

BEFORE THE INDEPENDENT COMMISSIONERS

IN THE MATTER

of the Resource Management
Act 1991

AND

IN THE MATTER

of Variation 2 (Hinds/Hekeao
Plains Area) to the Canterbury
Land and Water Regional Plan
by the CANTERBURY
REGIONAL COUNCIL

**EVIDENCE IN CHIEF OF PETER WILSON ON BEHALF OF CENTRAL
SOUTH ISLAND FISH AND GAME COUNCIL
15 MAY 2015**

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QUALIFICATIONS AND EXPERIENCE

- 1 My name is Peter Gordon Wilson. I am a professional resource management planner, holding the degrees of Master of Planning and Bachelor of Science (Physical Geography) from the University of Otago. I am a graduate member of the New Zealand Planning Institute (NZPI) and a member of the Resource Management Law Association (RMLA).

- 2 I have been employed as a planner for seven years, previously as a statutory planner with the Department of Conservation in Southland, with the Waitaki District Council, and currently as an environmental officer with the Otago Fish and Game Council, based out of Dunedin.

- 3 My main interest and professional specialty is regional, rural and conservation planning. I have drafted conservation management strategies and national park management plans for the Department of Conservation. I have also undertaken State of Environment reporting and dairy conversion/subdivision consenting for the Waitaki District Council

- 4 I have four years experience in processing affected party approvals on water consents, in the development of minimum flows and water allocation regimes in Otago, the transition from deemed permits to resource consents - an issue of historical overallocation and in managing collaborative catchment groups. I was also heavily involved in the development of Otago's water quality rules – plan change 6A.

- 5 I also currently provide advice to the executive of the Federated Mountain Clubs of New Zealand, an umbrella group representing 17,000 outdoor recreationalists, on conservation planning issues. I provide similar advice on conservation planning issues to Fish and Game Councils.

- 6 In preparing this evidence I have reviewed the s32 report, the s42a officers report from Environment Canterbury, and the reports and statements of evidence of other experts giving evidence relevant to my area of expertise, including:
- (a) Dr Allison Dewes
 - (b) Adam Canning
 - (c) Dr Lisa Scott
 - (d) Mr Mark Everest
- 7 I have prepared this evidence in compliance with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014.

SCOPE OF EVIDENCE

- 8 This brief of evidence covers:
- (a) The planning framework and architecture for variation 2 and whether it gives effect to the Resource Management Act 1991, the National Policy Statement on Freshwater Management 2014, and gives appropriate regard to other policy instruments.
 - (b) Central South Island Fish and Game Council's submission.
 - (c) Commentary on the s42a officers' report

EXECUTIVE SUMMARY

- 9 I address issues with the planning architecture of Variation 2 and its relationship with the proposed Canterbury Land and Water Regional

Plan (the “pCLWRP”, or parent plan). This includes the following topics that are central to the case:

- (a) The need for Variation 2 to give full effect to Policy 4.7 of the parent plan
- (b) The difference between toxicity and ecosystem health when setting limits and targets.
- (c) The short lifespan of this Variation before a further plan change is undertaken.

- 10 I emphasise the understanding the trajectory and magnitude of change needed in this catchment, based on expert evidence, and what this means for future activities in the catchment. I will discuss what the substantial differences in modelled nitrogen leaching from farms based on expert evidence in the catchment mean for the proposed restrictions for nitrogen-leaching.
- 11 I accept the expert evidence from Adam Canning and Alison Dewes that loads, and their associated on-farm leaching limits should be calculated back from the desired instream nutrient concentration or agreed freshwater objectives, rather than the contrasting approach used in variation 2 which assesses current leaching and picks an instream concentration standard or freshwater objective or target to suit this. Limits and load setting should be undertaken to as a minimum maintain the current water quality.
- 12 I will discuss and critique the land use management framework for the Hinds catchment in variation 2. I question the ability for new land to be irrigated given the current state of the catchment. I will explain why the allocation approach undertaken by Variation 2 is not equitable, fair, or sustainable, and is inconsistent with the RMA, NPS-FM, pCLWRP.
- 13 I will explain Fish and Game’s alternative approach, designed to ensure that water quality in the catchment suffers from no further

deterioration, is set on a trajectory of improvement, and allocates the required reductions in nitrogen leaching more fairly across existing land uses. Our approach also recognises that a new planning framework is required to be set for the catchment in 2023/2024 to give full effect to the NPS-FM 2014. Fish and Game's approach also strengthens by way of amendment the descriptions of good environmental practice for farming activities and nutrient accounting that are contained within Schedule 7 and Schedule 24 A.

- 14 I will specifically address the concept of managed aquifer recharge ("MAR") in the context of this variation. Managed aquifer recharge is unproven, and whilst it may be beneficial in the future and as such is worth researching, it is wrong to write those assumed benefits into the variation before they have been proven. The inclusion of MAR into the overall calculation of catchment hydrology and the dilution of the nutrient load is best added by way of a plan change at a later point after the results of trials.

