

Gay Gibson

From: Gavin Kemble <g.kemble@ryderconsulting.co.nz>
Sent: Friday, 24 October 2014 2:11 p.m.
Subject: Rangitata Diversion Race Management Limited Submission to Variation 2 to the proposed Canterbury Land & Water Regional Plan
Attachments: Ryder consulting logo_small.jpg; ATT00001.htm; T2014-96_GDK_241014_Letter_SubLodgement.pdf; ATT00002.htm; T2014-96_GDK_241014_Submission_Final.pdf; ATT00003.htm
Categories: Purple Category

To whom it may concern,

Please find enclosed a submission lodged on behalf of the Rangitata Diversion Race Management Limited to Variation 2 to the proposed Canterbury Land & Water Regional Plan.

If you would kindly confirm receipt of this email that would be appreciated.

Regards Gavin Kemble

Gavin Kemble
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24th of October 2014

Submissions on Variation 2 to the proposed Canterbury Land and Water Regional Plan
Environment Canterbury
PO Box 345
CHRISTCHURCH 8140

By Email: *mailroom@ecan.govt.nz*

Dear Sir/Madam,

CANTERBURY PROPOSED REGIONAL POLICY STATEMENT REVIEW

1.0 Introduction

This letter supports the submissions from Rangitata Diversion Race Management Limited ('**RDRML**') to the Variation 2 to the proposed Canterbury Land and Water Regional Plan ('**V2**').

2.0 RDRML's interests in the Canterbury Region

RDRML is a water supply company responsible for the (i) delivery of water to its shareholders, and (ii) maintenance, control and management of the Rangitata Diversion Race ('**RDR**') and its associated structures. The 67 kilometers long RDR, which is located wholly in the Ashburton District, provides water to:

- The Mayfield Hinds Irrigation Scheme, which irrigates 36,000 hectares of land;
- The Valetta Irrigation Scheme, which irrigates 11,000 hectares of land;
- The Ashburton Lyndhurst Irrigation Scheme, which irrigates 28,000 hectares of land;
- The Montalto Hydroelectric Power Station, which has a generation capacity of 1.8MW;
- The Highbank Hydroelectric Power Station, which has a generation capacity of 28MW; and
- The Ashburton District Council for stock water purposes.

Put simply, the diversion race takes water from the Rangitata and South Ashburton Rivers at a maximum rate of 35.4 cubic metres per second, and delivers it to the power stations in winter (when demand for electricity is high) and to the three irrigation schemes (being the Mayfield Hinds, Valetta and Ashburton Lyndhurst Schemes) in summer. The irrigation schemes have priority of access to water in the summer, which is when the demand for irrigation is high, while the power stations have priority of access outside of the irrigation season. The RDR is the largest race that supplies water for

irrigation in New Zealand. Its supply of water to the two hydroelectric power stations enhances the efficiency of its operation.

Together, the RDR, the irrigation schemes, and the hydroelectric power stations are a nationally significant resource. Given the presence of significant parts of the RDR within the Hinds Plains area, the RDRML has a keen interest in the V2, and the direction it advances.

3.0 General Comments

The RDRML is concerned that V2 has the potential to adversely affect both the operation and maintenance of the RDR and the development of the same, along with a number of other activities, including but not limited irrigation and agricultural activities.

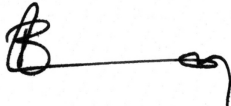
This submission focuses on the RDRML's key areas of concern and provides the Company's comments with regard to V2. The submission also provides recommended amendments and proposes the re-wording of the V2 to address the RDRML's concerns to particular provisions within the same.

4.0 Conclusion

Please do not hesitate to contact myself, or Gavin Kemble (of Ryder Consulting Limited) should you wish to discuss this submission. The RDRML wishes to be heard in support of its submissions and if others make a similar submission, the RDRML would be prepared to consider presenting a joint case with them at any hearing.

Yours Faithfully

Rangitata Diversion Race Management Limited

A handwritten signature in black ink, appearing to be 'Ben Curry', written over a horizontal line.

Ben Curry
Chief Executive Officer

Table 1: Rangitata Diversion Race Management Limited Submission to VARIATION TWO to the proposed Canterbury Land and Water Regional Plan – Section 13 Ashburton

No.	Provision	Submission	Requested Relief
1.	Section 13.0 (text to be inserted before the heading '13.1')	<p>The Rangitata Diversion Race Management Limited is opposed (in part) to and supports (in part) the proposed additions to section 13.0.</p> <p>The Rangitata Diversion Race Management Limited is concerned that the text that is to be inserted prior to the heading in section 13.1 (which the Rangitata Diversion Race Management Limited reads as being an extension to the 'preamble') is not balanced in a manner that both reflects, and is needed to give effect to, the purpose of the Resource Management Act 1991 (hereafter referred to as 'the Act'). Section 5(2) of the Act is clear that sustainable management is about more than protecting or maintaining the biophysical and metaphysical elements of the environment. In this regard, section 5(2) makes it plain that social and economic matters are also of considerable importance when giving effect to the Act's sustainable management purpose.</p> <p>Given this context, it is disappointing that the proposed additions to the preamble do not focus on the social and economic benefits and associated considerations that arise from activities and uses, such as agricultural endeavour in mid-Canterbury, with the focus instead being on the adverse effects that can be generated as a consequence of these activities. The Rangitata Diversion Race Management Limited (hereafter referred to as either 'the Company' or 'the RDRML') is firmly of the opinion that for the preamble to appropriately reflect the Act's purpose, it must acknowledge both the positive and adverse consequences of agricultural endeavour in the Hinds/Hekeao Plains Area (hereafter referred to as 'the Plains').</p> <p>The fifth paragraph of the proposed additions to the preamble boldly asserts that "<i>[w]ater resources are now showing signs of stress</i>". This is, in the Company's opinion, an overstatement. In this regard, the information presented in support of Variation 2 (hereafter referred to as 'V2') is clear that concentrations of pathogens, phosphorus (hereafter referred to as 'P') and sediment are of concern in some of the drains that traverse the Plains, but not necessarily in all of the drains, or in the lower reaches of the Hinds River (hereafter referred to as 'the Lower Hinds River'). Given this, some qualification of the statement made in the fifth paragraph is needed.</p> <p>The eighth and ninth paragraphs of the additions to the preamble discuss a series of mechanisms and targets that V2 imposes. Having taken advice on the practicability of the mechanisms and targets, the RDRML is of the opinion that:</p> <ol style="list-style-type: none"> 1. Reducing the nitrogen (hereafter referred to as 'N') losses from farming activities in the Lower Hinds/Hekeao Plains Area (hereafter referred to as the 'Lower Plains') by 45 percent, by 2035 may be theoretically achievable, but the Company questions if it is practicable, appropriate or would give effect to the sustainable management purpose of the Act. In this regard, while the Company is aware of mechanisms that could, in theory, achieve this requirement, implementing the mechanisms will, in all likelihood, make several types and 'scales' of farming uneconomic on the Plains. Should this occur, it will, the Company understands, have social consequences for the Plains, and indeed the greater Canterbury Region, that could cut across the principle of sustainable management (as it is expressed by section 5 of the Act). A better approach would, in the Company's opinion, be to set either a percentage reduction or an actual reduction target that is achievable, and will not unacceptably affect profitability. It expects that this will require the target to be achieved over a longer timeframe than is presently contemplated. <p>Furthermore, the 45 percent reduction seems predicated on the decrease that is needed for the N losses to achieve the 3,400 tonnes per year (hereafter referred to as 'tN/yr') set out in Table 13(g) for the Lower Plains. Advice provided to the Company concludes that the N loss figures employed in V2 have been derived using a sub-optimal methodology and thus are unlikely to reflect the N that is being lost to the soils and groundwater that exist below the root zone. Equally, advice provided to the Company is that the methodology over estimates the effectiveness of the 'N loss mitigation tools' that are presently available and which seem likely to be available in the future. In this respect, the advice suggests that the existing losses are likely to be in the order of double that which has been estimated (existing losses of 4,600 tN/yr have, the Company understands, been estimated using the sub-optimal methodology). This being the case, a much larger percent reduction is likely to be needed to achieve the 3,400 tN/yr target. Given the issues associated with achieving a 45 percent reduction, and thus the 3,400 tN/yr target by 2035, the Company is particularly concerned that an requirement for an even greater percent reduction has the potential to cause significant adverse social and economic effects, particularly when existing research suggests that a 15% reduction in N is both affordable and achievable, and that requiring greater reductions are likely to undermine farm profitability substantially.</p> <p>Given the foregoing, the Company is of the opinion that prior to setting a definitive % reduction (or replacing the reference</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <ol style="list-style-type: none"> (a) That the proposed additions to the preamble be extended so as to acknowledge the importance of agricultural endeavour to the Plains, and its direct link to the social and economic wellbeing of those people and communities that reside therein, and/or provide services that support the endeavour; (b) That the first sentence of the fifth paragraph of the additions to the preamble be amended to read: <ul style="list-style-type: none"> "<i>Some water resources are now showing signs of stress</i>", (c) That the eighth and ninth paragraphs of the additions to the preamble be amended to: <ol style="list-style-type: none"> i. Replace the references to '45%' and '2035' with the figures derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission, while also adding text to ensure that it is clear that the % reduction or actual reduction, the timeframe for that reduction, and the achievement of 3,400 tN/yr, are targets (goals), and not limits; ii. Add text to make it plain that the 3,400 tN/yr target will be revisited and, potentially, modified (using a mechanism that is set out in V2) as the methodology for calculating this load improves / becomes more certain; iii. EITHER: <ul style="list-style-type: none"> • Refer to a definition of 'good management practice' which accords with that set out in Annexure B to this submission; OR IN THE ALTERNATIVE • Delete the reference to good management practices being implemented by 2017 and replace it with a date that reflects the programme of work that is set out in Annexure D to this submission; iv. Delete the references to the reductions that need to be achieved by 'dairying' and 'dairy support' activities, and replace that text with a series of stepped reductions that apply across the Plains. When deriving the stepped reductions that should apply, the methodology set out in Annexure A of this submission should be employed; v. Delete the reference to the discharge rate of 27 kgN/ha/yr, and replace it with a more accurate and appropriate rate (or rates) that is derived in accordance with the methodology set out in Annexure C of this submission; vi. Insert an appropriate timeframe for the achievement of the average annual concentration of 6.9 mgN/l in the groundwater, having appropriate regard to the outcomes of the comprehensive and detailed assessment undertaken in accordance with requested relief (c)(i); vii. Recognise that water storage proposals could provide a source of water for MAR, and that this should be seen as a potential positive effect of such proposals; viii. Make it plain that the average annual groundwater concentration of 6.9 mgN/l is a target, and not a limit; and ix. Define the term 'target' so that it is clear that when used in V2 it is referring to an aspiration goal(s), and is not a limit(s). (d) Retain the second sentence of the tenth paragraph (which reads "<i>Provision is made for switching from surface water or hydraulically connected groundwater to deep groundwater</i>") unchanged, but ensure that the rules of V2 give effect to, and do not frustrate this outcome; and (e) Any similar and/or consequential amendments that stem from the changes and/or additions described above.

