from spreading, then this would not be considered a breach of the above condition.	The farming activities shall be limited as follows: (a) a maximum milking herd of no more than 640 cows; and (b) a maximum winter milking herd of no more than 640 cows.~~; and~~ ~~(c) no milking age cows on the land during June and July (inclusive).~~ Advice Note: Milking age cows on the land refers to mature age milking cows on pasture paddocks, however if mature age milking cows are being quarantined outside of the winter barn to prevent contagious ailments from spreading, then this would not be considered a breach of the above condition.	There has always been the intention to have the ability of cows to graze outside during the winter if soil conditions permit. This is set out in Table 4.3 of the application. However, it would be appropriate to introduce a consent condition (AA) that creates a limit on the soil conditions that grazing is used.	
AA		During the months of May to September, should soil moisture at ES monitoring site [Makarewa aquifer at Mckinnon Road] be at field capacity for a period of more than 7 continuous days, then cows shall be held in the barn(s) for a minimum of 18 hours per day.	Note that the winter limit of June and July in condition 6 has been extended to May to September subject to soil moisture conditions. HL noted the potential that there are 2 separate issues here. Is an additional condition needed? Stevie not sure and was going to come back and advise what TAMI are asking for. There is a scale for states of soil moisture. Starting with the wettest is 'saturation', then 'field capacity' then 'wilting point' (and then there are a few more dryer states). More details can be found at https://www.hbrc.govt.nz/environment/climate/soil-moisture/ Sodden would be when the soils are at saturation, which is when runoff and high rates of drainage occur. Field capacity is at a lower soil moisture state when drainage is about to start. Setting up reliable soil moisture monitoring is complex and from a compliance point of view difficult to manage. A standard approach ES has used for a number of consents (typically effluent application) is to rely on their local moisture monitoring sites. The	Unclear how this addresses inherent risk associated with physiographics as discussed in pre-hearing – i.e. requires other measures to assist to protect water quality as per physiographic fact sheets to cover discharges from the cows when not in barns "at field capacity" means we can expect adverse effects because the soil is sodden so I don't really understand why it would be a week before the cows have to be in barns - I would have thought that good practice would be to recognise the ground conditions and move the cows earlier rather than wait 7 days - is that the difference between what is in consent conditions and what would be specified in the farm plan as management response to the condition of the soil on farm or anticipated weather? I'm also wondeirng why the condition is dependent on the ES monitoring site rahter than on-farm monitoring of soil conditions Also, why would you only have this condition apply at restrcited times of the year - surely at any time of year when you've got sodden ground for consecutive days and you've got barns on the farm then you make use of the barns to protect soil and water

Capil Grove Conditions – 10 March 2023 – Version 643

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow V6 highlighted in green	Capil Grove comments V4 highlighted in yellow V6 highlighted in green	Te Ao Marama Inc comments V5 highlighted in aqua please
			suggestion here is to use a standard approach currently in use. Re timing, yes the barn can be used at any time of the year, but critical months to avoid negative effects are May to September	
10	Intensive winter grazing shall not occur on any part of the landholding. Advice note: 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.			
7	The Consent Holder shall notify the Consent Authority the identity of the Person in Charge of Valley View support block: (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.	The Consent Holder shall notify the Consent Authority the identity of the Person in Charge of ~~Valley View support block~~444 Dairy Farm: (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.	Wrong farm used.	
9	Cultivation shall not occur on any part of the landholding over 7 degrees slope (see Appendix 1).	Cultivation shall not occur on any part of the landholding over 10~~7~~ degrees slope (see Appendix 1) unless as part of a pasture renewal programme.	10 degrees used in other applications. 7 is used for FDE categories and doesn't apply in this instance. Plus if you have hilly areas how do you do pasture renewal? HL – discussed and no changes needed.	We understand that the maximum height that cultivation is allowed on is 10 degrees under regulation.
8	The Consent Holder shall not graze any young dairy stock, defined as between 4 and 20 months old, on any part of the landholding.			
11	The Consent Holder shall implement a soil testing regime to determine the soil fertility status over the landholding and to develop fertiliser recommendations based on the soil testing results.			
12	The Consent Holder shall maintain a record of their soil testing regime, soil testing results and fertiliser recommendations required by Condition 11 within the Farm Environmental Management Plan.		HL – discussed and no changes needed.	We understand that the maximum allowed under regulation is 190kg/ha/yr of synthetic fertiliser to be applied.
13	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 (iii) any subsequent updates; (b) not apply fertiliser: (i) to land during the period 1 June - 31 July inclusive;	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 (iii) 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;	Makes no sense to have average and maximum the same. There is no justification for 150 kg. It is appropriate that 150 kg is sued for FDE (liquid and solids).	Not sure what the justification is for the 20kg difference and would rather see "not apply a combined loading of organic material and synthetic nitrogen fertiliser at a rate of more than 190 kg/ha/year on an individual hectare basis"

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
	(ii) within 10 m of a surface water body; (iii) within 10 m of any wetland boundary; (iv) within 20 m of any bore; (v) when soil temperature is at or below six degrees Celsius; (vi) when soil moisture capacity is exceeded; and (vii) directly to land within a riparian strip/margin. (c) not apply synthetic nitrogen fertiliser at a rate of more than 150 kg/ha/year on an individual hectare basis and as an average over the landholding.	(iii) within 10 m of any wetland boundary; (iv) within 20 m of any bore; (v) when soil temperature is at or below six degrees Celsius; (vi) when soil moisture capacity is exceeded; and (vii) directly to land within a riparian strip/margin. (c) not apply a combined loading of organic material and synthetic nitrogen fertiliser at a rate of more than ~~150~~210 kg/ha/year on an individual hectare basis and 190 kg/ha/yr as an average over the landholding.	HL noted that we are of the opinion that there should be combined FDE and synthetic fertiliser limit. A limit an individual greater than 190 kg not appropriate when averaged over farm. The NES-FM sets a synthetic nitrogen cap of 190 kg/ha/yr. This is just synthetic fertiliser and is an average. Under the NES-FM there is no maximum and no limit on combined organic and synthetic fertiliser. The condition suggested here sets a maximum limit (210 kg N/ha/yr) and sets the loading rates as a combined total. What is proposed is MORE restrictive than the NES-FM. The 20 kg difference is the average (190 kg) over the farm compared to a paddock maximum (210 kg).	
14	The Consent Holder shall: (a) take representative soil samples at least once every two years and have those samples analysed for Olsen P by a laboratory with IANZ accreditation; (b) if Olsen P levels exceed a range of 24 - 30 the Consent Holder must reduce the amount of P fertiliser being applied to the landholding to ensure the risk of P loss is reduced; and (c) record the Olsen P results required by Condition 14(a) and any fertiliser reduction required by Condition 14(b) in their Farm Environmental Management Plan.			
15	The Consent Holder must ensure that nitrogen and phosphorus losses to water from farming activities undertaken on the land are maintained at, or below the baseline contaminant loss rates of: (a) 28 kilograms per hectare per year nitrogen; (i) as estimated by the four-year rolling average loss rates using OVERSEER FM® version 6.5.0, undertaken in accordance with the generally accepted best practice modelling including the applicable Best Practice Data Input Standards/Overseer FM User Guide. (b) 1.9 kilogram per hectare per year phosphorus; (i) as estimated by the four-year rolling average loss rates using OVERSEERFM® version 6.5.0, undertaken in			

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow V6 highlighted in green	Capil Grove comments V4 highlighted in yellow V6 highlighted in green	Te Ao Marama Inc comments V5 highlighted in aqua please
	accordance with the generally accepted best practice modelling including the applicable Best Practice Data Input Standards/Overseer FM User Guide; and (ii) information from published New Zealand and Overseas research to estimate the additional phosphorus loss mitigation, beyond that modelled in Overseer, that is likely to occur as a result of the mitigation being implemented in accordance with the FEMP required under this resource consent. For the purposes of this resource consent, the four-year rolling average is defined as the average of the most recent four consecutive years' results starting from 1 July 2023.			
16	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 shall: (a) model the nitrogen and phosphorus loss rates for the previous year from 1 July to 30 June inclusive; (b) calculate the four-year rolling average of nitrogen and phosphorus loss rates; and (c) re-model the baseline contaminant loss rates specified in Condition 15 in the current version of Overseer.			
17	The re-modelled baseline contaminant loss rates, modelled in accordance with Condition 16(c) shall supersede and replace the baseline contaminant loss rates specified in Condition 15.			
18	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 16. 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 with the applicable baseline contaminant loss rates; and (d) the names and summaries of the relevant qualifications and experience of the person(s) who prepared and (if relevant) reviewed the nutrient budget.			
19	All nutrient loss modelling required by this consent must be undertaken by a person who is a Certified Nutrient			

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
	Management Advisor (CNMA) under the Nutrient Management Advisor Certification Programme (NMACP).			
20	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 16; and (b) the use of the alternative model is approved by the Chief Executive of the Consent Authority.			
21	The Consent Holder shall undertake maintenance of the existing and any new dairy lanes to ensure they are contoured to ensure that any run-off occurs onto vegetated areas where it will not enter any surface water body.			
22	The Consent Holder must manage the dairy lanes so that agricultural effluent and effluent sludges from the lanes does not: (a) accumulate in gateways; (b) accumulate in paddocks; or (c) result in the ponding, pooling, overland or lateral flow of any effluent or sludge beyond the dairy lane.	~~The Consent Holder must manage the dairy lanes so that agricultural effluent and effluent sludges from the lanes does not:~~ ~~(a) accumulate in gateways;~~ ~~(b) accumulate in paddocks; or~~ ~~(c) result in the ponding, pooling, overland or lateral flow of any effluent or sludge beyond the dairy lane.~~ The Consent Holder must use best endeavours manage the animal excreta to ensure it does not: (a) accumulate on laneways~~;~~ accumulate in gateways; (b) accumulate in paddocks; or (c) result in the ponding, pooling, overland or lateral flow of any effluent or sludge beyond the dairy lane. Management of critical source areas, including laneways and gateways shall be identified and described in the FEMP as required by condition 33. Advice note: it is appreciated that there will be excreta on laneways and around gates, and the consent holder should ensure there is no direct runoff to waterways (i.e. runoff has to flow over a minimum of 10 m of vegetation before entering a waterway).	Seems to be a new condition. Sounds ok in principle but how is effluent and sludges defined. In some cases you want it off the lands and pooling behind a detention bund. This condition requires work. This condition will be hard to regulate and manage compliance. It is suggested it is left to the FEMP – noting that it is already included. "Effluent" comes from the sheds and is unlikely to be spread on races and around gateways. There is however "excreta" when stock are shifted and when waiting for the gate to open. The challenge with this condition is how do you define 'accumulate'. We discussed adding a refined condition.	We support the inclusion of this condition, it should be relatively easy for compliance officers to see if the dairy lanes are managed appropriately.
23	Except for crossings of surface waterways, the Consent Holder shall not construct any new dairy lanes within 10 metres of a surface waterbody.	Except for crossings of surface waterways, the Consent Holder shall not construct any new dairy lanes that direct runoff towards or have a point of laneway runoff within 10 metres of a surface waterbody.	The key is making sure that runoff passes onto vegetated areas. This might mean that while a lane is within 10 m, the runoff from the lane is greater than 10 m away from the water body i.e	We support the inclusion of this condition. The wording should include 'any new dairy lanes will point any laneway runoff away from surface water bodies'