THE HINDS/HEKEAO PLAINS AND CATCHMENT – AN OVERVIEW

- 15 The Hinds/Hekeao Plains Area ¹ presents a difficult planning challenge, due to the extent and severity of the over-allocation problem – on both water quality and water quantity matters. It is acknowledged that this has been many decades in the making, and that even if appropriate limits and targets are set as a result of the outcome of this variation, it may take decades to achieve the targets. Given the scale of the challenge, it may be an intergenerational process. However, there is an imperative for this process now to set the catchment on a trajectory of improvement.

THE TREATMENT OF THE CENTRAL SOUTH ISLAND FISH AND GAME COUNCIL SUBMISSION

- 16 Fish and Game provided a detailed submission on the notified version of variation 2, which sets out specific relief.

¹ Fish and Game uses the same definition of the Hinds/Hekeao Plains Area as the Canterbury Regional Council, in section 13.2 of the proposed Canterbury Land and Water Regional Plan (pCLWRP).

- 17 After analysis, and during the preparation of our hearing evidence, some items of relief are no longer required. The current relief sought by Fish and Game in a marked up version of Variation 2. This is attached to my evidence as Appendix 1.

COMMENTS ON THE SECTION 42A OFFICERS' REPORT

- 18 Fish and Game generally supports the recommendations of the s42A Officers' Report, specifically the marked up version of Variation 2 dated 1 May.
- 19 One comment is necessary though. A consideration of the Central South Island Sports Fish and Gamebird Management Plan is required, under s66(2)(c)(i) of the RMA. The Report states that "The Sports Fish and Game Management Plan is stated as being an operational plan as opposed to a regulatory plan," (section 14.25), and then does not consider the objectives and policies within that plan that pertain to Variation 2.
- 20 This is an error. Sports Fish and Gamebird Management Plans are statutory and regulatory documents under the Conservation Act 1987, the Fish and Game equivalent of a Conservation Management Strategy. They are required by s17L of the Conservation Act 1987, and set out the intent of the Central South Island Fish and Game Council's actions to maintain and enhance sports fish and gamebird habitat in Canterbury's rivers. An operational plan, in the context of Fish and Game, is the annual work plan, which is a separate requirement of the Act. I raise this to clarify the comments made in the Officers' Report, as there is nothing in the CSI plan that differs from the submission made on this plan.

THE TRAJECTORY OF CHANGE IN THE HINDS/HEKEAO PLAINS AREA

- 21 The Hinds catchment suffers from severe water quality degradation, mostly sourced from intensive agriculture. Dr Canning² has explained that the current mean and median nitrogen³ in the catchment is “four times the region’s average and 20 times the region’s median”. Dr Lisa Scott quotes from previous studies that these levels are “some of the highest in New Zealand”⁴.
- 22 Furthermore, the current instream water quality in the Hinds River/Hekeao is about 3.8mg/L, which is between 5 to 10 times higher than the maximum levels recommended for ecosystem health, which are variously recommended as between 0.290 mgN/L and 0.8 mgN/L⁵. The surface and shallow groundwater concentrations in the Hinds plains are trending upwards. Maximum Allowable Values for nitrate in shallow groundwater exceed the New Zealand Drinking Water standard in some cases, and the trajectory is for these levels to continue to increase. Deep groundwater has lower concentrations, but the hydrology and linkages with shallow groundwater is relatively unknown
- 23 The reducing availability of surface water and dropping shallow groundwater levels is exacerbating the deterioration in water quality through concentration effects. The long term decline in observed and monitored flows in the Hinds/Hekeao as well as the Hinds Drains and its effect on the fishery will be explained by Mr Mark Webb.
- 24 Dr Scott has usefully modelled various scenarios for the catchment to outline the likely trajectory of change. Whilst the magnitude of change and the underlying data underpinning her leaching assumptions will be questioned by Fish and Game’s agriculture and

² Dr Adam Canning, EiC, item 36

³ I use the term “nitrogen” in this context to refer to the instream concentration of nitrogen, nitrate-nitrite-nitrogen (NNN), dissolved inorganic nitrogen (DIN) or soluble inorganic nitrogen.

⁴
⁵ ANZECC(2000)

economics experts, the direction of change predicted in her scenarios is not questioned. I'll summarise:

- (a) With no change in current leaching rates, and no new intensification, the future load will increase to 4,600 tonnes/N/year. Average concentrations of N in shallow groundwater and drains will routinely exceed the drinking water standard, and the concentrations in the lower river will more than double to levels that are toxic to most aquatic life.
- (b) With an additional irrigated area of 28,500ha, the future load will be 5,900 tonnes, and the deterioration in freshwater will be worse-14 mg/L in groundwater and drains, and 9mg/L in the lower river.