No.	Provision	Submission	Requested Relief
		<p>to ‘% reductions’ with a reference to ‘actual reduction’) and associated timeframe for the achievement of the same, a comprehensive and detailed investigation needs to be undertaken. Annexure A to this submission sets out the methodology that should, in the Company’s opinion, be followed to derive, amongst other things, the % reduction or actual reduction that should be applied, and the timeframe associated with the achievement of the same.</p> <p>Further, given the uncertainties that are associated with achievement of a 45% reduction, it is critical, in the RDRML’s opinion, that the % reduction or actual reduction, the timeframe for the reduction, and the achievement of 3,400 tN/yr annual discharge rate of the Lower Plains, are clearly set and treated as targets throughout V2. This is a matter that needs to be reinforced in the proposed additions to the preamble, and is something that is also addressed elsewhere in this submission.</p> <p>Further still, expert advice to the RDRML is that there are very likely to be improvements to the way that the catchment loads are calculated over the life of V2. Given the importance of the 3,400 tN/yr target within V2, and its link to the actions that will required of those farming on the Plains, it would be appropriate, in the Company’s opinion, for a mechanism to be inserted into the Variation that enables the 3,400 tN/yr target to be revisited and recalculated, as the methodology for calculating this load improves / becomes more certain.</p> <p>2. Requiring all farming activities to operate in accordance with ‘good management practice’ by 2017 may not be possible, given that the phrase ‘good management practice’ is not yet appropriately defined (the Company understands that a definition is to be codified and inserted into the proposed Canterbury Land and Water Plan (‘the pLWRP’) (via a plan change) by October of 2016. If the interpretation of ‘good management practice’ changes from what the Company presently understands it to be, it is possible that parties would only have a matter of months to implement it to achieve the approach that is being advanced in V2. This is unreasonable and inappropriate.</p> <p>The Company accepts that good management practices have a place in V2, and supports their adoption, subject to an appropriate definition being adopted and applied. An appropriate definition is set out in Annexure B to this submission. Should this definition not be acceptable to the Council, then a longer period will be required if significant adverse economic and social effects are to be avoided. In that regard, each farmer will need sufficient time to take advice as to the good management practices that need to be applied to their property(ies) and then to implement those practices/systems. Annexure D to this submission sets out a programme that could be implemented to achieve this. This programme has been derived by farm advisors that have considerable experience and expertise in the application of such processes.</p> <p>3. It is inappropriate to target dairy farming and dairy support activities as uses that need to reduce their N losses beyond the reductions that will be felt by the adoption of good management practices. Not only will this approach not achieve the target reduction that is presently sought (45%), but it is inequitable and does not recognise the contribution that is made by all agricultural and horticultural activities to N losses. A better approach, in the Company’s opinion, would be to carefully prescribe stepped reductions that apply to all activities. When setting the stepped reductions, the Company asks that the Council utilise the methodology that is set out in Annexure A. The Company submits that this methodology will result in percentages that achieve the various biophysical and metaphysical outcomes that are sought by V2, albeit over a longer time period, while ensuring that any adverse social and economic effects are acceptable.</p> <p>4. The reference to the N losses for land use change and intensification not exceeding 27 kilograms per hectare per annum (hereafter referred to as ‘kgN/ha/yr’) is inappropriate on the basis that it was not derived using an appropriate methodology. A better approach would be to apply the methodology attached as Annexure C to this submission to derive a more robust, and thus appropriate, rate (or rates) of losses. Not doing so will, in the Company’s opinion, result in unacceptable constraints being imposed on new farming uses and activities, with associated unacceptable effects on the social and economic wellbeing of the people and communities in and abutting the Plains. The RDRML notes that the rate of 27 kgN/ha/yr has been derived using a methodology and approach developed and proposed by Macfarlane Rural Business Limited (hereafter referred to as ‘MRB’). The Company understands that when applied in ‘Central Plains’ (of Canterbury) the MRB methodology and approach has predicted discharge rates that have been found to be, approximately, 25% below the actual discharges. It also understands that MRB is now applying revised a methodology and approach that results in higher rates (than those it previously estimated) being produced. Given the social and economic consequences associated with the discharge rates, these rates must, in the RDRML’s opinion, be derived using best practice, and draw on the best available data. The methodology set out in Annexure C will, in the Company’s opinion, give a more realistic, and thus appropriate, N loss rate.</p>	

No.	Provision	Submission	Requested Relief
		<p>5. The proposed 80% (lowland spring-fed streams) and 90% (the Lower Hinds River / Hekeao – hereafter referred to as ‘the Hinds River’) protection levels for aquatic species are appropriate. While noting that the annual average concentration of N in groundwater (of 6.9 milligrams of nitrate-N per litre of water – or ‘mgN/l’) sought by V2 is derived using the New Zealand Drinking Water Standards (but is calculated on the average annual concentration in the soil drainage water and thus is conservative), the advice to the RDRML is that it is a pragmatic target (but not a limit), based on what the Council believes can be achieved. Given that the achievement of this level requires, in part at least (the achievement of the 3,400 tN/yr target will, the Company understands, result in a annual average drainage concentration of 9.9 mgN/l and the addition of approximately 4 m³/s to 5 m³/s of managed aquifer recharge to get to 6.9mgN/l) a reduction in the N losses from the root zone of the soil, the Company is of the opinion that requiring its achievement by 2035 is likely to be both unrealistic and result in an array of unacceptable social and economic effects that, it expects, would run contrary to the Act’s purpose. It will, therefore, be important to ensure that the achievement of this target is revisited after the completion of the comprehensive and detailed investigation set out in Annexure A of this submission. Doing so will ensure that an appropriate timeframe for the achievement of this target is applied. It is also important, in the opinion of the Company, that the term ‘target’ be defined so as to make it plain that the values stated are neither to read as, nor treated as a limit. To ensure that such a definition does not have unintended consequences for other provisions of the pLWRP, it would be appropriate that this definition only apply to the area that is regulated by V2.</p> <p>6. While supporting (in principle) Targeted Stream Augmentation (hereafter referred to as ‘TSA’) and Managed Aquifer Recharge (hereafter referred to as ‘MAR’), the Company is concerned that both will need to be carefully evaluated (particularly MAR) and tested before it is possible to determine if they will provide the degree of assistance needed to reduce the target annual average groundwater concentration of nitrate-N to the 6.9 mg/l. The Company notes, in particular, that:</p> <ol style="list-style-type: none"> a. It is not obvious to the Company or its advisors where the water needed for TSA and MAR will come from, particularly when the surface water bodies / courses which might supply the TSA/MAR water are said to be fully allocated. While it may be possible to reallocate water from existing users (either with their agreement or by reducing the amount allocated when an activity is ‘reconsented’), neither option is, in the Company’s opinion, certain. A preliminary review of the existing ‘take’ / abstraction resource consents suggests that insufficient surface water is available to achieve the 4 to 5 cubic metres per second (or ‘cumecs’) needed to support MAR at the level that will, or is likely to, achieve the 6.9 mgN/l target. A further alternative could be to source water from a water storage reservoir(s), but this outcome seems unlikely unless new water storage proposals are advanced through the design, resource consent, building permit and construction processes. The sources of the water needed for MAR and TSA should, in the Company’s opinion, be acknowledged as being linked to the implementation of these mechanisms, and, thus, needs to be enabled by V2 (to the extent that is consistent with Part 2 of the Act); b. The level of MAR anticipated has the potential to raise groundwater levels, particularly in low-lying areas, and areas in close proximity to the coast. This could, in turn, result in adverse environmental outcomes, which is likely to include constraining the farming activities that may be undertaken on the land that sits above the elevated groundwater levels. Such outcomes have the potential to cut across what V2 seeks to achieve, and could occur in a manner that it not consistent with the Acts purpose; and c. The promotion of MAR suggests that water race distribution networks should be maintained, as they are a very effective means of widely distributing the groundwater recharge waters. This would seem to run contrary to the outcomes that are sought by V2, where irrigation waters are conveyed under pressure (and thus in pipe networks) to enable spray irrigation. <p>Given these concerns, the RDRML is of the opinion that, when referring to the average annual groundwater concentration of 6.9 mgN/l, V2 must be clear that it is a target, and not a limit. It would, for instance, be inappropriate for that concentration to be set as a limit (either directly or by implication). If this were not the case, it seems likely that the implementation of further N loss mitigation would be required, were MAR to be found to be unsuccessful, or to cause unacceptable effects on groundwater tables. If this outcome were to occur, the most appropriate response would, in the Company’s opinion, be for the Council to revisit the matters addressed in V2 and to complete a new section 32 analysis in light of the same. This could result in the need for the Council to promulgate a further plan change, or series of plan changes. The Company reiterates that in order to ensure that the target is neither read as, nor treated as a limit, the term ‘target’ should be defined, for the purposes of V2 and the area that it applies to.</p> <p>The eleventh paragraph of the proposed additions to the preamble states that switching takes (abstractions) of surface water or hydraulically connected surface water to deep groundwater is to be enabled in V2. While supporting the ability for existing abstractors to voluntarily make this change, the Company notes that the Council has reduced the Mayfield-Hinds groundwater</p>	