Commented [MB1]: The key to this condition is (c) regarding potential to build up and migrate to waterways - the management response is to prevent animal excreta from reaching waterways, which could be by way of physical barrier to prevent overland flow (e.g. bunding) but also presumably want to avoid ponding that results in leaching to groundwater - it would be helpful to have a condition that the FEMP then delivers on

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
			the fall on the laneway is away from the water body. Agree and made more specific.	
24	Prior to the exercise of this consent, the Consent Holder shall inspect all bridges and culverts and, where necessary, undertake improvements to the structures to ensure that there is no runoff of agricultural effluent to surface water.	~~Prior to the exercise of this consent, the Consent Holder shall inspect all bridges and culverts and, where necessary, undertake improvements to the structures to ensure that there is no runoff of agricultural effluent to surface water.~~ The Consent Holder shall inspect prior to the exercise of this consent, and then every 12 months, all bridges and culverts. Based on inspections, and where necessary, undertake improvements to the structures to ensure that there is no animal excreta runoff passing directly to surface water. Records of the inspection shall be kept and made available to the Council on request. The methodology for inspections and record keeping shall be set out in the FEMP as required in condition 33.	Not sure how you assess compliance with this. Think would be more practical to build into FEMP and require annual inspection. Is already in FEMP. Discussed the need to define what is effluent - amended to excreta. HL noted that inspections should be ongoing, and records kept. FEMP linkage has been made (see Condition 33d)	Support the inclusion of this condition. Another case where it is useful to have a condition that the FEMP then delivers on
25	The Consent Holder shall install any new permanent fencing of any temporarily fenced surface waterbodies with a minimum 3-metre buffer and provide written confirmation, along with date stamped photos, of the new fencing provided to the Consent Authority (EScompliance@es.govt.nz) by 1 July 2023.			
26	The Consent Holder shall: (a) Construct a new winter barn, as detailed in the application, at or about NZTM 1250289E 4872287N; and (b) Provide written confirmation, along with date stamped photos, of the fully operational winter barn to the Consent Authority (EScompliance@esgovt.nz) by 1 May 2024.	The Consent Holder shall: (a) Construct a new winter barn, as detailed in the application, at or about NZTM 1250289E 4872287N; and (b) Provide written confirmation, along with date stamped photos, of the fully operational winter barn to the Consent Authority (EScompliance@esgovt.nz) before the wintering barn is operational~~by 1 May 2024~~.	It is difficult to commit to a date as there are third parties involved. The confirmation should simply be provided before it is used. The 2nd barn will have to be built before all the cows are on the farm as there are conditions that require the cows to be in the shed if the soil conditions deteriorate. The existing shed has a capacity of 456 cows (current consent). How about a limit using the current barn of 330, and no more until the 2nd barn is built? See new condition below.	The winter barn should have a timeframe attached to it, this is one of the mitigations used and therefore should be constructed prior to this consent being used.

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow V6 highlighted in green	Capil Grove comments V4 highlighted in yellow V6 highlighted in green	Te Ao Marama Inc comments V5 highlighted in aqua please
AB		The Consent holder shall not allow more than 330 milking cows on the property until the second barn is built, as detailed in condition 26.		Ka pai
27	Cows shall be housed in the winter barns, as authorised by AUTH-20222055-03, as follows: (a) no less than 80% of the then milking cow herd shall be housed in the barns from 1 May to 31 May, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard; (b) no less than 100% of the then milking cow herd shall be housed in the barns from 1 June to 31 July, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard; and (c) no less than 90% of the then milking cow herd shall be housed in the barns from 1 August to 30 September, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard.	~~Cows shall be housed in the winter barns, as authorised by AUTH-20222055-03, as follows:~~ ~~(a) no less than 80% of the then milking cow herd shall be housed in the barns from 1 May to 31 May, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard;~~ ~~(b) no less than 100% of the then milking cow herd shall be housed in the barns from 1 June to 31 July, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard; and~~ ~~(c) no less than 90% of the then milking cow herd shall be housed in the barns from 1 August to 30 September, for no less than 24 hours per day, unless cows are temporarily removed to the dairy shed or yard.~~	This is largely a repeat of condition 6. No need for duplication. Note condition AA has been added wrt soil moisture. It should be firstly noted that the criteria in Condition 6/AA is not Sodden, but field capacity. This provides a lower threshold and doesn't wait for mud to develop. Secondly, this condition implies a 'blanket restriction' when it may not be needed. If soil conditions are suitable and grass is growing, then stock could reasonably be able to graze without any adverse effect. While the condition provides certainty, it doesn't assist the practicalities and challenges of farm management. To the contrary, condition AA provides an opportunity (requirement) for cows to be taken off the paddocks if there are sodden conditions.	There is a big difference between this condition and condition 6 in that it requires all or most of the cows to be off paddock between May and September - this is a lot more certain than the combination of condition 6 and AA because AA appears to allow for cows on paddock for days when the soil is sodden whereas this condition takes away the need for additional management decisions, aside from whether to allow 10 or 20% of the cows on paddock during May or from August
28	Daily use of the winter barn must be monitored by recording the number of cows and the number of hours spent in the barn. The records of winter barn use must be maintained and supplied to the Consent Authority upon request.			
	Farm Environment Management Plan			
33	The Consent Holder shall have and maintain a Farm Environmental Management Plan (FEMP) for the landholding. The FEMP shall, in accordance with Appendix N of (Decisions Version) the Southland Water and Land Plan (or any replacement Appendix in an updated version of the plan), demonstrate how the following outcomes are to be achieved: (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) agricultural effluent and other discharges are	The Consent Holder shall have and maintain a Farm Environmental Management Plan (FEMP) for the landholding. The FEMP shall, in accordance with Appendix N of (Decisions Version) the Southland Water and Land Plan (or any replacement Appendix in an updated version of the plan), demonstrate how the following outcomes are to be achieved: (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) agricultural effluent and other discharges, including excreta, are managed in a way that that first avoids the loss	Excreta added for clarification. Wording suggested by TAMI has been adopted.	"that first avoids the loss of contaminants to water and otherwise minimises loss of contaminants to water in situations where losses can not be entirely avoided" or something along those lines so that the first responsibility is to avoid

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow ~~V6 highlighted in green~~	**Capil Grove comments** V4 highlighted in yellow ~~V6 highlighted in green~~	**Te Ao Marama Inc comments** ~~V5 highlighted in aqua please~~
	managed in a way that avoids or minimises the loss of contaminants to water.	~~of contaminants to water and otherwise minimises loss of contaminants to water in situations where losses can not be entirely avoidedavoids or minimises the loss of contaminants to water.~~		
34	The FEMP required by Condition 32 shall also 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. Advice Note: Should the use of a Freshwater Farm Plan be required or available, on the basis that it is certified under section 217G of the Resource Management Act 1991 (as amended from time to time in accordance with section 217E(2) or (3)) and available for use, the Consent Holder may elect to use such plan.	The FEMP required by Condition ~~32~~ 33 shall also include, but not be limited to: (?) a purpose statement detailing the intent of the FEMP and an overarching farm specific statement of intent as to how the environment should be managed; (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) identification of the location, design and management mitigation devices, including: (i) riparian planting; (ii) sediment detention structures; (iii) wetland and settling structures. (c) A copy of the Riparian Planting Plan, required by Condition 29, providing the location and management of riparian planting. Details on pest weed and animal controls and infill planting shall be included; (d) details of the implementation, inspections and maintenance of mitigation measures required by the conditions of this consent, including but not limited to the devices listed above , managing runoff around critical source areas such as races, gateways, bridges, culverts, water troughs and shelter planting; (e) the identification of cropping and planting regimes that have the potential to assist with reducing nutrient leaching and runoff. This should include the use of plant species such as plantain; (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.	HL – have added wording to make it clear that there 3 three specific mitigation structures/actions (in addition to general mitigation requirements). We discussed the need for inspections and ensuring methodology and purpose met ongoing. This has been added to the adjacent condition. Agreed, no further changes	Good to have the mitigations specified in this way and anticipated as part of the FEMP

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
		Advice Note: Should the use of a Freshwater Farm Plan be required or available, on the basis that it is certified under section 217G of the Resource Management Act 1991 (as amended from time to time in accordance with section 217E(2) or (3)) and available for use, the Consent Holder may elect to use such plan.		
35	The FEMP shall 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 30 September 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).			
36	The Consent Holder shall 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.			
37	The Consent Authority may require the Consent Holder to have the farming activity as authorised by this consent independently audited, in accordance with Appendix 2, 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.			
	Mitigation			
29	The Consent holder shall prepare and implement a Riparian Planting Plan for the farm that includes the use of native plants. This plan shall be prepared within 6 months, and begin being implemented within 12 months, of the consent being granted and be incorporated into the Consent Holder's Farm Environmental Management Plan required by Condition 32. The plan required by this condition shall be provided to Te Ao Marama Inc. (office@tami.maori.nz).			
30	The Riparian Planting Plan required by Condition 27 shall include, but not be limited to the areas below: (a) the planting of both sides of the waterway that runs from at or about NZTM 1251517E 4873933N and finishing at or about 1251565E 4872301N, as per Appendix 2;	The Riparian Planting Plan required by Condition 2~~7~~9 shall include, but not be limited to plantings in the areas below: ~~(a) the planting of both sides of the waterway that runs from at or about NZTM 1251517E 4873933N and finishing at or about 1251565E 4872301N, as per Appendix 2;~~	Capil Grove agrees to undertaking additional riparian planting. The locations of these plantings will be provided on a map that is being generated.	We would prefer to view the riparian management plan prior to agreeing to this condition or for the condition to include specific parameters to enable certainty.

