

In the matter of	the Resource Management Act 1991
And	a submission and further submissions on Proposed Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments (PPC1)
Submitters' Names:	The land Farm Group Limited (“The land”) Ata Rangi (2015) Limited Partnership (“Ata Rangi”) Southern Pastures Limited Partnership (“Southern Pastures”)
Submission Numbers:	The land submitter number: 82022 Southern Pastures submitter number: 74062
Hearing Topics:	Block 3 C7: Commercial vegetable production C8: Alternative approaches – including sub-catchment planning C9: Farm Environment Plans
Type of Evidence:	Primary
Witness:	Dr Debbie Anne Care
Date:	5 th July 2019

STATEMENT OF EVIDENCE OF DR DEBBIE ANNE CARE

SUMMARY STATEMENT

Role and relevant experience

1. My full name is **Debbie Anne Care** and I am an Independent Environment Consultant.
2. My qualifications and experience are set out my statement of evidence in chief on Block 2, dated 8 May 2019. However, for completeness I set out my key qualifications below.
3. I hold a New Zealand Certificate of Science, from Waikato Institute of Technology, a Bachelors' Degree in Earth Science from Waikato University, Hamilton, a Master of Science Degree (1st Class Honours) in Plant Science from Waikato University, Hamilton and a PhD in Botany from Auckland University, Auckland.
4. I also hold Post graduate qualifications in Nutrient Management (Intermediate and Advanced) and in Effluent System Design from Massey University. I have also completed a Farm Dairy Effluent Hydraulic Design Course. I am a certified assessor and was involved in the development and research for the Farm Dairy Effluent Warrant of Fitness programme.

Code of conduct

5. I have read the Environment Court's Code of Conduct for Expert Witnesses contained in the Environment Court's Practice Note 2014 and I agree to comply with it. In that regard, I confirm that this evidence is within my area of expertise except where I state that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

BACKGROUND

6. I have been engaged by Theland Farm Group Limited (“Theland”), Southern Pastures Limited Partnership (“Southern Pastures”) and Ata Rangi (2015) Limited Partnership (“Ata Rangi”) (“the Submitters”) to review the Block 3 section 42A report and provide evidence in response on the following matters:
- (a) Sub-catchment approaches;
 - (b) Enterprise approach to management of contaminants; and
 - (c) Content and implementation of Farm Environment Plans (“FEPs”).
7. I am aware that these topics have a planning component in that the provisions of Proposed Plan Change 1 (“PPC1”) prescribe how the approaches or tools are to be implemented (or not). I do not intend to comment on planning matters which are outside my expertise. My evidence focuses on the environmental science aspects relevant to each and I also comment on the practical aspects of the approaches, based on my knowledge and experience working in the field.

Sub-catchment approaches

8. The Submitters support the concept of “sub-catchment approaches”. The Submitters supported Policy 9 and did not seek specific relief in relation to the same. However, the Submitters sought amendments to Policy 2 to incorporate sub-catchment considerations (refer to Attachment A). Theland Tahī sought the addition of a new policy regarding considerations for diffuse discharges and sub-catchment approach.
9. The s42A report authors do not support sub-catchment approaches as part of the regulatory framework, and that the whole catchment should be the unit of measure for improving water quality. The s42A report authors consider that improvement at sub-catchment level

might not add to a cumulative improvement within the entire catchment.

10. I disagree. Sub-catchments are recognised in PPC1 and are identified as the unit of management within Freshwater Management Units and the whole of Waikato and Waipa catchments.
11. In my opinion, the cumulative impact of many small changes throughout the catchment network is one of the most sustainable, pragmatic and workable solutions. Smaller communities engaged at a scale that is tangible to them, and that they can see the effects of land use and improvements “in their neighbourhood”, is a more sustainable model for long-term improvement of water quality. It makes the task a more manageable option which is relevant and immediate to that community. Some of the most successful water quality outcomes have been from small sub catchment approaches, with all the small improvements adding up to a larger total improvement. (I note that my Block 2 evidence including a discussion on the benefits of a sub-catchment approach.)
12. In my view, it would seem appropriate that a sub-catchment approach be part of the regulatory framework and not just voluntary. That is because there is no clear pathway in PPC1 currently which incentivise the use of sub-catchments.

“Enterprise” approach

13. The Submitters support the consent of an “enterprise” approach. Southern Pastures sought specific relief on the definition.
14. The s42A authors’ view is that the complexities created using the “enterprise” approach are such that the whole concept should be deleted from PC1

15. The enterprise approach, although it may need some context clarification, should stay as an option – it is a valuable option in the toolbox.
16. Not all properties within an entity’s ownership may have contiguous boundaries. In fact, many farms have a runoff block that can be at some distance from the farm but is an integral part of that farming business and it would not be appropriate to consider this as two separate businesses.
17. Retaining an enterprise approach means that mitigations can be used in the place within the enterprise that gives the most effect to decreasing contaminant loads. It gives more choice for smarter mitigation options. Greater environmental benefit may be seen fencing off and planting a head-waters that exists on a runoff block, so that the land that is better suited to animal production can be utilised for this. More innovative, effective options with use of land being able to be targeted for its best use would accord with an enterprise approach. An enterprise approach also allows for a more streamlined approach, give more choice, where as a per property approach will be more piecemeal and prescriptive and may not give the desired outcomes.