No.	Provision	Submission	Requested Relief
		<p>allocation from 148 million cubic metres per year (hereafter referred to as 'Mm³/yr') to 122.25 Mm³/yr. The RDRML understands this value represents the amount of ground water that is presently allocated. Put another way, the Company understands that there is no further water available for allocation. Rule 13.5.31 (which provides a mechanism for surface water and hydraulically connected groundwater takes to 'convert' to deep groundwater) makes no reference to the allocation set within Table 13(f) (which is presently Table 14). Rule 5.128 of the pLWRP does, however, apply and requires that new takes (which the groundwater takes would be, albeit new ground water takes replacing an existing surface water / hydraulically connected groundwater abstraction) comply with the relevant groundwater allocation. Any take that cannot comply with a relevant groundwater allocation is a prohibited activity in accordance with Rule 5.130, which also continues to apply. It is not within the scope of V2 to change either Rule 5.128 or 5.130 of the pLWRP, so a change is needed to the rules of V2 in order to give effect to the outcome sought in the eleventh paragraph of the proposed additions to the preamble.</p> <p>Please note, and further to the preceding comments (and those that are made in submissions 2 to 18) regarding the social and economic impacts of a number of the provisions advanced by V2, the Company records that it is concerned about the adequacy and robustness of the section 32 evaluation report that accompanied V2. In this regard, the RDRML considers that the section 32 evaluation report is inadequate as it does not contain a level of detail that corresponds to the scale and significance of the economic effects that are anticipated from the implementation of V2. Further, in examining whether the provisions of V2 were the most appropriate way to achieve the objectives (by assessing the efficiency and effectiveness of the provisions in achieving the objectives), it did not identify and assess the benefits and costs of the economic effects that are anticipated from the implementation of V2, including the opportunities for economic growth or employment that are anticipated to be provided or reduced. Finally, the section 32 evaluation report did not quantify those benefits and costs when it would have been practicable to do so.</p> <p>Lastly, In order to assist the Council, the RDRML proposes to undertake the investigations referred to in Submission 1 (and, variously, throughout submissions 2 to 17) following the methodologies set out in Annexures A and C. It intends to present the outcome of the investigations to the Council as soon as they become available, which could be at the hearings of the submissions and further submissions.</p>	
2.	Section 13.1A: Definitions	<p>The RDRML is opposed (in part) to the proposed addition of section 13.1A.</p> <p>While noting that V2 seeks to insert a definition of the phrase 'Good Management Practice Nitrogen Loss Rates', the RDRML notes that there is no corresponding definition of the phrase 'Good Management Practice'. The absence seems nonsensical, particularly given that determining when a farm type is operating at 'good management practice' is central to determining what the 'Good Management Practice Nitrogen Loss Rate' is.</p> <p>The advice provided to the RDRML is that determining what constitutes 'good management practice' is subjective, and that there is a high level of divergence in the views of prominent (and well qualified and experienced) farm advisors on this matter. Given the need for certainty and clarity in the provisions of the pLWRP, the Company requests that the Council amend section 13.1A by adding a definition of the phrase 'Good Management Practice'. Not doing so would, in the Company's opinion, run contrary to good planning and resource management practice, as it could lead to inconsistency in the application of a key component of V2.</p> <p>For the reasons set out in Submission 1, the Company also asks that an additional definition of the term 'target' be inserted into section 13.1A. It is crucial, in the RDRML's opinion, that the term 'target' not be construed to be a limit. In that regard, to do so in the context of V2 would not recognise the considerable uncertainty associated with accuracy, appropriateness and practicability of the targets that V2 seeks to establish.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) That the following definition of 'Good Management Practice' be inserted into section 13.1A of the pLWRP:</p> <p><i>"means the implementation of the measures and practices set out in Schedule 24b – Good Management Practices.";</i></p> <p>(b) Create a new schedule, entitled '24b – Good Management Practices' and populate that schedule with the detail set out in Annexure B to this submission;</p> <p>(c) That the following definition of 'Target'</p> <p><i>"means, when used in the context of the Hinds/Hekeao Plains Area, an aspiration goal that the Council will, working with the community of the Hinds/Hekeao Plains, work to achieve, to the extent that is practicable, appropriate and accords with the purpose of the Resource Management Act 1991.";</i></p> <p>(d) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
3.	Policy 13.4.9	<p>The RDRML is opposed (in part) to Policy 13.4.9.</p> <p>While the RDRML supports, in principle (and subject to the caveats set out in Submission 1), both:</p> <ol style="list-style-type: none"> 1. Setting a target % for N losses that applies to the Plains; and 2. The implementation of TSA and MAR <p>it is concerned that paragraph (d) of Policy 13.4.9 does clearly highlight that the % reduction sought is associated with the</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend paragraph (d) of Policy 13.4.9 to read:</p> <p><i>"Seeking to reduce Reducing the overall nitrogen losses by 45% to values in the Lower Hinds/Hekeao Plains Area that assist in the achievement of the target set in Policy 13.4.12 and ...";</i></p> <p>(b) Replacing the reference to 45% in Paragraph (d) with either a target actual reduction or a</p>

No.	Provision	Submission	Requested Relief
		<p>achievement of a target (in that regard, both Policy 13.4.12 and Table 13(g) of V2 makes it plain that the annual discharge rate of 3,400 tN/yr is a target to be aspired to, rather than a limit that is to be met). For all intents and purposes, this makes the % reduction or actual reduction part of the target also. For reasons of consistency and transparency, it is important that Policy 13.4.9 is redrafted to make this distinction very clear.</p> <p>For the reasons set out in Submission 1, it is also important, in the Company's opinion, that Policy 13.4.9 be amended to specifically recognise that the 3,400 tN/yr target set in Table 13(g) is to be revisited and recalculated, as the methodology for calculating this load improves / becomes more certain.</p> <p>Further, and for the reasons set out in Submission 1, the RDRML seeks the deletion of the reference to 45%, and its replacement with a either percentage or actual reduction that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission.</p>	<p>target % reduction that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission;</p> <p>(c) Adding a new paragraph (e) that reads:</p> <p><i>"Establishing targets for the N catchment load levels that are being sought, and reviewing those catchment loads as the methodology for deriving them improves."</i></p> <p>(d) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
4.	Policy 13.4.12	<p>The RDRML is opposed (in part) to Policy 13.4.12.</p> <p>The Company is concerned that Policy 13.4.12 could be interpreted that the target annual discharge rate (of 3,400 tN/yr) is actually a limit. Given that Table 13(g) is clear that the load is a target, and as a target is, by definition, 'a goal', this potential interpretation should, in the RDRML's opinion, be eliminated. The Company notes, for completeness, its opinion that there is not the requisite level of certainty associated with the annual discharge rate of 3,400 tN/yr for it to be treated as a limit.</p> <p>Further, and for the reasons set out in Submission 1, the RDRML seeks the deletion of the reference to the target being achieved by 2035, and its replacement with a date that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Policy 13.4.12 as follows:</p> <p><i>"Improve water quality in the Lower Hinds/Hekeao Plains Area by reducing the discharge of nitrogen to achieve with the goal of achieving a target load of 3,400 tonnes of nitrogen per year by 2035 x."</i></p> <p>(b) Replacing the reference to 2035 with a target date that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission;</p> <p>(c) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
5.	Policy 13.4.13	<p>The RDRML is opposed (in part) to Policy 13.4.13.</p> <p>The Company has a number of concerns with Policy 13.4.13. In that regard it is concerned that:</p> <ol style="list-style-type: none"> 1. The reference to the target of 3,400 tN/yr being 'achieved' suggests that this threshold is a limit and not a goal. This is inappropriate, and not in accordance with the Company's understanding of V2 in general or, in particular, Table 13(g). The potential for this interpretation needs to be minimised, preferably eliminated. 2. For the reasons set out in Submission 1, the adoption of good management practices by 2017, unless this term is appropriately defined, may not be possible, could have significant adverse economic and social consequences, and will be extremely difficult to enforce (given the subjective nature of the existing definition of the phrase 'good management practice nitrogen loss rates'). This, in the Company's opinion, needs to be resolved by either defining 'good management practices' (and widely publicising the definition) or by extending the period for good management practices to be applied across the Plains. If the latter approach is to be adopted, the reference to 2017 should be deleted from Policy 13.4.13 and replaced with a date that has been derived from the programme set out in Annexure D to this submission. 3. For the reasons set out in Submission 1, the reference to 'dairy' and 'dairy support' activities being subject to specific % reductions (in terms of their N losses) should be deleted, and replaced with a more equitable series of stepped actual or % reductions that apply across the whole of the Plains. The stepped reductions should be derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission. 4. For the reasons set out in Submission 1, the reference to the 27 kgN/ha/yr discharge rate needs to be deleted and replaced with an alternative that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure C to this submission. 5. It is also important, in the Company's opinion, that the Council defines how much of the 30,000 ha is available for new land use change or intensification that was not 'consented' as at the 1st of October 2014. Is, for example, all of the 30,000 ha effectively already 'allocated' to existing consent holders but yet to be developed, or is the 30,000 additional to what was consented on the 1st of October 2014, and thus deemed to be part of the existing environment? Clarity around this point is required if the parties seeking to implement the pLWRP are to be able determine what Policy 13.4.13 (and its associated 	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Policy 13.4.13 as follows:</p> <p><i>"Farming activities, including farming enterprises, whether or not they are supplied with water by an irrigation scheme or principal water supplier, achieve a work with the goal of achieving the target set out in Policy 13.4.13a target load of 3,400 tonnes of nitrogen per year by:</i></p> <ol style="list-style-type: none"> (a) requiring existing farming activities to meet good management practice nitrogen loss rates from 1 January 2017, calculated on baseline land uses, and using the good management practices set out in Schedule 24b; (b) requiring further reductions in nitrogen loss rates for dairy farming and dairy support from 1 January 2020, in accordance with x Table 13(h); and (c) enabling, by way of resource consent process, land use intensification or changes in land use on a maximum of 30,000 hectares of land, provided the nitrogen loss calculation is limited to no more than 27 x kg per hectare per year."; <p>(b) Inserting a new definition for the phrase 'good management practice', and a new Schedule 24b in accordance with Submission 2;</p> <p>(c) EITHER deleting the reference to Table 13(h) from paragraph (b) of Policy 13.4.13 and replacing it with a series of stepped actual or % reductions that apply across the Plains and that have been derived from a detailed and comprehensive investigation that employs the methodology set out in Annexure A to this submission, or (AND IN THE ALTERNATIVE) retains the cross-reference to Table 13(h), but amends the Table in accordance with the relief sought in Submission 14;</p> <p>(d) Deleting the reference to the 27 kgN/ha/yr from paragraph (c) of Policy 13.4.13 and replacing it with a rate (or rates) that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure C to this submission;</p> <p>(e) IN THE ALTERNATIVE to the requested relief set out in paragraph (a)):</p>