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
	(b) the planting of both sides of the waterway that runs from at or about NZTM 1251027E 4873269N and finishing at or about 1251376E 4872255N, as per Appendix 2; (c) the planting of both sides of the waterway that runs from at or about NZTM 1251069E 4872691N and finishing at or about 1249718E 4872471N, as per Appendix 2; (d) the planting of the duck pond areas at or about NZTM 1249898E 4873053N and 1251261E 4872475N; and (e) the planting of the 8 hectare peat wetland area referred to in the application as the gorse block, at or about NZTM 1251190E 4873343N, as per Appendix 2.	~~(b) the planting of both sides of the waterway that runs from at or about NZTM 1251027E 4873269N and finishing at or about 1251376E 4872255N, as per Appendix 2;~~ ~~(c) the planting of both sides of the waterway that runs from at or about NZTM 1251069E 4872691N and finishing at or about 1249718E 4872471N, as per Appendix 2;~~ ~~(d) the planting of the duck pond areas at or about NZTM 1249898E 4873053N and 1251261E 4872475N; and~~ ~~(e) the planting of the 8 hectare peat wetland area referred to in the application as the gorse block, at or about NZTM 1251190E 4873343N, as per Appendix 2.~~ (a) at or about NZTM 1251517E 4873933N; (b) at or about NZTM 1251517E 4873933N; (c) at or about NZTM 1251517E 4873933N; (d) at or about NZTM 1251517E 4873933N; The areas above are shown on Figure X provided in Appendix 2.	HL – have restructured this and next 2 conditions to align with the undertaking to provide for: (i) riparian planting; (ii) sediment detention structures; (iii) wetland and settling structures. [Carl – please draw on map the location of at least 4 areas that can be planted. Don't have to be large areas. Can include areas away from streams. Once you have marked them up we will work out their location and populate above]	The wetland creation was included in our pre-hearing advice. Has the applicant not considered this?
AD		The Consent Holder shall design and install sediment detention structures. The design and management of these will be detailed in the FEMP. The Consent Holder shall construct at least one structure within 12 months of this consent being granted, with at least a further one constructed within 24 months. Advice note: Potential locations for sediment traps are shown on Figure ? attached as Appendix 2 and include: (e) in paddock X at or about NZTM 1251517E 4873933N; (f) in paddock X at or about NZTM 1251517E 4873933N; (g) in paddock X at or about NZTM 1251517E 4873933N; (h) in paddock X at or about NZTM 1251517E 4873933N;	[Carl – please draw on map the location of at least 4 paddocks where sediment structures can be used.]	
AC		The Consent Holder shall design and install wetland and sediment settling structures. The design and management of these will be detailed in the FEMP. The Consent Holder shall construct at least one structure within 12 months of this consent being granted, with at least a further one constructed within 24 months.	Sediment traps are a further mitigation solution possible and being offered in this case. The intention is to develop one structure in the first year and then gradually add more with design refined by operational experience. A map is being prepared with likely options for where these structures can be placed.	We would prefer to see the timelines and map prior to agreeing to this condition. Also need to identify objective and purpose of the traps in terms of their location and design.

Capil Grove Conditions – 10 March 2023 – Version 643

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow V6 highlighted in green	Capil Grove comments V4 highlighted in yellow V6 highlighted in green	Te Ao Marama Inc comments V5 highlighted in aqua please
		Advice note: Potential locations for sediment traps are shown on Figure ? attached as Appendix ? and include: (i) at or about NZTM 1251517E 4873933N; (j) at or about NZTM 1251517E 4873933N; (k) at or about NZTM 1251517E 4873933N; (l) at or about NZTM 1251517E 4873933N;	As the exact location can not be determined at this stage, potential locations are added as as advice noted. Carl – please draw on map the location of at least 3 locations	
31	The Consent Holder shall utilise plantain in their re-grassing program. The plantain content shall be recommended by a suitably qualified seed representative and shall be detailed in the FEMP required by condition 32.	~~The Consent Holder shall utilise plantain in their re-grassing program. The plantain content shall be recommended by a suitably qualified seed representative and shall be detailed in the FEMP required by condition 32.~~ The Consent Holder shall utilise pasture species and available technologies that assist to reduce nutrient losses to water". Analysis of the suitability of available technologies shall be detailed in the FEMP required by condition 33	This still developing technology, of which there is debate as to its effectiveness. research is suggesting that while effective there is the need for a high % in pasture. plantain may not be needed. Can put a requirement to look at developing technologies, including pasture species, into FEMP. Agree to incorporate	Useful to provide a specific link in conditions to be delivered in the FEMP but difficult if the requirement is simply to investigate technologies and pastures species rather than implement - could it be something like "utilise pasture species and available technologies that assist to reduce nutrient losses to water" and then the FEMP details
32	The Consent Holder shall cultivate; (a) with the contour of the land being used for cultivation and shall not cultivate up and down the slope; and (b) no less than 5 metres from the outer edge of any surface water body or natural wetland unless for the purpose of renewing or establishing pasture in accordance with Rule 25(b) of the Proposed Southland Water and Land Plan (Decisions Version), or any subsequent replacement versions.			
38	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 the tangata whenua 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			

Draft Capil Grove – 444 Dairy Conversion - Land Use AUT2022022-04				
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow V6 highlighted in green	**Capil Grove comments** V4 highlighted in yellow V6 highlighted in green	**Te Ao Marama Inc comments** V5 highlighted in aqua please
	with any National Environmental Standards Regulations, relevant plans and/or the Environment Southland Regional Policy Statement; (c) Amending the auditing/monitoring/recording/reporting/modelling 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 or National Policy Statement for Freshwater Management; and (f) Requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment as a result of the exercise of this permit.			

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
1	This resource consent shall not be exercised until Discharge Permit AUTH-20211143-02 is surrendered or has expired.			
2	This consent shall be exercised in conjunction with Land Use Consent AUTH-20222055-04 and Land Use Consent AUTH-20222554.			
3	This consent authorises the discharge of dairy shed effluent, wintering barn effluent and silage pad effluent ("agricultural effluent") onto land, via a land disposal system consisting of a stone trap, sump, weeping wall and sludge bed, winter barn weeping wall, winter barn sump 1 and sump 2 and two synthetically lined effluent storage ponds to low rate pods and slurry tanker, as described in the application (APP-20222055) for resource consent dated 5 April 20221, additional application dated 27 April 20222, additional AEE dated 27 April 20223 and additional information responses dated 6 September 2022 and 17 September 20224. The activity shall be limited to: (a) The discharge to land of agricultural effluent generated from milking of up to 640 cows up to twice per day; (b) The discharge to land of agricultural effluent via a low rate pod system and a high rate slurry tanker; (c) The discharge of agricultural effluent to an area of XXX hectares as per the plan attached as Appendix 1; (d) The discharge of effluent from a silage pad no larger than XXXXm3; (e) The discharge to land of winter barn effluent generated from the use of two winter barns between 1 May and 30 September (inclusive). Advice Note: Routine monitoring inspections of this consent may occur up 2 times a year. This number does not include any other required inspections.			
4	No cows shall be milked in accordance with this consent until the effluent storage capacity specified in condition 17 has been completed as per Land Use Consent AUTH-20222554.			
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.			

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow **V6 highlighted in green**	Capil Grove comments V4 highlighted in yellow **V6 highlighted in green**	Te Ao Marama Inc comments **V5 highlighted in aqua please**
6	The agricultural effluent discharge shall not exceed: (a) A depth of application of 25 millimetres for each individual application, and an instantaneous rate of 10 millimetres per hour via a low rate pod system on Category A land; (b) A depth of application of 10 millimetres for each individual application, and an instantaneous rate of 10 millimetres per hour via a low rate pod system on Category C land; (c) A depth of application of 5 millimetres for each individual application via slurry tanker on Category A and C land.			
7	The minimum return period for the discharge of agricultural effluent to land shall be 28 days.			
8	The agricultural effluent discharge shall not occur when the moisture content of the soils is at or above field capacity.			
9	Nitrogen loading onto any land area as a result of the exercise of this consent shall not exceed 150 kilograms of nitrogen per hectare per year.			
10	This consent does not authorise the discharge of: (a) effluent collected by a feed pad, stand-off pad, calving pad or underpass; and (b) agricultural effluent via high rate slurry tanker on land exceeding 7 degrees in slope (see Appendix 2).			
11	No agricultural effluent discharge shall occur between 1 June and 31 August each year.			
12	No agricultural effluent 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.			
13	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.			
14	The stored or discharged agricultural effluent shall not: (a) form ponds or flow on the land surface, or (b) cause contamination of water.			