FARM ENVIRONMENT PLANS

18. The Submitters sought better certainty regarding the content and level of detail required for Farm Environment Plans (“FEP”).
19. The recommendations of s42A report authors are best summarised in the tracked changes within the rewritten schedule 1 – they are substantial and are not listed here in their entirety. I will address some of the points individually.
20. I agree with many of the proposed amendments. I consider these to be generally helpful and provide a workable framework. While it is

relatively prescriptive, the framework is simpler to implement and audit. A similar approach has also been used in other regions (e.g. Canterbury) and having some national consistency means that we are able to learn from other regions.

Points that need clarification

21. The following part of my evidence discusses those points in the draft FEP template which require clarification (set out in italicised font).

Part A 2a) ii “performance measures that are capable of being reviewed as set out in part C”

22. A performance measure is not stated in Part 2A, and it is not clearly defined in part C. This needs to be articulated and defined so that what is meant by a performance measure is understood.

Part B 2a) The boundaries of the property or land areas being farmed

23. What is meant by land areas being farmed is not clear. There may be land on the property that is not farmed. This confuses the issue. I suggest that this is redefined as enterprise.

Part B 2b) The boundaries of the main land management units or land uses on the property of within the farm enterprise

24. I support the use of the term enterprise in this context.

Part B Objective 1 – Principle 2 – maintain accurate and auditable records and management practices

25. What is required to be kept for records of management practices – this is not clear and open to interpretation.

Part B Objective 2 – Principle 5 –Manage the amount and timing of fertiliser inputs, taking account of all sources of nitrogen and phosphorus, to match plant requirements and minimise risk of losses

26. This should be modified to read “Manage the amount and timing of **nutrient** inputs, taking account of all sources of nitrogen and phosphorus, to match plant requirements and minimise risk of losses” as this will take into account effluent nutrient inputs.

Part B Objective 2 – Principle 6 – Store and load fertiliser to minimise risk of spillage, leaching and loss to waterbodies

27. This should be modified to read “Store and load **nutrients** to minimise risk of spillage, leaching and loss to waterbodies.”

Part B Objective 3 Principle 9. Farm in a manner that does not result in farm nitrogen losses exceeding the 75thile for the FMU or...

28. There is nothing that follows the word “or”. This should be deleted.

Part B. Objective 7 Principle 18: Ensure the effluent system meets industry specific Code of Practice or equivalent standard

29. It is not clear what the “equivalent standard” means. There is an Industry Code and Practice and Standards. These should be used and the reference to “or equivalent standard” should be deleted.

Part B. Objective 7 Principle 19; Have sufficient storage available for farm effluent and wastewater and actively manage effluent storage levels

30. The word “sufficient” is subjective. There are industry standards and tools used to calculate this. The amount of storage that is currently required is 90% cdf value from the Dairy Effluent Storage Calculator (DESC). This should be used to define “sufficient” i.e., “Farm effluent storage should be calculated using the Dairy Effluent Storage Calculator and meet a minimum capacity of the 90% cdf as measured by the DESC.”
31. In addition, the words “Actively manage effluent storage levels” do not clearly say that pond levels should be managed as low as practicable so there is always capacity available when needed. I

recommend that this is reworded to say “Actively manage effluent storage levels as low as practicable”.

Part B. Objective 7 Principle 21; Apply effluent to pasture and crops at depths, rates and times to match plant requirements and soil water holding capacity

32. Current industry tools for calculating effluent storage capacity only consider the hydraulic loading on the soil and soil water holding capacity. This principle includes to match plant requirements. This means that effluent should not be applied when plants are not actively growing. For example, in June the soils may be dry enough to apply effluent, but the soil temperature is so low there will be little or no plant growth. With the current industry recommendation being calculated using the DESC (which only considers the hydraulic parameters) many storage ponds will not be large enough to take nutrient uptake by plants into consideration.

Part D – FEP changes. Unless otherwise required by the Waikato Regional Council in accordance with any conditions of the resource consent changes can be made to the FEP without triggering the need for a review by the CFEP

Point 3 – The nature of the change is documented in writing and made available to any CFEP undertaking a review or to the Waikato Regional Council on request

33. How changes can be made to the FEP has implications for the professional responsibility that could sit with the Certified Farm Environment Planner that signs off on the FEP. I suggest that this be changed to read:

The nature of the change is documented in writing and made available to the **original CFEP writer**, or any CFEP undertaking a review or to the Waikato Regional Council on request

Conclusion

34. I have made comment on three main areas within the Block 3 S42A report. In summary:

- (a) **Sub-catchments** – I support the use of sub-catchment approaches as a tool to better manage effects of farming activities on water quality. While I am not a planner, it seems counter intuitive to reject the approach as part of the regulatory framework because there is no clear pathway in the current rules and provisions which incentivise the use of sub-catchments.
- (b) **Enterprise** – I disagree with the proposal to delete the enterprise approach. In my opinion, such an approach provides options to enable more innovative and sustainable solutions to management of nutrient/contaminant loss to achieve better environmental outcomes.
- (c) **Farm Environment Plans** – the changes that have been made to Schedule 1 and FEP content are largely an improvement and provide a workable solution that is more prescriptive but gives a framework that is simpler to implement and audit. Changes have been suggested where clarification or content matter needs to be amended.