No.	Provision	Submission	Requested Relief
		<p>rule) applies to.</p> <p>6. The RDRML notes, for completeness, that it considers that the Hinds groundwater system should be listed in Appendix 3 and/or 4 of the National Policy Statement for Freshwater Management 2014 until such time as the methodology for establishing a catchment load is more certain.</p>	<p>i. Amend paragraph (a) of Policy 13.4.13 to read: <i>“requiring existing farming activities to meet good management practice nitrogen loss rates from 1 January 2017 x, calculated on baseline land uses;”</i>;</p> <p>ii. Replace the reference to 2017 with a date that has been derived from the programme set out in Annexure D to this submission; and</p> <p>(f) Clearly state, in an advisory note that follows immediately after Policy 13.4.13, what the reference to 30,000 ha in this provision applies to.</p> <p>(g) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
6.	Policy 13.4.14	<p>The RDRML is opposed (in part) to Policy 13.4.14.</p> <p>The Company supports, in principle, the Council’s intention to enable MAR and TSA on the Plains. It is, however, concerned that, as presently drafted, Policy 13.4.14 sets hurdles that will prevent these measures being realised, and will thereby frustrate the achievement of two of the key outcomes (improved surface and groundwater quality) that are sought by V2. In this regard:</p> <p>1. Paragraph (a) of Policy 13.4.14 requires that adverse cultural effects (which captures all adverse cultural effects regardless of their magnitude) are to be satisfactorily avoided. Avoidance is a significant hurdle, and while prefaced by the term ‘satisfactorily’, has the potential in the Company’s opinion, to stymie the implementation of MAR and TSA. While appreciating the importance of cultural considerations under the Act, the Company notes that they are one of several considerations that should be considered when determining if an activity accords with the Act’s purpose. In order to achieve a better balance in paragraph (a), the RDRML seeks that this provision be redrafted to require that such effects are avoided in the first instance, but where avoidance is not possible, that any adverse cultural effects need to be remedied or mitigated.</p> <p>2. Paragraphs (b) and (f) of Policy 13.4.14 also require that adverse effects be avoided, but this time without any qualification. As a consequence, these two limbs of Policy 13.4.14 are, for all intents and purposes, promoting an outcome where there are no adverse effects on the availability or quality of community drinking supplies, or on people and communities as a consequence of raised groundwater levels and higher flows. Again, while the Company accepts that community drinking water supplies and adverse effects on people and property are notable considerations, it questions if they warrant the Council prematurely foreclosing on remediation and mitigation responses to all adverse effects on the same. In that regard, the Company questions if these considerations are significant enough to require protection from all adverse effects regardless of their nature or magnitude. Its preference is that these paragraphs be redrafted so as to promote avoidance in the first instance, and remediation or mitigation if avoidance is not practicable.</p> <p>3. Paragraph (c) of Policy 13.4.14 requires that adverse effects on fish passage are avoided or mitigated, with no opportunity for remediation. There is no compelling reason, in the Company’s opinion, for this policy to exclude the possibility of remediation. In this regard, the Company expects that there would, in all likelihood, be opportunities to ‘put a potential adverse effect right’, by the implementation of appropriate strategies and/or the implementation of fish passage systems. As a consequence, it asks that paragraph (c) be amended so as to employ a similar approach to paragraph (d) of Policy 13.4.14, whereby adverse effects may be avoided, remedied or mitigated.</p> <p>For the reasons stated in Submission 1, the Company also believes that Policy 13.4.14 should be amended to recognise that the water needed for MAR to be effective on the Plains may need to be provided from a variety of sources, including from water storage facilities. Such an acknowledgement would, in the Company’s opinion, improve the prospect of such facilities securing the resource consents they will need, and will focus any proposed developers of such facilities on providing water for MAR.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the introduction to Policy 13.4.14 to read: <i>“Improve ... groundwater quality in the Lower Hinds/Hekeao Plains Area by enabling managed aquifer recharge and targeted stream augmentation (and proposals that will supply the water needed to support managed aquifer recharge and targeted stream augmentation), where: ...”</i>;</p> <p>(b) Amend paragraphs (a), (b), (c) and (f) of Policy 13.4.14 to read: <i>“(a) adverse effects on cultural values ... are satisfactorily avoided as the first preference, and where avoidance is not practicable, they are satisfactorily remedied or mitigated;</i> <i>(b) adverse effects on the availability ... are avoided as the first preference, and where avoidance is not practicable, they are satisfactorily remedied or mitigated;</i> <i>(c) adverse effects on fish passage are avoided, remedied or mitigated;</i> <i>(f) adverse effects on people and property ... are avoided as the first preference, and where avoidance is not practicable, they are satisfactorily remedied or mitigated.”</i>; and</p> <p>(c) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
7.	The proposed rules index (to be inserted below section 13.5 Rules) – ‘Take and Use Groundwater’ row, the explanation provided below the heading ‘Take and Use of Ground and	<p>The RDRML is opposed (in part) to both the proposed rules index and the explanation provided below the heading ‘Take and Use of Ground and Surface Water’ of Rule 13.5.29. It is also opposed (in part) to Table 13(f).</p> <p>For the reasons set out in Submission 1, in order to enable surface water takes / abstractions to be surrendered in favour of takes / abstractions from deep ground water, V2 must be clear that Rule 13.5.31 prevails over Region-wide Rules 5.130. The RDRML</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the ‘Take and Use of Groundwater’ row of the index of rules to make it clear that Rule 13.5.31 prevails over Region-wide Rule 5.130; and</p>

No.	Provision	Submission	Requested Relief
	Surface Water' of Rule 13.5.29 and Table 13(f).	<p>requests that the 'Take and Use of Groundwater' row in the proposed rules index (which is to be added under the heading '13.5: Rules') and the explanation provided below the heading 'Take and Use of Ground and Surface Water' of Rule 13.5.29, be amended to make this clear.</p> <p>Should the foregoing not be acceptable to the Council, the 'A Allocation' limits in Table 13(f) (which is to be renamed from Table 14) need to be amended, for both the Mayfield-Hinds and Valetta groundwater allocation zones, to allow for the increase in groundwater abstraction that is required to replace the over-allocated surface catchments.</p>	<p>(b) Amend the explanation provided below the heading 'Take and Use of Ground and Surface Water' of Rule 13.5.29 to make it clear that Rule 13.5.31 prevails over Region-wide Rule 5.130; or</p> <p>(c) IN THE ALTERNATIVE to the relief sought in paragraphs (a) and (b) of this submission, increase the 'A Allocation' limits in Table 13(f) (which is to be renamed from Table 14) for the Mayfield-Hinds and Valetta groundwater allocation zones to allow for the increase in groundwater abstraction that is required to replace the over-allocated surface catchments; and</p> <p>(d) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
8.	Rules 13.5.14, 13.5.19 and 13.5.20	<p>The RDRML is opposed (in part) to rules 13.5.14, 13.5.19 and 13.5.20.</p> <p>The Company is concerned that Rule 13.5.14 is not clear, and could be deemed to apply where it is not intended to. It is equally concerned that standard (3) is ill conceived and creates uncertainty. Lastly, it reiterates the concern stated in Submission 1 that the maximum discharge rate of 27 kgN/ha/yr is inappropriate, and should be replaced. More particularly:</p> <ol style="list-style-type: none"> Rule 13.5.14 seems to apply to 'new' intensified agricultural endeavour and/or land use change that occurred after the 1st of October 2014. We say 'seems' as this is not entirely clear, although it is noted that the provision variously refers to 'future nitrogen loss calculation' and cites the twin standards (of 27 kgN/ha/yr and 30,000 hectares (or 'ha')) that are listed in Policy 13.4.13(c) as applying to new intensification or land use change. It is important that the intent and application of Rule 13.5.14 be made clear, to avoid unnecessary uncertainty and debate amongst those seeking to apply the Rule. It is also important, in the Company's opinion, that the Council defines how much of the 30,000 ha is available for new land use change or intensification that was not 'consented' at the 1st of October 2014. Is, for example, all of the 30,000 ha allocated to existing consent holders but yet to be developed, or is the 30,000 additional to what was consented on the 1st of October 2014, and thus deemed to be part of the existing environment? Clarity around this point is required if the parties seeking to implement the plan are to be able determine what Rule 13.5.14 applies to. While accepting that V2 applies only to the Plains, and that the limits stated must apply to activities conducted within the scope of V2, the Company expects that there will be activities that span the boundaries of the upper and lower Hinds/Hekeao Plains areas, and could extend outside of the Lower Hinds / Hekeao Plains area, particularly adjacent to the areas eastern boundary. As the Company understands Standard (3) of Rule 13.5.14, such activities would either: <ol style="list-style-type: none"> Be treated as being unable to achieve Rule 13.5.14, and thus be assessed as a prohibited activity under Rule 13.5.20; or Have to be reconfigured so as to exclude the activities that are conducted outside of the Lower Plains from consideration, assuming that the Council would agree to such an approach. <p>The Company questions if this type of proposal, or one that can not achieve any of the other standards listed, is sufficiently inappropriate or 'repugnant' to attract a prohibited activity classification. Indeed, it does not believe that such a classification is justified by the environmental effects that could arise, or the outcomes that could eventuate were this type of activity to occur, particularly if the activity extends across the northern boundary of the Lower Plains. The Company contends that a better approach, which accords with the purpose of the Act, would be for a proposal that can not achieve one or more of the standards listed in Rule 13.5.14 to fall within the ambit of Rule 13.5.19.</p> As was stated in Submission 1, the reference to the N losses for land use change and intensification not exceeding 27 kgN/ha/yr is inappropriate given that it was not, in the Company's opinion, derived using an appropriate methodology. Given the social and economic consequences associated with the discharge rates, they must, in the RDRML's opinion, represent best practice, and draw on the best available data. The methodology set out in Annexure C will, in the Company's opinion, give a more realistic, and thus appropriate N loss rate. 	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the Rule 13.5.14 to read:</p> <p><i>"Despite any of Rules 13.5.15 to 13.5.20, the use of land for a farming activity or farming enterprise that does not achieve Rule 13.5.13 and that increases the intensity of the land use above the levels occurring on the 1st of October 2014 in the Lower Hinds / Hekeao Plains Area is a discretionary activity, provided the following conditions are met:</i></p> <ol style="list-style-type: none"> <i>The future nitrogen loss calculation for the area of land that will accommodate the proposed land use and that is subject to any application for resource consent made under this rule will be less than or equal to x 27 kg per hectare per annum for the activity applied for; and ...</i> <i>The farming activity or farming enterprise land that will accommodate the proposed land use is solely located entirely within the Lower Hinds/Hekeao Plains Area; and ...";</i> <p>(b) Amend Rule 13.5.19 to read:</p> <p><i>"The use of land for a farming activity or farming enterprise that does not comply with any of the conditions 1 to 5 in Rule 13.5.14, any of conditions 2 or 3 in Rule 13.5.15 ...";</i></p> <p>(c) Amend Rule 13.4.20 to read:</p> <p><i>"The use of land for a farming activity or farming enterprise that does not comply with ... or conditions 1 or 2 of Rule 13.5.18 or a farming enterprise that does not comply with any of the conditions of Rule 13.5.14, is a prohibited activity.";</i></p> <p>(d) Delete the reference to the discharge rate of 27 kgN/ha/yr from Rule 13.4.14(1), and replace it with a more accurate and appropriate rate (or rates) that is derived in accordance with the methodology set out in Annexure C of this submission;</p> <p>(e) Clearly state, in an advisory note that follows immediately after Rule 13.5.14, what the reference to 30,000 ha in this provision applies to.</p> <p>(f) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
	Rule 13.5.17	<p>The RDRML is opposed (in part) to Rule 13.5.17.</p> <p>The Company is concerned that assessment criteria (2), (3) and (4) of Rule 13.5.17 read like standards / conditions, which it</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the assessment criteria (2), (3) and (4) of Rule 13.5.17 to read:</p>