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
15	The stored or discharged agricultural effluent shall not cause any odour beyond the boundary of the site (see Appendix 1) that is offensive or objectionable in the opinion of the Council's Compliance Officer.			
16	Spray drift beyond the boundary of the site shall not occur.			
17	The agricultural effluent discharge shall occur via agricultural effluent storage facilities of between 16,136 cubic metres and 18,180 cubic metres combined capacity.			
18	The Consent Holder must maintain at least 500mm of freeboard in the agricultural effluent storage facility at all times.			
19	The Consent Holder shall 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	The Consent Holder shall 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.			
21	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	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) Southland District Council (ph 0800 732 732).			
23	Prior to the first exercise of this consent, the Consent Holder shall prepare and submit to the Consent Authority a Collected Agricultural Effluent Management Plan. The			

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
	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 the stormwater diversion on the system is set up and managed.			
24	Annually or more frequently, the Collected Agricultural Effluent Management Plan shall be reviewed and the outcome of the review provided to the Consent Authority within one month.			
25	If amended at any time, the most recent version of the Collected Agricultural Effluent Management Plan shall be provided to the Consent Authority within one month of the amendment. Advice note: The Collected Agricultural Effluent Management Plan required by Condition 23 may be incorporated into the Farm Environmental Management Plan required by AUTH-20222055-04, and prepared in accordance with Appendix N, of the proposed Southland Water and Land Plan (Decisions Version) (or any updated version of the plan).			
26	A bore or well shall be available for monitoring groundwater quality and shall be: (a) located downstream of the agricultural effluent discharge area; (b) XX metres below the static groundwater level, and screened on the bottom X metres; (c) 50–100 millimetres internal diameter; and (d) used solely for monitoring purposes.	~~A bore or well shall be available for monitoring groundwater quality and shall be:~~ ~~(a) located downstream of the agricultural effluent discharge area; (b) XX metres below the static groundwater level, and screened on the bottom X metres;~~ ~~(c) 50–100 millimetres internal diameter; and~~ ~~(d) used solely for monitoring purposes.~~	The loading rates are v low. Regardless the topography and lithology is such that it would be highly unlikely there would be much deep drainage associated with effluent application. This is especially so as no effluent will be applied when soils are wet.	We support the inclusion of this condition, baseline monitoring should be included.

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow **V6 highlighted in green**	Capil Grove comments V4 highlighted in yellow **V6 highlighted in green**	Te Ao Marama Inc comments **V5 highlighted in aqua please**
			Groundwater levels are not suitable for a monitoring bore. Replace with surface water monitoring condition. Baseline monitoring has begun and is underway.	
BA		The consent hold shall develop a surface water monitoring programme, sampling water quality at a minimum of two sites including: (a) upstream at or about NZTM 1251517E 4873933N; (b) downstream at or about NZTM 1251517E 4873933N; These locations are shown on Figure ? in Appendix 2. Water samples shall be collected for analysis twice annually in February and August and sampled for: (i) Biochemical oxygen demand (ii) Total suspended solids (iii) Total phosphorus (iv) Dissolved reactive phosphorus (v) Total nitrogen (vi) Ammoniacal nitrogen (vii) E.coli (viii) Temperature		
27	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			

Commented [MB2]: Good additional condition - baseline woudl be current operation prior to building the new barn and adding the additional cows so programme needs to have a minimum 12 months prior to the extra cows and barn

Commented [HL3R2]: Agree, underway now.

	Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
	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 or National Policy Statement for Freshwater Management; 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.			

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Winter Barns AUT2022022-03			
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow **V6 highlighted in green**	Capil Grove comments V4 highlighted in yellow **V6 highlighted in green**	Te Ao Marama Inc comments **V5 highlighted in aqua please**
1	This consent shall not be exercised until Land Use Consent AUTH-20211143-03 has been surrendered or expires.			
2	This resource consent authorises the use of land for two winter barns as described in the application for resource consent dated 5 April 20221, additional application dated 27 April 20222, additional AEE dated 27 April 20223 and additional information response dated 6 September 20224. The activity shall be limited to; (a) The use of land for two winter barns for up to 840 cows between 1 May and 30 September (inclusive); and (b) The use of the land for two winter barns during adverse weather conditions.			
3	This consent shall be exercised in conjunction with Discharge Permit AUTH-20222055-01 (or any subsequent variation versions).			
4	The winter barns shall be located as described in the table below; Legal description Part Lot 2 DP 2005 Map Reference of existing winter barn (NZTM 2000) 1250221E 4872531N Property address 444 Springhills Tussock Creek Road Legal description Part Lot 2 DP 2005 Map Reference of new winter barn (NZTM 2000) 1250289E 4872287N Property address 444 Springhills Tussock Creek Road			
5	The winter barns shall not be located within: (a) 50 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; (d) 20 metres of any mapped tile drains; and (e) 20 metres from any property boundaries.			
6	The existing winter barns shall be: (a) No greater than 4,590 m² in area; (b) Constructed with a strip drain along the northern boundary to capture effluent generated	The existing winter barns shall be: ~~(a) No greater than 4,590 m² in area;~~ (b) Constructed with a strip drain along the northern boundary to capture effluent generated in the winter barn;	The size of the barn is irrelevant. There is a requirement to report cow numbers and that should be all that is required. It is unclear the	Have these barns already been consented by the SDC? The application proposes dimensions of barn size. The impact of large barns for us is about landscape.

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Winter Barns AUT2022022-03			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
	in the winter barn; (c) Constructed with a sealed, impermeable base and a minimum depth of 500mm of wood-based material or straw across the base; and (d) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.	~~(c) Constructed with a sealed, impermeable base and a minimum depth of 500mm of wood-based material or straw across the base~~; and (d) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.	environmental impact/effect that barn size would mitigate. There is no need for wood material as the barns are free stall barns. There are a number of different barn farming systems and one uses wood chips – others don't. Regardless, it is unclear how this requirement impacts on the resource consent, specifically environmental outcomes. HL – a larger barn assists with managing effects. It was discussed that it is the number of cows that will develop effects, not the size of the barn. Lindsays have been to see a local composting barn operation as suggested. They have concluded the compositing barn operation is not suitable for the way they intend to develop their farm. They are concerned about animal welfare and still having material to deal with (being composted material – i.e. the manure issues doesn't go away but there is simply managing it in a different way. Composting systems require more floorspace per cow, requiring an even larger shed. It was noted that shed size provided in application to provide idea of scale, just like providing details such as rainfall and river flows. A number of the other issues raised by TAMI are outside the scope of this consent - and SDC/land use issue. It was noted that the barns are not yet consented by SDC –this process needs to be concluded first. We understand rural building and is permitted in rural zone.	We suggested using compostable barns, but we have had no commentary on this. Has the applicant considered this? Agree that this a DP matter rather than RP around barn size - primarily need to know how effluent from the barn will be managed in this context
7	The new winter barns shall be: (a) No greater than 4,380 m² in area; (b) Constructed with a strip drain along the eastern	The new winter barns shall be: ~~(a) No greater than 4,380 m² in area~~; (b) Constructed with a strip drain along the eastern	As above	Same as above

Commented [MB4]: Agree that this a DP matter rather than RP around barn size - primarily need to know how effluent from the barn will be managed in this context

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Winter Barns AUT2022022-03			
Number	Environment Southland Draft (Conditions V1 – 6 March 2022)	Capil Gove (Conditions V2 – 10 March 2022) V4 highlighted in yellow **V6 highlighted in green**	Capil Grove comments V4 highlighted in yellow **V6 highlighted in green**	Te Ao Marama Inc comments **V5 highlighted in aqua please**
	boundary to capture effluent generated in the winter barn; (c) Constructed with a sealed, impermeable base and a minimum depth of 500mm of wood-based material or straw across the base; and (d) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.	boundary to capture effluent generated in the winter barn; (c) ~~Constructed with a sealed, impermeable base and a minimum depth of 500mm of wood-based material or straw across the base~~; and (d) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.		
8	Liquid effluent generated in the winter barns shall be captured and/or scraped into the strip drain, weeping wall ancillary collection sumps which are part of the effluent system authorised by Discharge Permit AUTH-20222055-01 and Land Use Consent AUTH-20222554.			
9	This consent does not authorise the discharge of any liquid effluent or animal and vegetative waste produced as a result of the activity authorised by this consent being undertaken. Advice Note: The Consent Holder shall discharge: (a) the winter barn sludge and associated vegetative matter in accordance with Rule 38 of the Proposed Southland Water and Land Plan (Decisions Version) or any subsequent versions; and (b) the liquid effluent generated from the winter barns in accordance with the conditions of Discharge Permit AUTH-20222055-01 (or any subsequent variation versions).			
10	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 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;			

Capil Grove Conditions – 10 March 2023 – Version 6~~42~~

	Draft Capil Grove - Dairy Conversion - Winter Barns AUT2022022-03			
Number	**Environment Southland Draft (Conditions V1 – 6 March 2022)**	**Capil Gove (Conditions V2 – 10 March 2022)** V4 highlighted in yellow **V6 highlighted in green**	**Capil Grove comments** V4 highlighted in yellow **V6 highlighted in green**	**Te Ao Marama Inc comments** **V5 highlighted in aqua please**
	(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; or (c) Ensuring the Oreti Freshwater Management Unit meets the freshwater objectives and freshwater quality limits set in an operative regional plan or National Policy Statement for Freshwater Management.			

	Draft Capil Grove – Water Permit AUTH-20222055-02			
Number	**Environment Southland Draft (Conditions V1 – 31 March 2022)**	**Capil Gove (Conditions V4 – 31 March 2022)** V4 highlighted in yellow	**Capil Grove comments** V4 highlighted in yellow	**Te Ao Marama Inc Comments** **TAMI Comments V5**
1	This permit authorises the taking of groundwater at the location specified above. The rate of abstraction shall not exceed: (a) 2 litres per second; (b) 85,800 litres per day; and (c) 21,834,000 litres per year. ***Advice Note*** *The Consent Holder must ensure that the bore that water abstraction occurs from can meet the following conditions:* *The bore or well design and headwork's prevent:* - 2 - **AUTH-20222055-02** *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.*	No changes requested		
2	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.			

	Draft Capil Grove – Water Permit AUTH-20222055-02			
Number	**Environment Southland Draft (Conditions V1 – 31 March 2022)**	**Capil Gove (Conditions V4 – 31 March 2022)** V4 highlighted in yellow	**Capil Grove comments** V4 highlighted in yellow	**Te Ao Marama Inc Comments** **TAMI Comments V5**
3	(a) Prior to the first exercise of this consent, the Consent Holder shall install a water meter to record the water take, within an error accuracy range of +/-5% over the meter's nominal flow range. The Consent Holder shall forward a copy of the installation certificate to the Consent Authority within one month of installing the water meter. (b) The water meter shall 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. (c) The Consent Holder shall ensure the full operation of the water meter 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. (d) (i) If a mechanical insert water meter is installed it shall be verified for accuracy each and every year from the first exercise of this consent.			