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Dr D. A. Care

5th July 2019

Attachment A**Relief sought by the Submitters as referred to in this evidence**

35. Southern Pastures sought amendments to Policy 2 to incorporate sub-catchment considerations (see attachment A).

AMEND Clause d) of Policy 2(d) to read: "d. Requiring the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens to be proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and proportionate to the scale of water quality improvement required in the sub-catchments which is capable of being achieved in the short-term taking into account the particular characteristics of each sub-catchment;..."

ADD a NEW clause that reads: "da. Providing for and allowing opportunity for offset mitigation between properties or enterprises which will achieve the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens proportionate to the amount of current discharge and proportionate to the scale of water quality improvement required in the sub-catchments capable of being achieved in the period to 2026, taking into account the particular characteristics of each sub-catchment."

36. Theland Tahī sought the following relief in relation to Policy 2:

Amend policy 2 to include a new clause which provides for and allows opportunity for offset

mitigation between properties or enterprises which will achieve the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens proportionate to the amount of current discharge and proportionate to the scale of water quality improvement required in the sub-catchments capable of being achieved in the period to 2026, taking into account the particular characteristics of each sub-catchment.

37. Theland Tahi sought the following relief regarding a new policy for sub-catchment approaches:

Add new policy (e.g., 12A) to address reason for submission

Reasons for submission:

The particular features and characteristics of sub-catchments are relevant to the management approach for the various contaminants. As such, the development of sub-catchment management plans based on research and data regarding subcatchment profiles is a useful and necessary tool for achieving the outcomes sought for improved water quality in the short term and long term. This should be linked to the relative contribution of the industry sector of the farming enterprise and level of investment etc., by a farming enterprise and implementation of best practice/good practice or most practicable action (or similar).

38. Theland Tahi sought the following relief to add a new method re: sub-catchment profiles:

Add new method to address reasons for submission.

Reason for submission:

In light of the relief sought to focus on sub-catchment management of diffuse discharges of nutrients, it is appropriate that a new method is added which recognises this and identifies the relevant research and data required to implement a sub-catchment approach and plan for the long term/future plan changes.

39. Theland Tahī sought the following “general relief”:

Theland Tahī seeks relief in general terms which:
Focuses on a sub-catchment, best management practice/good management/most practicable actions (or similar) approach to farming activity rules which do not rely on "grand-parented" N values; Amends and/or adds objectives, policies, methods and rules to provide flexibility for land use and land use change in order to achieve an overall benefit for the sub-catchment in respect of diffuse discharges of the nutrients targeted by PPC1/V1 (not restricted to N); Amends provisions to provide clarity and certainty for farming activities; and for the avoidance of doubt, in addition to the particular relief set out in this submission, Theland Tahī seeks any further and/or consequential relief which will address the reasons for its submission and/or the relief sought, including in relation to the section 32 evaluation prepared by WRC. The outcomes sought and suggested wording should be treated as a suggestion only. All suggested amendments are intended to include "or words to

that effect". The outcomes sought may also require consequential changes elsewhere in the text of the plan change to give effect to the relief sought and reasons for submission.

40. Southern Pastures sought the following relief regarding the definition of "enterprise":

Provide confirmation that the term 'enterprise' is not restricted to a single dairy unit and may include more than one dairy unit in circumstances where the land is held in single ownership to support the principal land use. AND AMEND the definition of 'Enterprise/s' to read as follows (or similar to address reasons for submission): "Enterprise/s: means one or more parcels of land held in single or multiple ownership under the ultimate common control of one owner or entity to support the principal land use, which may include more than one dairy unit, or land which the principal land use is reliant upon, and constitutes a single operative unit for the purposes of management. An enterprise is considered to be within a sub-catchment if more than 50% of that enterprise is within the sub-catchment, except that where the enterprise falls within more than one sub-catchment it may nevertheless be treated as a single enterprise if the land parcels are contiguous."

41. Theland Tahi sought the following relief regarding FEPs:

Further and better particulars regarding WRC's expectations as to standard and content, including relevance of sub-catchment characteristics and best management/most practicable actions (or similar).

Add new definition or amend existing definition for the term to be included in FEPs and other provisions referred to elsewhere in submission where the concept of best practice/good practice or most practicable action (or similar) is referred to.