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		<p>contends is inappropriate given their intended function. The Company also notes that Assessment Criterion (3) refers to the 1st of January 2017. As Rule 13.5.17 only applies from the 1st of January 2017, this reference is redundant and should be deleted. The Company therefore requests, in keeping with good resource management and planning practice, that these criteria be redrafted so as to clearly be 'criteria', and to avoid unnecessary duplication.</p> <p>The RDRML reiterates its concern set out in Submission 1, being (in summary) that it is inappropriate to target dairy farming and dairy support activities as uses that need to reduce their N losses beyond the reductions that will be felt by the adoption of good management practices. Consequently, it opposes Table 13(h) in its present form, and opposes the cross-reference to the table in Assessment Criterion 13.5.17(4). It will not oppose the cross-reference, however, should Table 13(h) be amended as sought in Submission 14.</p> <p>The RDRML also reiterates its concern (previously expressed in Submission 1) that the target of 3,400 t/yr by 2035 set out in Table 13(g) has been derived using a sub-optimal methodology and thus is not appropriate. In that regard, it seeks that the timeframe for the achievement of the 3,400 tN/yr target be set following the completion of a comprehensive and detailed investigation. Annexure A to this submission sets out the methodology that should be followed to derive the timeframe associated with the achievement of the target. Given this, it opposes the cross-reference to Table 13(g) in Assessment Criterion (2). It will not oppose the cross-reference, however, should Table 13(g) be amended as sought in Submission 13.</p> <p>Lastly, given that a resource consent application sought under Rule 13.5.17 involves a proposal that does not exceed the nitrogen baseline, and is subject to a Farm Environment Plan prepared to the standards required by the Council, the Company is of the opinion that it (the resource consent application) should be able to be processed on a non-notified basis. In this regard, the Council has certainty that the proposal will not worsen the existing environment (in terms of water quality), and that any operations will be managed in accordance with a mechanism that is recognised as being effective in addressing nitrogen and phosphorous losses. As a consequence, the Company asks that V2 be amended to state that any resource consent application will be processed without public or limited notification, as it does in relation to Rule 13.5.22.</p>	<p>"The ability to meet the nitrogen load target for farming activities in Table 13(g) the Lower Hinds/Hekeao Plains Area, the contribution that the proposed activities could make to the achievement of the target, and the limits that could be applied to assist in the achievement of the target."</p> <p>"From 1 January 2017 the The Good Management Practice Nitrogen Loss Rates that could be to be applied to the baseline land uses to achieve the outcomes sought in policies 13.4.9 to 13.4.19 (as appropriate)."</p> <p>"Any The nitrogen loss rates to be that could be applied to achieve the outcomes sought in policies 13.4.9 to 13.4.19 (as appropriate). in accordance with Table 13(h)"</p> <p>(b) Add the following text at the end of Rule 13.5.17:</p> <p>"Notification Pursuant to section 95A and 95B of the RMA an application for resource consent under this rule will be processed and considered without public or limited notification.";</p> <p>(c) For completeness, the RDRML notes that it is seeking that the cross references to Tables 13(g) and 13(h) in Assessment Criteria (2) and (4) be deleted (as set out in the relief sought in paragraph (a) of this submission) unless the relief sought in submissions 13 and 14 is granted. Should the relief be granted, it asks that criteria (2) and (4) be amended to read:</p> <p>"The ability to meet the nitrogen load target for farming activities in Table 13(g), the contribution that the proposed activities could make to the achievement of the target, and the limits that could be applied to assist in the achievement of the target.";</p> <p>"Any The nitrogen loss rates to be that could be applied, having regard to Table 13(h), to achieve the outcomes sought in policies 13.4.9 to 13.4.19 (as appropriate). in accordance with Table 13(h)"; and</p> <p>(d) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
10.	Rules 13.5.18, 13.5.19 and 13.5.20	<p>The RDRML is opposed (in part) to rule 13.5.18, 13.5.19 and 13.5.20.</p> <p>The Company, for reasons similar to those already expressed in Submission 8, is concerned with the manner in which V2 treats farming enterprises that extend outside of the defined Lower Hinds/Hekeao Plains Area. As already noted, the Company expects that proposals could readily extend outside of the boundaries set on Maps 1 to 7. This would cause a proposal that would otherwise fall within the ambit of Rule 13.5.18 to become a prohibited activity (as it would exceed condition 1 of Rule 13.5.18, which causes it to fall within the ambit of Rule 13.5.20). The Company questions if this type of proposal is sufficiently inappropriate or 'repugnant' to attract a prohibited activity classification. Indeed, it does not believe that such a classification is justified by the environmental effects that could arise, or the outcomes that could eventuate were this type of activity to occur, particularly if the activity extends across the eastern boundary of the Lower Plains. The Company contends that a better approach, which accords with the purpose of the Act, would be for a proposal that extends across the Lower Plain's boundary to fall within the ambit of Rule 13.5.19.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Rule 13.5.19 to read:</p> <p>"The use of land for a farming activity or farming enterprise that does not comply with any of conditions 1 to 5 in Rule 13.5.14, any of conditions 2 or 3 in Rule 13.5.15 ... or a farming enterprise that does not comply with condition any of conditions 1 or 3 of Rule 13.5.18, is a non-complying activity."; and</p> <p>(b) Amend Rule 13.5.20 to read:</p> <p>"The use of land for a farming activity or farming enterprise that does not comply with ... or conditions 1 or 2 or a farming enterprise that does not comply with any of the conditions of Rule 13.5.14, is a prohibited activity."; and</p> <p>(c) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
11.	Rule 13.5.22 and Table 13(i)	<p>The RDRML is opposed (in part) to, and supports (in part) Rule 13.5.22 and is opposed (in part) to Table 13(i).</p> <p>The RDRML is opposed to Table 13(i) and therefore seeks the deletion of condition 2 of Rule 13.5.22. In this regard:</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Rule 13.5.22 by deleting condition 2;</p>