	Draft Capil Grove – Water Permit AUTH-20222055-02			
Number	**Environment Southland Draft (Conditions V1 – 31 March 2022)**	**Capil Gove (Conditions V4 – 31 March 2022)** V4 highlighted in yellow	**Capil Grove comments** V4 highlighted in yellow	**Te Ao Marama Inc Comments** **TAMI Comments V5**
	(ii) Any electromagnetic or ultrasonic flow meter shall be verified for accuracy every five years from the first exercise of this consent. (iii) Each verification shall 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. These shall be supplied within five working days of the verification, and at any time upon request. (e) The Consent Holder shall maintain a record of the total volume of water abstracted each month. The Consent Holder shall provide this record to the Consent Authority by 31 May each year and at any other time on request.			
4	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.			
5	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 2, should future			

	Draft Capil Grove – Water Permit AUTH-20222055-02			
Number	**Environment Southland Draft (Conditions V1 – 31 March 2022)**	**Capil Gove (Conditions V4 – 31 March 2022)** V4 highlighted in yellow	**Capil Grove comments** V4 highlighted in yellow	**Te Ao Marama Inc Comments** **TAMI Comments V5**
	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.			

Annex E: Clean set of consent conditions

CONDITIONS RELATING TO CAPIL GROVE DAIRY FARM CONSENTS

Draft conditions proposed by CGL post-consultation.

Draft Capil Grove – 444 Dairy Conversion – Land Use AUT2022022-04	
	Proposed CGL Post-consultation
1	This consent shall not be exercised until Land Use Consent AUTH-20211143-01 has been surrendered or expires.
2	Except as modified by conditions of resource consent, the activities authorised by this resource consent shall be carried out in general accordance with the application for resource consent (APP-20222055) and all subsequent information provided during the application and the Farm Environmental Management Plan required by this consent.
3	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.
4	This consent shall be exercised in conjunction with Discharge Permit AUTH-20222055-01, Water Permit AUTH-20222055-02, Land Use Consent AUTH-20222055-03, and Land Use Consent AUTH-20222554, or any subsequent replacement permits. Advice Note: Routine monitoring inspections of this consent may occur up to once a year. This number does not include any other required inspections.
5	The use of land for farming shall occur on the landholding at 444 Springhills Tussock Creek Road, Springhills, as shown on the plan attached as Appendix 1, and comprising of Part Lot 2 DP 2005, Lot 1 DP 12811, Section 298 Forest Hill HUN, Lot 2 DP 13790, Lot 1 DP 4795, Section 517 Forest Hill HUN, Lot 3 DP 13790 and Lot 1 DP 13793, at or about map reference NZTM2000 1249823E 4872356N.
6	The farming activities shall be limited as follows: (a) a maximum milking herd of no more than 640 cows; and (b) a maximum winter milking herd of no more than 640 cows. Advice Note: Milking age cows on the land refers to mature age milking cows on pasture paddocks, however if mature age milking cows are being quarantined outside of the winter barn to prevent contagious ailments from spreading, then this would not be considered a breach of the above condition.
7	During the months of May to September, should soil moisture at ES monitoring site [Makarewa aquifer at Mckinnon Road] be at field capacity for a period of more than 7 continuous days, then cows shall be held in the barn(s) for a minimum of 18 hours per day.
8	The Consent Holder shall notify the Consent Authority the identity of the Person in Charge of the dairy farming activity: (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
9	The Consent Holder shall not graze any young dairy stock, defined as between 4 and 20 months old, on any part of the landholding.
10	Cultivation shall not occur on any part of the landholding over 10 degrees slope (see Appendix 1) unless as part of a pasture renewal programme.
11	Intensive winter grazing shall not occur on any part of the landholding. Advice note: 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.
12	The Consent Holder shall implement a soil testing regime to determine the soil fertility status over the landholding and to develop fertiliser recommendations based on the soil testing results.
13	The Consent Holder shall maintain a record of their soil testing regime, soil testing results and fertiliser recommendations required by Condition 12 within the Farm Environmental Management Plan.
14	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 (iii) 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;

Draft Capil Grove – 444 Dairy Conversion – Land Use AUT2022022-04	
Proposed CGL Post-consultation	
	(iii) within 10 m of any wetland boundary; (iv) within 20 m of any bore; (v) when soil temperature is at or below six degrees Celsius; (vi) when soil moisture capacity is exceeded; and (vii) directly to land within a riparian strip/margin. (c) not apply a combined loading of organic material and synthetic nitrogen fertiliser at a rate of more than 210 kg/ha/year on an individual hectare basis and 190 kg/ha/yr as an average over the landholding.
15	The Consent Holder shall: (a) take representative soil samples at least once every two years and have those samples analysed for Olsen P by a laboratory with IANZ accreditation; (b) if Olsen P levels exceed a range of 24 - 30 the Consent Holder must reduce the amount of P fertiliser being applied to the landholding to ensure the risk of P loss is reduced; and (c) record the Olsen P results required by Condition 14(a) and any fertiliser reduction required by Condition 14(b) in their Farm Environmental Management Plan.
16	The Consent Holder must ensure that nitrogen and phosphorus losses to water from farming activities undertaken on the land are maintained at, or below the baseline contaminant loss rates of: (a) 27 kilograms per hectare per year nitrogen; (i) as estimated by the four-year rolling average loss rates using OVERSEER FM® version 6.5.1 undertaken in accordance with the generally accepted best practice modelling including the applicable Best Practice Data Input Standards/Overseer FM User Guide. (b) 1.9 kilogram per hectare per year phosphorus; (i) as estimated by the four-year rolling average loss rates using OVERSEERFM® version 6.5.1, undertaken in accordance with the generally accepted best practice modelling including the applicable Best Practice Data Input Standards/Overseer FM User Guide; and (ii) information from published New Zealand and Overseas research to estimate the additional phosphorus loss mitigation, beyond that modelled in Overseer, that is likely to occur as a result of the mitigation being implemented in accordance with the FEMP required under this resource consent. For the purposes of this resource consent, the four-year rolling average is defined as the average of the most recent four consecutive years' results starting from 1 July 2023.
17	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 shall: (a) model the nitrogen and phosphorus loss rates for the previous year from 1 July to 30 June inclusive; (b) calculate the four-year rolling average of nitrogen and phosphorus loss rates; and (c) re-model the baseline contaminant loss rates specified in Condition 16 in the current version of Overseer.
18	The re-modelled baseline contaminant loss rates, modelled in accordance with Condition 17(c) shall supersede and replace the baseline contaminant loss rates specified in Condition 16.
19	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 17. 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 with the applicable baseline contaminant loss rates; and (d) the names and summaries of the relevant qualifications and experience of the person(s) who prepared and (if relevant) reviewed the nutrient budget.
20	All nutrient loss 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).
21	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 18; and (b) the use of the alternative model is approved by the Chief Executive of the Consent Authority.
22	The Consent Holder shall undertake maintenance of the existing and any new dairy lanes to ensure they are contoured to ensure that any run-off occurs onto vegetated areas where it will not enter any surface water body
23	The Consent Holder must use best endeavours manage the animal excreta to ensure it does not: (a) accumulate on laneways accumulate in gateways; (b) accumulate in paddocks; or (c) result in the ponding, pooling, overland or lateral flow of any effluent or sludge beyond the dairy lane. Management of critical source areas, including laneways and gateways shall be identified and described in the FEMP as required by condition 34. Advice note: it is appreciated that there will be excreta on laneways and around gates, and the consent holder should ensure there is no direct runoff to waterways (i.e. runoff has to flow over a minimum of 10 m of vegetation before entering a waterway).
24	Except for crossings of surface waterways, the Consent Holder shall not construct any new dairy lanes that direct runoff towards or have a point of laneway runoff within 10 metres of a surface waterbody.
25	The Consent Holder shall inspect prior to the exercise of this consent, and then every 12 months, all bridges and culverts. Based on inspections, and where necessary, undertake improvements to the structures to ensure that there is no animal excreta runoff passing directly to surface water. Records of the inspection shall be kept and made available to the Council on request. The methodology for inspections and record keeping shall be set out in the FEMP as required in condition 33.