No.	Provision	Submission	Requested Relief
		<p>1. Part A of Table 13(i) relies on the application of Good Management Practice Nitrogen Loss Rates by 2017. As stated in Submission 1, requiring all farming activities to operate in accordance with 'good management practice' by 2017 will not be possible, particularly when the term 'good management practice' is not appropriately defined. The Company requests that an appropriate definition be adopted and applied. An appropriate definition is set out in Annexure B to this submission. Should this approach not be acceptable to the Council, then a longer period will be required if significant adverse economic and social effects are to be avoided. In that regard, each farmer will need sufficient time to take advice as to the good management practices that need to be applied to their property(ies) and then to implement those systems. Annexure D to this submission, which has been derived from farm advisors that have considerable experience and expertise in the application of such processes, sets out a programme that could be implemented to achieve this. The Company will not oppose the cross-reference to 2017 should the Council accept and apply the definition that is set out in Annexure B.</p> <p>2. Part A of the Table, from 2020 onwards, refers to a series of percentage reductions as set out in Table 13(h). The RDRML reiterates its concern set out in Submission 1, being (in summary) that it is inappropriate to target dairy farming and dairy support activities as land use activities that need to reduce their N losses beyond the reductions that will be felt by the adoption of good management practices. Consequently, it opposes the Table 13(h) in its present form, and opposes the cross-references to the percentage reductions that are a feature of Table 13(i). The Company will not oppose the cross-reference, however, should Table 13(h) be amended as sought in Submission 14.</p> <p>3. The RDRML also reiterates its concern (previously expressed in Submission 1) that the target of achieving an annual discharge rate in the Plains of 3,400 tN/yr by 2035 (as set out in Table 13(g)) has been derived using a sub-optimal methodology and thus is not appropriate. In that regard, it seeks that the timeframe for the achievement of the 3,400 tN/yr target be set following the completion of a comprehensive and detailed investigation. Annexure A to this submission sets out the methodology that should, in the Company's opinion, be followed to derive the timeframe associated with the achievement of the target. Given this, the RDRML opposes the cross-reference to Table 13(g), and the associated timeframes for the % reductions to be achieved in Part A of Table 13(i). It will not oppose the cross-reference, however, should Table 13(g) be amended as sought in Submission 13.</p> <p>4. The RDRML notes that the Row A of Table 13(i) refers to the Nitrogen Baseline as being an appropriate starting point for calculations. While not opposing this for irrigation schemes or principal water suppliers that do not have a resource consent that permit a level of farming activity and its associated nutrient losses, the Company contends that the appropriate starting point for the existing consent holders are their existing consented levels. In the case of the Company, the N and P limits that it operates to were set following rigorous analysis and a detailed review by the Council through the resource consent process. They were, as recently as 2014, found to be in accordance with the purpose and principles of the Resource Management Act 1991. It follows then, that these represent the logical starting point.</p> <p>5. Part B of Table refers to the rate of 27 kgN/ha/yr. For the reasons set out in Submission 1, the reference to the N losses for land use change and intensification not exceeding 27 kgN/ha/yr is inappropriate. A better approach, and one that is sought by the RDRML through its submissions, is to apply the methodology attached as Annexure C to this submission to derive a more robust, and thus appropriate, rate (or rates) of losses. Given this, the Company opposes the reference to 27 kgN/ha/yr and seeks that it be replaced with a figure (or figures) that has been derived following the methodology set out in Annexure C.</p> <p>The Company supports the provisions of Rule 13.5.22 that relate to 'notification' (being the provisions that follow immediately after condition 3 of Rule 13.5.22). In this regard, the ability to advance such applications without notice reflects, in the Company's opinion, the high degree of certainty associated with this type of use, the initiative that is already being shown towards the implementation of measures such as Farm Environment Plans and audited self management, and the significant positive effects that irrigation schemes and principal water suppliers generate. It follows that the Company seeks the retention of the 'notification' paragraphs of Rule 13.5.22.</p>	<p>(b) Retain, unchanged, the two paragraphs (that follow after condition 3 of Rule 13.5.22) and address 'notification';</p> <p>(c) IN THE ALTERNATIVE to the relief set out in (a), amend Table 13(i) as follows:</p> <ul style="list-style-type: none"> i. Either replace the reference to 2017 in the 4th column of Part A to be a date that aligns with the programme set out in Annexure D to this submission, or include the definition of 'good management practice' set out in Annexure B in V2; ii. Conduct a comprehensive and detailed investigation (using the methodology set out in Annexure A) and set the dates for the stepped actual or % reductions in Part A of the Table in accordance with the findings of that investigation; iii. Delete the cross references to Table 13(h) and replace the with stepped actual or % reductions that arise from the relief sought in requested relief (c)(ii) of this submission; iv. Delete the reference to 27 kgN/ha/yr from Part B of Table 13(i) and replace it with a robust rate (or rates) that is (are) derived in accordance with the methodology set out in Annexure C; <p>(d) For completeness, the RDRML notes that it is seeking that the reference to Table 13(h) in Part A of Table 13(i) be deleted (as set out in the relief sought in paragraph (c)(iii) of this submission) unless the relief sought in submission 14 is granted. Should the relief sought in that submission be granted, the Company will not seek the deletion of the cross reference to Table 13(h); and</p> <p>(e) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
12.	Table 13(a)	<p>The RDRML is opposed (in part) to Table 13a.</p> <p>The Company notes that the maximum 'cover values' for cyanobacteria matts set by Table 13a are different to those set in Table 1a of the pLWRP. In this regard, the values set are lower in Table 13a than the corresponding values in Table 1a, making Table 13a more conservative. Specialist advice provided to the Company concludes that there is no obvious basis for this change. Indeed,</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the Table 13(a) so that its cyanobacteria matt 'cover value' is aligned with the corresponding value in Table 1a of the pLWRP;</p>

No.	Provision	Submission	Requested Relief
		<p>the advice questions if the lower values are a consequence of a transposition error. The Company requests the correction of this, apparent error, or (if the Council advises that the change was deliberate) that the cyanobacteria matt 'cover values' in Table 13a be aligned with those set out in Table 1a.</p> <p>The Company is also concerned with the insertion of a new, qualitative, cultural indicator into Table 13a. Again, this is not a feature of Table 1a in the pLWRP. The Company's concern is that this indicator is, it is advised, highly subjective and cannot readily be defined, applied, or measured. Indeed, the advice provided to the Company highlights that there is no transparency as to what species are included in the reference to 'freshwater mahinga kai species'. Given the importance of the Freshwater Outcomes, and the directive nature of Strategic Policies 4.1 and 4.2 (in particular) good resource management and planning practice dictates that subjectivity should be limited. The RDRML, therefore, requests that this indicator be better particularised, such that those attempting to assess compliance against it can readily do so.</p>	<p>(b) Better particularise and define so that it is readily understood, and thus able to be readily applied and measured; and</p> <p>(c) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
13.	Table 13(g)	<p>The RDRML is opposed (in part) to, and supports (in part) Table 13(g).</p> <p>The RDRML questions, for the reasons set out in Submission 1, the appropriateness of the 2035 date for when the target must be achieved.</p> <p>For the reasons stated in Submission 1, there are a number of issues associated with achieving the reductions that would be needed to reach the 3,400 tN/yr target by 2035. Given the issues that exist, the Company is particularly concerned that achieving the 3,400 tN/yr target by 2035 is neither realistic nor practicable, and that attempting to do so would likely generate adverse social and economic effects that do not accord with the Act's purpose.</p> <p>As a consequence, the RDRML asks that the Council has regard to, prior to setting a timeframe for the achievement of the 3,400 tN/yr target, the outcomes of a comprehensive and detailed investigation. Annexure A to this submission sets out the methodology that should, in the Company's opinion, be followed to derive a realistic and practicable timeframe associated with the achievement target.</p> <p>Expert advice to the RDRML is that there are very likely to be improvements to the way that the catchment loads are calculated over the life of V2. Given the importance of the 3,400 tN/yr target within V2, and its link to the actions that will be required of those farming on the Plains, it would be appropriate, in the Company's opinion, for a mechanism to be inserted into the Variation that enables the 3,400 tN/yr target to be revisited and recalculated, as the methodology for calculating this load improves / becomes more certain.</p> <p>The Company supports the use of a target for the Lower Plains, rather than the application of a limit. This reflects the uncertainty that is associated with the actual value of N that is being leached and the resulting impact on ground water quality, and the associated uncertainty with the target of 3,400 tN/yr. The RDRML accepts both the need for a target, and the proposed 3,400 tN/yr target, provided that:</p> <ol style="list-style-type: none"> 1. It is kept as a target (and not a limit); 2. The term 'target' is defined as the Company seeks in Submission 2; 3. The timeframe for the achievement of the same is proven to be both realistic and practicable (based on the methodology set out in Annexure A to this submission); and 4. A mechanism is incorporated into V2 to change the target value, as improvements in the assessment methodology occur. <p>The RDRML reiterates the position conveyed in Submission 5, being that it considers that the Hinds groundwater system should be listed in Appendix 3 and/or 4 of the National Policy Statement for Freshwater Management 2014 until such time as the methodology for establishing a catchment load is more certain.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Table 13(g) by deleting the reference to the target annual discharge rate of 3,400 tN/yr is being achieved by 2035, and replace the target date with one that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission;</p> <p>(b) Retain 3,400 tN/yr in Table 13(g) as a target, rather than a limit, for the Lower Hinds/Hekeao Plains Area;</p> <p>(c) Insert a mechanism into Table 13(g), or elsewhere in V2, to enable the 3,400 tN/yr target to be recalculated for the methodology for establishing the catchment load becomes more certain; and</p> <p>(d) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
14.	Table 13(h)	<p>The RDRML is opposed (in part) to Table 13(h).</p> <p>As stated in Submission 1, the RDRML is of the opinion that it would be inappropriate to target dairy farming and dairy support activities as land use activities that need to reduce their N losses beyond the reductions that will be felt by the adoption of good management practices. In the Company's opinion this approach will not only fail to achieve the target reduction that is presently sought across the Plains (which, as we have previously recorded, is currently set at 45%), but it is also inequitable and does not recognise the contribution that is made by all agricultural and horticultural activities. A better approach, in the Company's opinion, will be to carefully prescribe stepped reductions that apply to all activities. When setting the stepped reductions the</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Delete Table 13(h) and replace it with a new table that focuses on all agricultural and horticultural activities in the Plains, and that employs % reductions or actual reductions that are carefully derived using the methodology that is set out in Annexure A to this submission; and</p> <p>(b) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>

No.	Provision	Submission	Requested Relief
		<p>Company asks that the Council utilise the methodology that is set out in Annexure A. The Company submits that this methodology will result in percentages that achieve the various biophysical and metaphysical outcomes that are sought, albeit over a longer time period, while ensuring that any adverse social and economic effects are acceptable</p>	
15.	Table 13(j) and Table 13(k)	<p>The RDRML is opposed (in part) to Table 13(j) and Table 13(k).</p> <p>The Company accepts the principle that underlies the establishment of targets for the Lower Plains. While Table 13(k) establishes three targets for groundwater (which are accepted as being broadly appropriate), the title to this table refers to 'Limits for Groundwater'. This needs to be amended, to make it clear the values listed are targets. The Company notes, for completeness, that as the values describe concentrations that are measured in the receiving environment, and that the land use factors that control them are poorly quantified. As a consequence, it is of the opinion that the values can only be quantified as targets and not limits.</p> <p>The Company also notes that the right hand column of Table 13(k) is headed 'Targets to be met by 2035'. The RDRML understands that the target of 6.9 mg/L of Nitrate-N has been employed to arrive at the 3,400 t/N/yr target that is set out in Table 13(g) and employed elsewhere in V2. Given that both targets are interlinked, but that the 6.9 mg/L target is also dependant on MAR, the Company asks that the reference to 2035 be deleted and replaced with a date that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission.</p> <p>The RDRML notes that the title of Table 13(j) refers to 'Limits/Targets' whereas the right hand column of the Table is clear that only targets apply. For the reasons already discussed in relation to Table 13(k), the heading to Table 13(j) needs to be amended so as to only refer to 'Targets', and not limits. Further, and again for the reasons set out for Table 13(k), the reference to 2035 in the title of Table 13(j)'s right hand column needs to be deleted and replaced with a date that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission. The Company also notes that reference to 'Hill-fed Lower' surface water body types in Table 13(k). It is unclear if this includes the lower reaches of the Hinds River. This needs to be clarified. If, however, this classification does apply to the lower reaches of the Hinds River, the Company questions if the target values are realistic. A better approach, and one which is likely to be both achievable and more appropriate (in the context of the Act's purpose) would be to have the targets applying to the lower reaches of the Hinds River at the same levels as those that apply to the 'Spring-fed Plains' water courses. This reflects that the lower reaches of the Hinds River have a significant interaction with the groundwater resource that underlies the Lower Plains.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend the title to Table 13(j) to read: <i>"Limits/Targets for the Hinds/Hekeao Plains Area surface waterbodies";</i></p> <p>(b) Amend the title to Table 13(k) to read: <i>"Limits Targets for Groundwater";</i></p> <p>(c) Delete the references to 2035 from the right hand columns of both Table 13(j) and 13(k) and replace with a date that is derived from a comprehensive and detailed investigation that employs the methodology set out in Annexure A to this submission;</p> <p>(d) Clarify if the lower reaches of the Hinds River fall within the 'Hill-fed Lower' classification, and if they do, amend the target values (as set in the right hand column of Table 13(j)) that apply to the lower reaches of the Hinds River so that they are the same as those applying to the 'Spring-fed Plains' waterbodies; and</p> <p>(e) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
16.	Additions to Clause 5(a) (Part B) of Schedule 7 – Farm Environment Plan	<p>The RDRML is opposed (in part) to the proposed additions to Clause 5(a) (Part B) of Schedule 7 – Farm Environment Plan of the pLWRP.</p> <p>For the reasons previously set out in Submission 1, the RDRML is concerned with the suggestion that Clause 5(a) (Part B) of Schedule 7 be amended to add a new objective, which requires that Good Management Practice Nitrogen Loss Rates be achieved by 2017. While accepting that this is cast as an objective, and not a limit, the Company remains concerned that requiring all farming activities to operate at 'good management practice' by 2017 will not be possible, particularly when the term 'good management practice' is not appropriately defined. As previously noted, the Company accepts that good management practices have a place in V2, and supports their adoption, subject to an appropriate definition being adopted and applied. An appropriate definition is set out in Annexure B to this submission. Should this approach not be acceptable to the Council, then a longer period will be required if significant adverse economic and social effects are to be avoided. In that regard, each farmer will need sufficient time to take advice as to the good management practices that need to be applied to their property(s) and then to implement those systems. Annexure D to this submission sets out a programme that could be implemented to achieve this.</p> <p>The Company is also concerned to see the proposed addition of an objective associated with the achievement of the nitrogen loss rates from 2020 in accordance with Table 13(h). For the reasons conveyed in submissions 1 and 14, Table 13(h) is presently inappropriate and needs to be recast. Should it be recast in accordance with the relief sought in Submission 14, the RDRML will not oppose this cross reference. Should, however, the relief sought in Submission 14 not be acceptable to the Council, the Company asks that the cross reference to Table 13(h) be deleted and replaced with a series of stepped reductions have been derived from a detailed and comprehensive investigation, that is conducted in accordance with the methodology set out in Annexure A.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) That the following definition of 'Good Management Practice' be inserted into section 13.1A of the pLWRP: <i>"means the implementation of the measures and practices set out in Schedule 24b – Good Management Practices.";</i></p> <p>(b) Create a new schedule, entitled '24b – Good Management Practices' and populate that schedule with the detail set out in Annexure B to this submission;</p> <p>(c) IN THE ALTERNATIVE to the relief sought in paragraphs (a) and (b) of this requested relief:</p> <p>i. Amend the first proposed bullet point of Clause 5(a) (Part B) to read: <i>"Achieve the Good Management Practice Nitrogen Loss Rates from 2017.";</i></p> <p>ii. Replace the reference to 2017 with a date that has been derived from the programme set out in Annexure D to this submission; and</p> <p>(d) Delete Table 13(h) and replace it with a new able that focuses on all agricultural and horticultural activities in the Plains, and that employs % reductions that are carefully derived using the methodology that is set out in Annexure A to this submission;</p> <p>(e) IN THE ALTERNATIVE to the relief sought in paragraph (d) of this requested relief, delete the</p>

No.	Provision	Submission	Requested Relief
			<p>cross reference to Table 13(h) from the second proposed bullet points of Clause 5(a) (Part B) and replace it with a reference to a series of stepped reductions that have been derived from a detailed and comprehensive investigation that is conducted in accordance with the methodology set out in Annexure A to this submission; and</p> <p>(f) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
17.	Schedule 24a – Farm Practices – of the pLWRP	<p>The RDRML is opposed (in part) to the proposed addition of Schedule 24b – Farm Practices.</p> <p>The Company is concerned that Schedule 24a does not require nutrient budgets to be prepared in accordance with a ‘nutrient budget preparation protocol’ that applies throughout the Plains. Without such a protocol the results from the nutrient budgets will, the Company expects, vary from farm to farm. This has the potential to benefit those that apply a liberal protocol, and act as a penalty to those that follow a more realistic protocol. Given the need for equity and consistency, it is fundamentally important that all nutrient budgets are comparable, and are produced using a common methodology / protocol.</p> <p>The Company has prepared and adopted a protocol that is to be used by those preparing nutrient budgets for shareholders in the RDRML. It is notable that this protocol has been endorsed by Balance Agri-Nutrients Limited, Ravensdown Limited and the Canterbury Regional Council. As a consequence, the Company understands that the protocol represents best practice, and is expected to produce realistic estimates of the nutrients that are discharged from the root zone to the soils below. The RDRML asks that this protocol (a copy of which is attached as Annexure E to this submission) be adopted and applied to the whole of the Plains.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Schedule 24a(a)(i) to read:</p> <p><i>“A nutrient budget based on soil nutrient tests has been prepared, using OVERSEER in accordance with the OVERSEER Best Practice Data Input Standards [2013] and following the nutrient budget preparation protocol set out in Schedule 24c, or an ...”;</i></p> <p>(b) Create an additional schedule (schedule 24c) and populate it with the protocol attached as Annexure E to this submission; and</p> <p>(c) Any similar and/or consequential amendments that stem from the changes and/or additions described above.</p>
18.	Policy 13.4.19	<p>The RDRML is opposed (in part) to Policy 13.4.19.</p> <p>The RDRML is concerned that the application of the default minimum flows and allocation blocks (50% of 7DMALF and an allocation of 20% 7DMALF) to the waterbodies listed in Table 13(e) by 2020 has far reaching implications, and could cause unacceptable adverse social and economic effects to be generated. In this regard, the Company understands that the waterbodies listed presently support a number of abstractions, which, in turn, assist in providing for the social and economic wellbeing on the community.</p> <p>While not opposing the imposition of minimum flows and allocations, per se, and supporting the principle of a collaboratively developed allocation and flow regime being inserted into the pLWRP via a Schedule 1 (to the Act) process, the RDRML is concerned to ensure that the timeframe needed for existing water users to understand the flow regimes that apply, to determine how they (and their operations) could be adversely effected, and then to find a solution (which could be the development of on farm storage and/or the conversation to a different type of irrigation application), fund that solution and then implement the same could take more than five years. Advice to the Company is that it would be better to extend this date to 2035, as that will achieve the ecological and broader environmental improvements that are sought, while not causing unacceptable social and economic consequences.</p> <p>An alternative option is that Policy 13.4.19 could be redrafted to state that the status quo will continue until such time as a ‘collaboratively developed flow and allocation regime’ is agreed by the Hinds Drains Working Party.</p>	<p>The RDRML seeks the following relief from the Canterbury Regional Council:</p> <p>(a) Amend Policy 13.4.19 to read:</p> <p><i>“After 1 July 2020 2035 a minimum flow of ...”;</i></p> <p>(b) IN THE ALTERNATIVE to the relief sought in paragraph (a) of this submission, amend Policy 13.4.19 to state that the status quo will apply, in terms of the minimum flow and allocation regime, until such time as a collaboratively developed flow and allocation regime is agreed by the Hinds Drains Working Party and has been included in this plan via a Schedule 1 (to the Act) process; and</p> <p>(c) Any similar and/or consequential amendments (including to the headings of columns 4 and 5 of Table 13(e)) that stem from the changes and/or additions described above.</p>

Annexure A: Investigation Methodology To Derive % Reductions or Actual Reductions, Stepped Reductions & Timeframes

The following methodology is proposed to derive:

1. The existing level of N losses below the root zone;
2. The % reduction or actual reduction that is realistic and practicable, and will achieve the purpose of the Resource Management Act 1991;
3. Setting stepped % reductions or actual reductions that can be achieved over time;
4. Setting the timeframe for the achievement of the total % reduction or actual reduction, and when each of the stepped% or actual reductions should apply; and
4. Determining what % reductions or actual reductions should be achieved, and whether they should be split by land use type, soil type or a combination of both land use and soil type.

1.0 Calculating the current state of N leaching.

Collecting Accurate Information On the Current State:

A matrix of information on the current state of farming will be necessary to carry out an accurate modelling of its performance. Data will be required that records:

Land use divided into:

- Farm location;
- Dairy by Dairy NZ system classification;
- Arable specifying whether it is small seeds or process cropping;
- Sheep and Beef specifying whether it is breeding or finishing; and
- Dairy Support specifying the proportion of area in cow wintering, grazing young stock and the sale of silage.

Detailed Description of Irrigation Type and Soil Type.

Irrigation should be split up into borderdyke, conventional spray and centre pivot.

Soil type should be split up by the PAW groupings.

This information should be populated in a table that describes the area in those terms. The area in each cell would be calculated.

Calculating the N Leaching for the Current Land Use:

OVERSEER models will need to be created to represent the average farm for each of the cells in the above table. These models need to be created using local knowledge of the farm system types and the standard practices used in them. The models will be created in OVERSEER using the same methodology as that used in the proposed Nutrient Budget Preparation Protocol (refer to proposed Schedule 24c of V2, which is set out in **Annexure E** to this submission).