Draft Capil Grove – 444 Dairy Conversion – Land Use AUT2022022-04	
Proposed CGL Post-consultation	
26	The Consent Holder shall install any new permanent fencing of any temporarily fenced surface waterbodies with a minimum 3-metre buffer and provide written confirmation, along with date stamped photos, of the new fencing provided to the Consent Authority (EScompliance@es.govt.nz) by 1 July 2023.
27	The Consent Holder shall: (a) Construct a new winter barn, as detailed in the application, at or about NZTM 1250289E 4872287N; and (b) Provide written confirmation, along with date stamped photos, of the fully operational winter barn to the Consent Authority (EScompliance@esgovt.nz) before the wintering barn is operational.
28	The Consent holder shall not allow more than 330 milking cows on the property until the second barn is built, as detailed in condition 27
29	Daily use of the winter barn must be monitored by recording the number of cows and the number of hours spent in the barn. The records of winter barn use must be maintained and supplied to the Consent Authority upon request.
30	The Consent holder shall prepare and implement a Riparian Planting Plan for the farm that includes the use of native plants. This plan shall be prepared within 6 months, and begin being implemented within 12 months, of the consent being granted and be incorporated into the Consent Holder's Farm Environmental Management Plan required by Condition 37. The plan required by this condition shall be provided to Te Ao Marama Inc. (office@tami.maori.nz).
31	The Riparian Planting Plan required by Condition 30 shall include, but not be limited to plantings in the areas below: (a) at or about NZTM 1251517E 4873933N; (b) at or about NZTM 1251517E 4873933N; (c) at or about NZTM 1251517E 4873933N; (d) at or about NZTM 1251517E 4873933N; The areas above are shown on Figure X provided in Appendix 2.
32	The Consent Holder shall design and install sediment detention structures. The design and management of these will be detailed in the FEMP. The Consent Holder shall construct at least one structure within 12 months of this consent being granted, with at least a further one constructed within 24 months. Advice note: Potential locations for sediment traps are shown on Figure ? attached as Appendix 2 and include: (a) in paddock X at or about NZTM 1251517E 4873933N; (b) in paddock X at or about NZTM 1251517E 4873933N; (c) in paddock X at or about NZTM 1251517E 4873933N; (d) in paddock X at or about NZTM 1251517E 4873933N;
33	The Consent Holder shall design and install wetland and sediment settling structures. The design and management of these will be detailed in the FEMP. The Consent Holder shall construct at least one structure within 12 months of this consent being granted, with at least a further one constructed within 24 months. Advice note: Potential locations for sediment traps are shown on Figure ? attached as Appendix ? and include: (e) at or about NZTM 1251517E 4873933N; (f) at or about NZTM 1251517E 4873933N; (g) at or about NZTM 1251517E 4873933N; (h) at or about NZTM 1251517E 4873933N;
34	The Consent Holder shall: Record the design and management of the sediment control structures in required by conditions XX and XX Farm Environmental Management Plan required by Condition 37; and (d) provide written confirmation, along with date stamped photos, of the first fully operational sediment control structure to the Consent Authority (EScompliance@esgovt.nz) by [DATE] 2024 and the second fully operational sediment control structure by [DATE] 2025.
35	The Consent Holder shall utilise pasture species and available technologies that assist to reduce nutrient losses to water". Analysis of the suitability of available technologies shall be detailed in the FEMP required by Condition 33.
36	The Consent Holder shall cultivate: (a) with the contour of the land being used for cultivation and shall not cultivate up and down the slope; and (b) no less than 5 metres from the outer edge of any surface water body or natural wetland unless for the purpose of renewing or establishing pasture in accordance with Rule 25(b) of the Proposed Southland Water and Land Plan (Decisions Version), or any subsequent replacement versions.
37	The Consent Holder shall have and maintain a Farm Environmental Management Plan (FEMP) for the landholding. The FEMP shall, in accordance with Appendix N of (Decisions Version) the Southland Water and Land Plan (or any replacement Appendix in an updated version of the plan), demonstrate how the following outcomes are to be achieved: (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) agricultural effluent and other discharges, including excreta, are managed in a way that that first avoids the loss of contaminants to water and otherwise minimises loss of contaminants to water in situations where losses can not be entirely avoided
38	The FEMP required by Condition 37 shall also include, but not be limited to: (a) a purpose statement detailing the intent of the FEMP and an overarching farm specific statement of intent as to how the environment should be managed; (b) 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; (c) identification of the location, design and management mitigation devices, including: (i) riparian planting; (ii) sediment detention structures; (iii) wetland and settling structures.

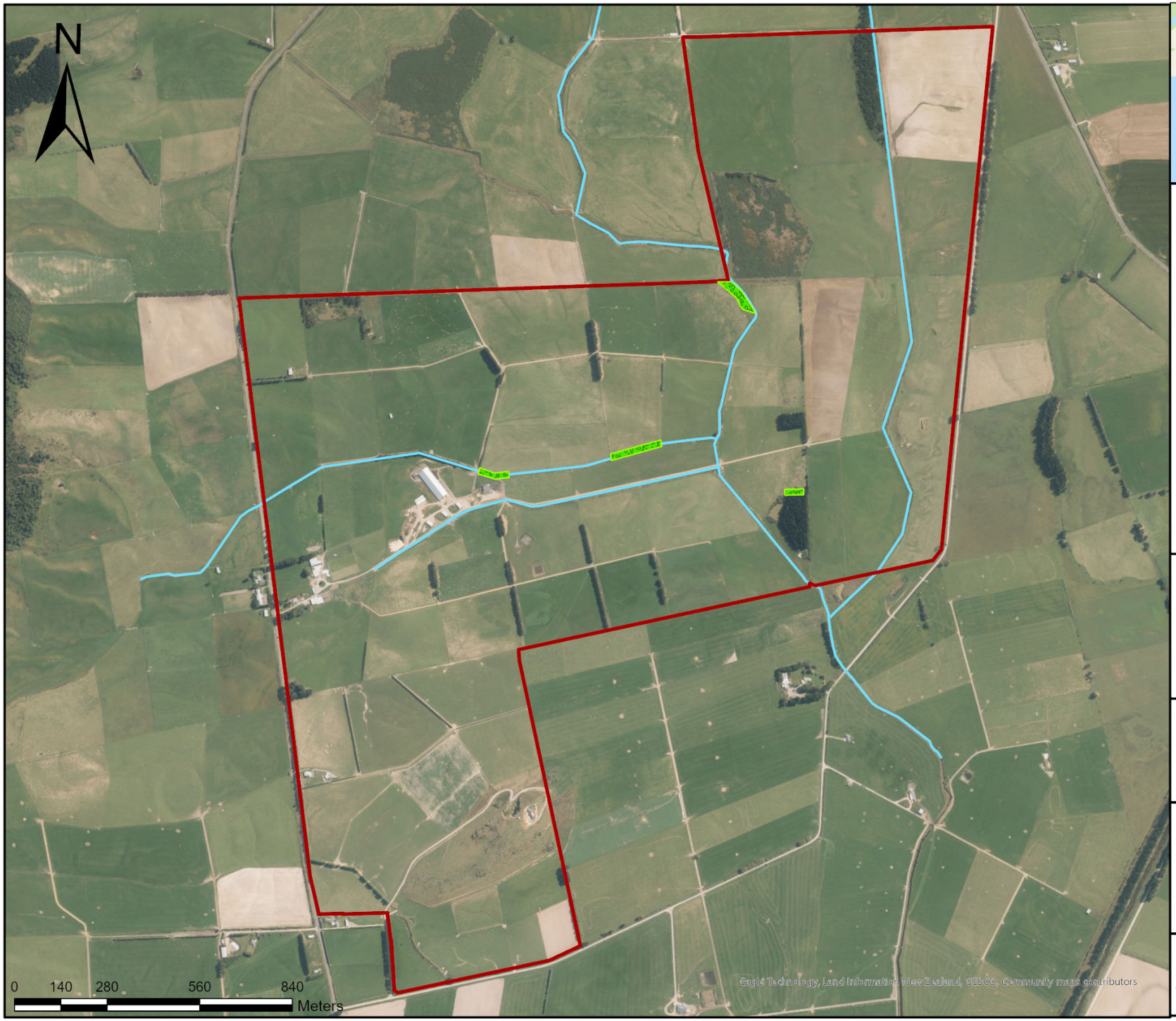
Draft Capil Grove – 444 Dairy Conversion – Land Use AUT2022022-04	
Proposed CGL Post-consultation	
	(d) A copy of the Riparian Planting Plan, required by Condition 29, providing the location and management of riparian planting. Details on pest weed and animal controls and infill planting shall be included; (e) details of the implementation, inspections and maintenance of mitigation measures required by the conditions of this consent, including but not limited to the devices listed above , managing runoff around critical source areas such as races, gateways, bridges, culverts, water troughs and shelter planting; (f) the identification of cropping and planting regimes that have the potential to assist with reducing nutrient leaching and runoff. This should include the use of plant species such as plantain; (g) 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; (h) 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. Advice Note: Should the use of a Freshwater Farm Plan be required or available, on the basis that it is certified under section 217G of the Resource Management Act 1991 (as amended from time to time in accordance with section 217E(2) or (3)) and available for use, the Consent Holder may elect to use such plan.
39	The FEMP shall 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 30 September 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).
40	The Consent Holder shall 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.
41	The Consent Authority may require the Consent Holder to have the farming activity as authorised by this consent independently audited, in accordance with Appendix 2, 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.
42	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 the tangata whenua 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; (c) amending the auditing/monitoring/recording/reporting/modelling programme to be undertaken; (d) adding or adjusting compliance limits; (e) ensuring the Ōreti Freshwater Management Unit meets the freshwater objectives and freshwater quality limits set in an operative regional plan or National Policy Statement for Freshwater Management; and (f) requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment as a result of the exercise of this permit.

Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01	
	Proposed CGL Post-consultation
1	This resource consent shall not be exercised until Discharge Permit AUTH-20211143-02 is surrendered or has expired.
2	This consent shall be exercised in conjunction with Land Use Consent AUTH-20222055-04 and Land Use Consent AUTH-20222554.
3	This consent authorises the discharge of dairy shed effluent, wintering barn effluent and silage pad effluent ("agricultural effluent") onto land, via a land disposal system consisting of a stone trap, sump, weeping wall and sludge bed, winter barn weeping wall, winter barn sump 1 and sump 2 and two synthetically lined effluent storage ponds to low rate pods and slurry tanker, as described in the application (APP-20222055) for resource consent dated 5 April 20221 , additional application dated 27 April 20222 , additional AEE dated 27 April 20223 and additional information responses dated 6 September 2022 and 17 September 20224 . The activity shall be limited to: (a) the discharge to land of agricultural effluent generated from milking of up to 640 cows up to twice per day; (b) the discharge to land of agricultural effluent via a low rate pod system and a high rate slurry tanker; (c) the discharge of agricultural effluent to an area of 272 hectares, as per the plan attached as Appendix 1; (d) the discharge of effluent from a silage storage facility no larger than XXXX m3 ; (e) the discharge to land of winter barn effluent generated from the use of two winter barns between 1 May and 30 September (inclusive). Advice Note: Routine monitoring inspections of this consent may occur up to two times a year. This number does not include any other required inspections.
4	No cows shall be milked in accordance with this consent until the effluent storage capacity specified in condition xx has been completed as per Land Use Consent AUTH-20222554.
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.
6	The agricultural effluent discharge shall not exceed: (a) a depth of application of 25 millimetres for each individual application, and an instantaneous rate of 10 millimetres per hour via a low rate pod system on Category A land; (b) a depth of application of 10 millimetres for each individual application, and an instantaneous rate of 10 millimetres per hour via a low rate pod system on Category C land; (c) a depth of application of 5 millimetres for each individual application via slurry tanker on Category A and C land.
7	The minimum return period for the discharge of agricultural effluent to land shall be 28 days
8	The agricultural effluent discharge shall not occur when the moisture content of the soils is at or above field capacity.
9	Nitrogen loading onto any land area as a result of the exercise of this consent shall not exceed 150 kilograms of nitrogen per hectare per year.
10	This consent does not authorise the discharge of: (a) effluent collected by a feed pad, stand-off pad, calving pad or underpass; and (b) agricultural effluent via high rate slurry tanker on land exceeding 7 degrees in slope (see Appendix 2).
11	No agricultural effluent discharge shall occur between 1 June and 31 August each year.
12	No agricultural effluent 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
13	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
14	The stored or discharged agricultural effluent shall not: (a) form ponds or flow on the land surface, or (b) cause contamination of water
15	The stored or discharged agricultural effluent shall not cause any odour beyond the boundary of the site (see Appendix 1) that is offensive or objectionable in the opinion of the Council's Compliance Officer.
16	Spray drift beyond the boundary of the site shall not occur
17	The agricultural effluent discharge shall occur via agricultural effluent storage facilities of between 16,136 cubic metres and 18,180 cubic metres combined capacity.
18	The Consent Holder must maintain at least 500 mm of freeboard in the agricultural effluent storage facility at all times.
19	The Consent Holder shall 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	The Consent Holder shall 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.
21	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	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) Southland District Council (ph 0800 732 732).
23	Prior to the first exercise of this consent, the Consent Holder shall prepare and submit to the Consent Authority a Collected Agricultural Effluent Management Plan. The Collected Agricultural Effluent Management Plan shall:

Draft Capil Grove - Dairy Conversion - Discharge AUT2022022-01	
	Proposed CGL Post-consultation
	(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 the stormwater diversion on the system is set up and managed.
24	Annually or more frequently, the Collected Agricultural Effluent Management Plan shall be reviewed and the outcome of the review provided to the Consent Authority within one month.
25	If amended at any time, the most recent version of the Collected Agricultural Effluent Management Plan shall be provided to the Consent Authority within one month of the amendment. Advice note: The Collected Agricultural Effluent Management Plan required by Condition 23 may be incorporated into the Farm Environmental Management Plan required by AUTH-20222055-04, and prepared in accordance with Appendix N, of the proposed Southland Water and Land Plan (Decisions Version) (or any updated version of the plan).
26	The consent hold shall develop a surface water monitoring programme, sampling water quality at a minimum of two sites including: (a) upstream at or about NZTM 1251517E 4873933N; (b) downstream at or about NZTM 1251517E 4873933N; These locations are shown on Figure ? in Appendix 2. Water samples shall be collected for analysis twice annually in February and August and sampled for: (i) Biochemical oxygen demand (ii) Total suspended solids (iii) Total phosphorus (i) Dissolved reactive phosphorus (ii) Total nitrogen (iii) Ammoniacal nitrogen (iv) E.coli (v) Temperature
27	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 Ōreti Freshwater Management Unit meets the freshwater objectives and freshwater quality limits set in an operative regional plan or National Policy Statement for Freshwater Management; 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.

Draft Capil Grove - Dairy Conversion – Winter Barns 20222055-03	
Number	**Proposed CGL post-consultation**
1	This consent shall not be exercised until Land Use Consent AUTH-20211143-03 has been surrendered or expires.
2	This resource consent authorises the use of land for two winter barns as described in the application for resource consent dated 5 April 2022[1] , additional application dated 27 April 2022[2] , additional AEE dated 27 April 2022[3] and additional information response dated 6 September 2022[4] . The activity shall be limited to: (a) the use of land for two winter barns for up to 840 cows between 1 May and 30 September (inclusive); and (b) the use of the land for two winter barns during adverse weather conditions
3	This consent shall be exercised in conjunction with Discharge Permit AUTH-20222055-01 (or any subsequent variation versions).
4	The winter barns shall be located as described in the table below: Legal description Part Lot 2 DP 2005 Map Reference of existing winter barn (NZTM 2000) 1250221E 4872531N Property address 444 Springhills Tussock Creek Road Legal description Part Lot 2 DP 2005 Map Reference of new winter barn (NZTM 2000) 1250289E 4872287N Property address 444 Springhills Tussock Creek Road
5	The winter barns shall not be located within: (a) 50 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; (d) 20 metres of any mapped tile drains; and (e) 20 metres from any property boundaries.
6	The existing winter barns shall be: (a) Constructed with a strip drain along the northern boundary to capture effluent generated in the winter barn;; and (b) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.
7	The new winter barns shall be:; (a) Constructed with a strip drain along the eastern boundary to capture effluent generated in the winter barn; (b) Constructed with nibbed edges to prevent overland flow beyond the perimeter of two winter barns.
8	Liquid effluent generated in the winter barns shall be captured and/or scraped into the strip drain, weeping wall ancillary collection sumps which are part of the effluent system authorised by Discharge Permit AUTH-20222055-01 and Land Use Consent AUTH-20222554.
9	This consent does not authorise the discharge of any liquid effluent or animal and vegetative waste produced as a result of the activity authorised by this consent being undertaken. Advice Note: The Consent Holder shall discharge: (a) the winter barn sludge and associated vegetative matter in accordance with Rule 38 of the Proposed Southland Water and Land Plan (Decisions Version) or any subsequent versions; and (b) the liquid effluent generated from the winter barns in accordance with the conditions of Discharge Permit AUTH-20222055-01 (or any subsequent variation versions).
10	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 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; or (c) ensuring the Oreti Freshwater Management Unit meets the freshwater objectives and freshwater quality limits set in an operative regional plan or National Policy Statement for Freshwater Management.

Draft Capil Grove - Dairy Conversion – Water Permit 20222055-02	
Number	**Proposed CGL post-consultation**
1	This permit authorises the taking of groundwater at the location specified above. The rate of abstraction shall not exceed: (a) 2 litres per second; (b) 85,800 litres per day; and (c) 21,834,000 litres per year. ***Advice Note*** The Consent Holder must ensure that the bore that water abstraction occurs from can meet the following conditions: The bore or well design and headwork's 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.
2	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.
3	(a) Prior to the first exercise of this consent, the Consent Holder shall install a water meter to record the water take, within an error accuracy range of +/-5% over the meter's nominal flow range. The Consent Holder shall forward a copy of the installation certificate to the Consent Authority within one month of installing the water meter. (b) The water meter shall 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 five times the diameter of the pipe. (c) The Consent Holder shall ensure the full operation of the water meter 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. (d) (i) If a mechanical insert water meter is installed it shall be verified for accuracy each and every year from the first exercise of this consent. (ii) Any electromagnetic or ultrasonic flow meter shall be verified for accuracy every five years from the first exercise of this consent. (iii) Each verification shall 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. These shall be supplied within five working days of the verification, and at any time upon request. (e) The Consent Holder shall maintain a record of the total volume of water abstracted each month. The Consent Holder shall provide this record to the Consent Authority by 31 May each year and at any other time on request.
4	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.
5	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 2, should 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.



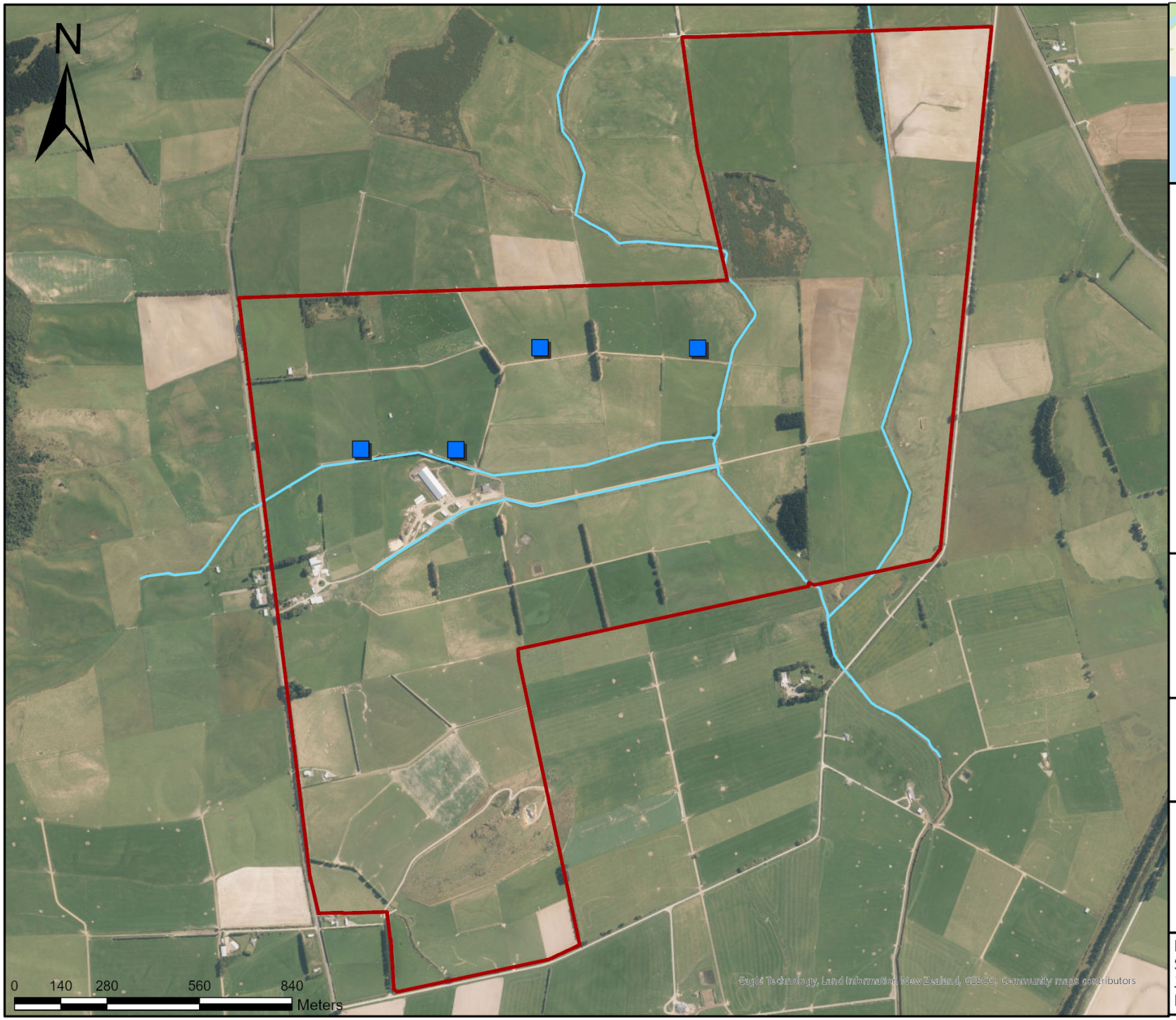
Boundary
Waterways
Proposed riparian areas