Factoring up the Data to create a Total Leaching figure for the Catchment:

The areas in the cells of the table will need to be multiplied by the corresponding results of the OVERSEER modelling exercise to create a total leaching result for the catchment. This will then be distilled down by any of the factors that make up the table to determine what type of land use or practice has a significant influence on the total.

1.1 Calculating the impacts of Various Mitigation Options

Calculating the Impact of Mitigation Options on N leaching:

A range of mitigation options will need to be created and assessed for their effectiveness and practicality (existing and future). The mitigation options will need to include considerations such as:

- Improvements in irrigation efficiency;
- More efficient animals;
- Lower numbers of livestock;
- Reduced Autumn and total seasonal Nitrogen applications;
- On / off grazing;
- Supplementary feed pads;
- Winter housing; and
- More efficient farming systems in terms of Nitrogen leaching results.

Each mitigation option will need to be run through the corresponding OVERSEER model to determine the impact on the N leaching result. The results of this work will be able to be reported in terms of the total N leaching (with and without mitigation) and the percentage change in the total N leaching figure for each appropriate farm type.

Calculation of the Financial Impacts of the Mitigation Options:

In order to evaluate the practicability of the Mitigation Options, it will be necessary to create model budgets that report Total Farm Revenue, Cash Farm Expenses and the resultant Farm Operating Surplus. In addition a record of total farm assets and liabilities and total net equity for each farm model will be created.

Each mitigation option will need to be costed out to determine its impact on both the cash performance of the farm and the impact on the total equity of the farm.

1.2 Create a List of the Mitigation Options Based on Their Effectiveness & Practicability

The mitigation options would need to be ordered (from most effective to least effective, and most practicable to least practicable) in a number of ways.

The financial efficiency of each mitigation option would need to be determined by dividing the quantum of the reduction of N leaching by the financial cost in terms of the nett change in the cash surplus of each farm. This would need to be expressed as the cost of mitigation per unit of N reduced. From this analysis, a cost reduction curve would need to be created for each farm type.

The second 'ordering' would need to be in terms of the proportion of N leached from the total expressed as a percentage.

The third ordering would be in terms of the mitigation option's total impact on the net equity of the farming operation. In this way it would be possible for the relative affordability of each option (in terms of the ability of the average operator to be able to borrow sufficient funds to be able to implement each option) to be derived.

1.3 Determine a % Reduction or Actual Reduction, An Appropriate Timeframe in which it Could be Achieved and the Stepped Actual or % Reductions that Could be Imposed

From the financial budgets created earlier, it would be possible to derive a 'bottom line' figure (for both the cash operating surplus and the total equity). This would set an 'affordability threshold'. This would be used to derive the % reduction that could be achieved implementing land based mitigation options, and not causing an unacceptable social or economic effect.

The same data would be used to derive a robust estimate of the likely timeframe required to achieve the mix of mitigation options needed to achieve the % reductions. It would also enable a robust series of stepped reductions to be derived that would apply across the land use and/or soil types over the timeframe that is estimated.

The phrase 'good management practice' in the Hinds/Hekeao Plains Area means the achievement of all [of the following practices / outcomes:

- The operation of an effluent system(s) that achieves the relevant conditions of consent and/or permitted activity standards and that meets, for dairy farms, the milk processors minimum standards;
- Fertiliser is applied according to the CODE OF PRACTICE FOR NUTRIENT MANAGEMENT - (With Emphasis on Fertiliser Use): Fertiliser Association 2013; ;
- All stock are excluded from water ways and water bodies in accordance with rules 5.68 and 13.5.26 of the proposed Canterbury Land and Water Regional Plan;
- Irrigation application efficiency equals to, or exceeds 80 % (as sought by Policy 4.68 of the proposed Canterbury Land and Water Regional Plan) or commitments are in place (in the Farm Environment Plan for the landholding) to achieve this efficiency within a prescribed timeframe;
- Fertiliser application and management are conducted in accordance with the recommendations generated from a budgeting tool, such as OVERSEER; and
- Nitrogen leaching and phosphorus runoff are modelled for the current farming enterprise using OVERSEER.

Guiding Premise:

The N loss limits for new intensification or land use change need to reflect what the environment can accept, and leave it to the individuals to configure their farming system to fit in with that limit.

Broad Approach:

A series of OVERSEER models and financial models would be developed, using all of the mitigation options for N leaching which are assessed as effective and practicable (that work would be conducted as part of the investigation described in **Annexure A** of this submission), to determine the lowest possible N leaching rate that could be applied.

Put another way, the models would need to be calculated by farming type, soil type and climatic zone to determine an acceptable rate (kg N leached / ha) for each farm type and each soil type and each climatic zone. This would result in a table and/or map that specify the acceptable Nitrogen leaching rates for new irrigation conversions according to the farming type, soil type and location which the applicant was in.

Investigation Methodology:

A range of OVERSEER models would be created for each farm type across the available soil types and climatic zones that are available within the subject area. These farm models would explore the range of mitigation options that are available but would concentrate on modelling the sorts of farming systems that are known to create lower leaching outcomes. These include: advanced irrigation technology, lower stocking rates, provision of supplementary feed through feeding grain in the shed and so on. From this modelling a range of N leaching results can be created for each farm type.

A range of farm financial models would be created (to match the farming systems modelled in the OVERSEER modelling). They would be set up to report the Cash Farm Surplus and the Return on Capital of carrying out the new conversion to irrigation. From this a set of standards would be derived below which a farmer would be unable to make the investment need to irrigate. From the resulting data an N leaching standard can be derived across the various land uses, soil types and climatic zones, the application of which will mean that the N losses are kept to the minimum but also ensuring that further agricultural development is possible.

Should the Good Management Practices definition proposed in **Annexure B** of this submission **not** be accepted by the Council, additional time will be required to agree (with the Council) what represents 'good management practices', to update the Farm Environment Plans ('**FEPs**') that are presently being prepared, and then to implement the modified FEPs. The following programme sets out the logical steps that will be needed to do this:

- The RDRML understands that most farmers in the Plains will be completing their FEPs by the 1st of January 2017. All of the farmers associated with the RDRML and its three-shareholding irrigation schemes will have a FEP in place by 2016. Of note, however, is that the RDRML's FEPs have been prepared on the basis that those activities listed in Annexure B to this submission represent 'good management practices'.
- To ensure that these FEPs will achieve the expectations of V2, the Company will engage with the Council following the release of the decisions to the submissions to ascertain what additional requirements apply. Experience suggests that this process will take some time, so we have allowed a six month period. It is noted that the pLWRP states that good management practices will be codified and introduced in the Regional Plan on or before the 30th of October 2016. This is some time after the decisions on V2 are expected to be released (the Company understands that the decisions are likely to be issued in 2015).
- Once the good management practices are agreed with the Council, the Company will then commence the process of updating the 450 FEP's that have, or are in the process of being prepared by its shareholders. Given the number of FEPs that could need to be amended, experience suggests that this will take 12 months.
- Once updated, the farmers will need to modify their activities to comply with the good management practices. The length of time this will take will depend on the changes that are needed, which derives from what is ultimately agreed with the Council. Experience suggests, however, that this step will take, on average, 36 months. Some farmers will struggle to achieve this outcome. It is difficult to discern how many without having a high level of certainty around this nature of the good management practices that would ultimately be imposed. A degree of conservatism will therefore need to be built into the timeframe that is set.
- Given the foregoing, it is reasonable, and realistic to conclude, in the Company's opinion, that agreeing the good management practices with the Council, modifying the FEPS to reflect what is agreed, and then implementing the modified FEPS will take, approximately 54 months from the Council issuing its decisions to the submissions / further submissions to V2. It is probable that even this timeframe will be too tight for farmers / land users.

Use the current Overseer Best Practice Data Input Standards choosing the first option in every category. If it is not possible to use the first option in each category, then choose the second option (and so on). Please note which option you chose in the notes (property description) section of OVERSEER.

Data input requirements include:

Section 2 Enterprises:

Sub section 2.1 – Numbers.

- Enter stock numbers by month for all stock types, including Dairy cows;
- Enter median calving and drying off dates for all Dairy herds;
 - Use estimates where necessary if forecasting; and
 - Record these dates in the notes (property description) section of Overseer;
- In the case of a single ‘farming year’ being split by the stock reconciliation period defined in Overseer, enter the stock on farm from a single winter period. For example, the animals wintered in June & July 2013 should be entered; and
- Record this in the notes (property description) section of Overseer.

Section 4 Block data:

Subsection 4.3 – Soil description / 4.4 – Soil profile

- For soils, follow the current Overseer Best Practice Data Input Standards using the S-Map information, from page 3 of the Overseer S Map data sheets, for all the soil types present on each property as defined by S-Map;
- In all situations where the Profile Available Water (PAW) defined for a soil in the SMap report differs from the AWC reported by Overseer, change the classification of the Non-standard layer from ‘Stony Matrix’ to ‘Stony’ and then reduce the depth to Non-standard layer until the two values align;
- Record these adjustments in the notes (property description) section of Overseer; and
- If anything else is done, then describe and justify this in the notes (property description) section of Overseer also.

Subsection 4.11 - Irrigation

- Follow the advice on the Irrigation Requirements Database by Aqualinc. (<http://smtp.aqualinc.co.nz:4040/FC/>) website about irrigation system type categories and matching soil WHC’s with the AWC’s determined by Overseer (pending);
- Ensure that location defined (by GPS co-ordinates, from Google Maps) is consistent with that used to determine the climate inputs for Overseer;
- Enter irrigation depths by month for all months using the IrriCalc data (<http://smtp.aqualinc.co.nz:4040/FC/>) for all of the irrigation systems present on the property, grouped as per the guidance on the Irrigation Requirements Database by Aqualinc website;
- For Pasture use the ‘Average Irrigation water use’ values presented for each month; and
- For Crops, scale the ‘Average Irrigation water use’ depths presented for Pasture by the ratio of AET/PET for each block and enter values for all months, using the AET value presented in Overseer ‘Other values’ report for each block.

General - Note which version of Overseer and associated Best Practice Data Input Standards were used in the notes (property description) section of Overseer.