Capil Grove Ltd

Proposed Riparian Planting

L O W E
Environmental
I m p a c t

Date/Time: 13/04/2023 9:56 am
Scale: Not to scale
Job number: 10740
Map ID: 05



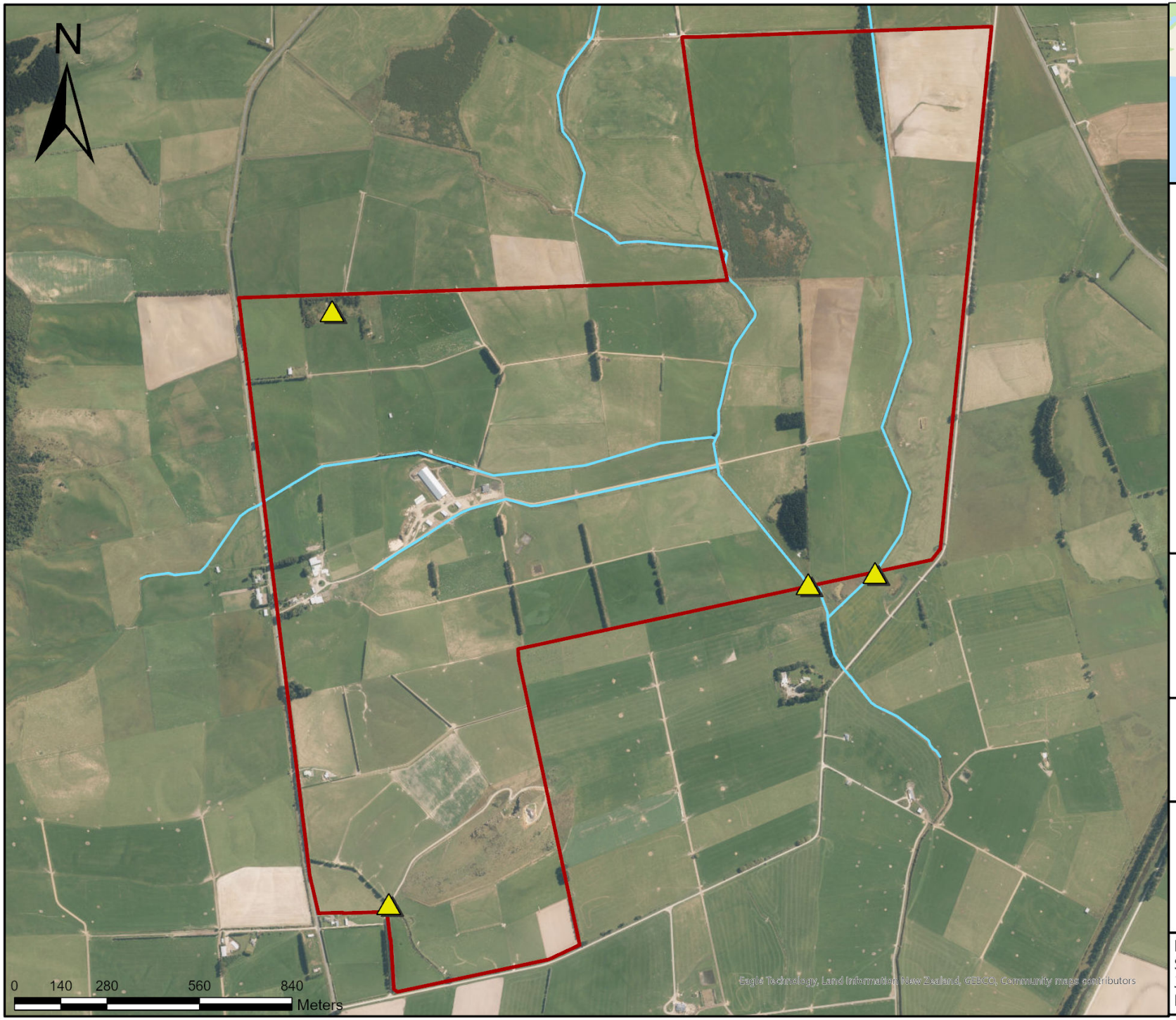
Boundary
Waterways
Proposed detention bunds

Capil Grove Ltd

Proposed Detention Bunds

L W E
Environmental
I m p a c t

Date/Time: 13/04/2023 4:00 pm
Scale: Not to scale
Job number: 10740
Map ID: 06



Boundary

Waterways

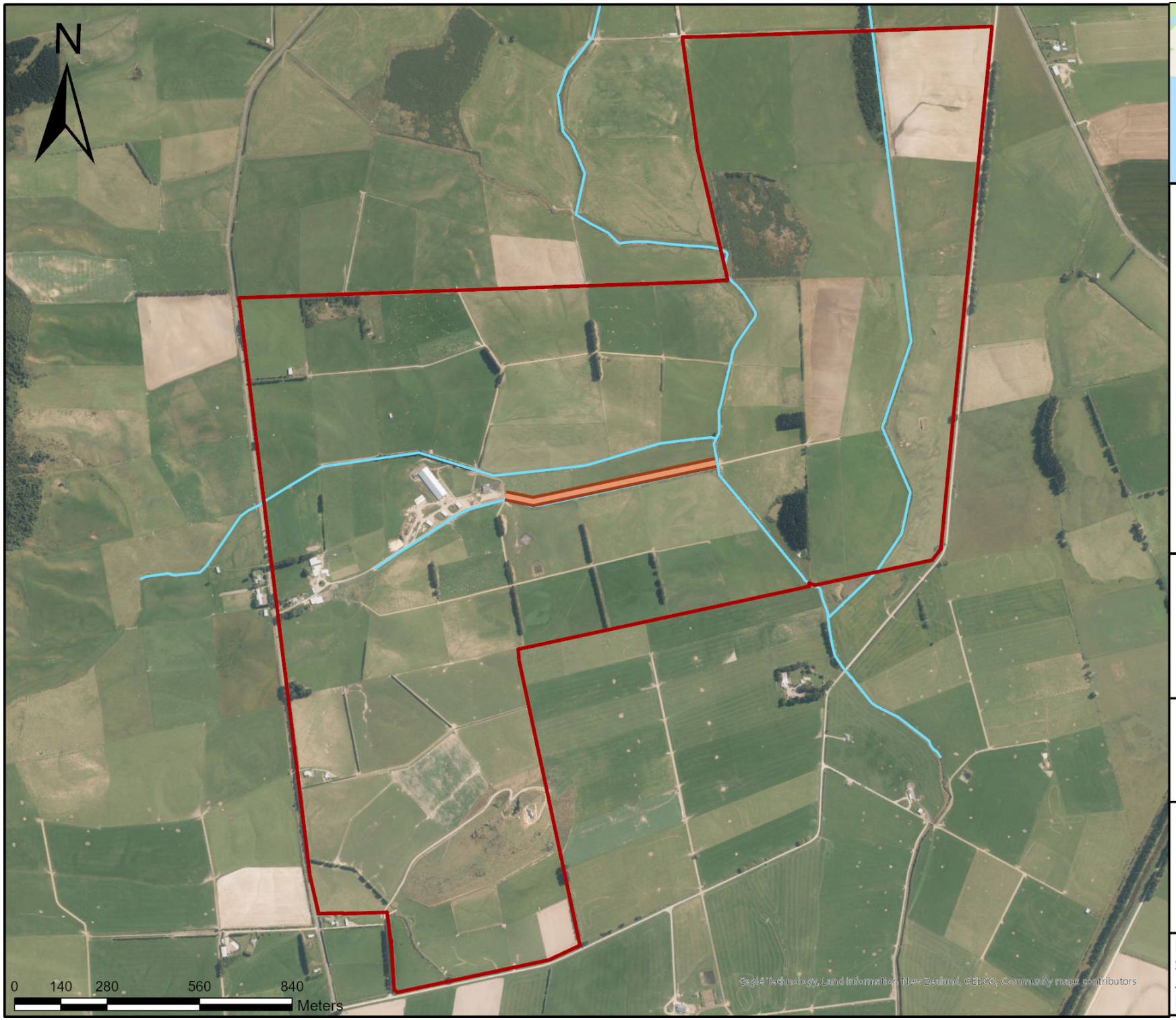
Proposed sediment traps/ wetlands

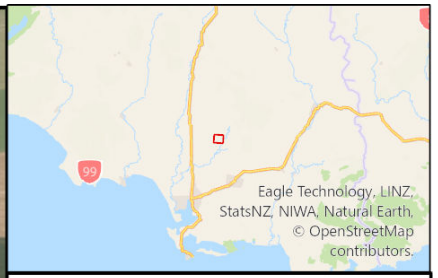
Capil Grove Ltd

Proposed Sediment Traps/ Wetlands

L O W E Environmental Impact

Date/Time: 13/04/2023 3:57 pm
Scale: Not to scale
Job number: 10740
Map ID: 07





Boundary
Waterways
Relocated laneway

Capil Grove Ltd

Relocated Laneway

L O W E
Environmental
I m p a c t

Date/Time: 23/05/2023 3:38 pm
Scale: Not to scale
Job number: 10740
Map ID: 08