25 Dr Scott then calculates two further scenarios, which whilst our experts will again question the underlying assumptions of, showcase the extent of the challenge before us:

- (a) An environmental scenario, with no increased area of irrigation, a 30% reduction in leaching rates and a functioning managed aquifer recharge (MAR) system of 5 cumecs to achieve a target load of 3,200 tonnes/N/year.
- (b) A potential options scenario, which assumes an increased area of irrigation of 28,500ha, a high reduction in leaching of 30-45%, and 4 cumecs of MAR water, for a total load of 3100 tonnes/N/year

26 These potential loads should be thought of as determining the outer extents of the trajectories of change in the catchment that are possible or likely – in both directions, if levels of nitrogen toxicity are accepted as an acceptable freshwater outcome.

27 A useful bookend on these loads is Dr Canning's evidence, that states that to achieve water quality at ecosystem health in surface

and groundwater, the required load would be 303 tonnes/N/year⁶. This shows the extent of the reduction necessary if one were to seek a full restoration of the ecosystem.

- 28 Therefore, it is critical that the plan provisions can be relied upon to start reducing leaching and reducing total load. With Fish and Game's changes attached, in my opinion that reduction is more likely, and the appropriate trajectory of change more attainable. The way in which the plan provisions Fish and Game proposes will work is:
- (a) For Policy 13.4.9 placing a better linkage between it and the limits and target in Table 13(a) and Table 13(g), the requirements for farm environmental plans in Schedule 7, and the farm practices described in Schedule 24A.
 - (b) For Policy 13.4.10, linking improvement in discharge of contaminants to better riparian planting and management, as well as the practices in Schedule 7 and Schedule 24A.
 - (c) For Policy 13.4.13, extending the policy to require leaching reductions from other farming activities from 1 January 2020, and to require the possibility of leaching reductions to be assessed on the basis of farm system modelling.
 - (d) The removal of rules that provide for the use of land or discharges from that land if it has already been consented by way of an irrigation company's discharge consent. This will be addressed in legal submissions.

THE CALCULATION OF LOADS, LEACHING TARGETS AND INSTREAM NUTRIENT LIMITS

- 29 There are two logical methods used to calculate loads, instream nutrient limits and subsequent leaching targets and limits.
- (a) The first is to take a desired or current instream nutrient concentration, to ascertain the volume of water in the catchment, including the components of drainage on-farm, to

⁶ Item 34, EIC, Dr Adam Canning

convert that concentration into mass per land area (kilograms per hectare) calculation. This approach has been used in the Upper Hinds, and obviously, has a greater chance of ensuring a linkage between the instream state and land use.

(b) The second approach, used in the Lower Hinds, is the reverse, to model on-farm leaching and the area that it applies to, to add on likely drainage to achieve a volume of water, and then to convert that to a downstream or location-specific concentration.

- 30 As a matter of good planning practice, the problem with the latter approach is that given the wide range of possible instream nutrient concentrations available to be chosen within bands under Appendix 1 of the NPS-FM (2014), it becomes convenient to pick a concentration standard within the NOF bands that most closely matches the modelled outcome. It is especially problematic to choose an instream concentration that most closely matches the modelled outcome when freshwater objectives for the Hinds catchment have not yet been fully developed, and when current water quality is at levels that are toxic to some aquatic life.
- 31 Based on the expert scientific evidence, in my opinion maintaining the current instream surface water quality of 3.8mg/L is the minimum possible under the requirements of the Act and the NPS, even though this level is toxic to some introduced and indigenous aquatic life. Whilst ecosystem health standards are not possible for the Hinds, given the extent of the issue, even achieving this still represents a considerable challenge.
- 32 Whilst Fish and Game accepts the nitrogen limits and targets for the Hinds, it does not accept the use of single nutrient management targets in Table 13(a) and Table 13(j). Amendments are proposed to set appropriate limits and targets for phosphorus, E coli, and ammonia, within the context of the recommended nitrogen limit.

- 33 I have a general concern with the approach that the Canterbury Regional Council take for choosing limits and targets, which still appears to ignore the life-supporting capacity requirements of the receiving environment, and takes current state as the best that can be realistically achieved in the future. I urge caution with future modelling exercises that set limits and targets for other Canterbury catchments.

THE ACHIEVABILITY OF CANTERBURY REGIONAL COUNCIL'S APPROACH FOR THE HINDS/HEKEAO PLAINS

- 34 The Canterbury Regional Council has used the on-farm leaching assumptions from Everest (2013)⁷ as the basis for determining the current and expected future leaching in the catchment.
- 35 This report makes a number of assumptions about on-farm leaching and possible nutrient leaching reductions that Fish and Game's experts will question. These leaching assumptions and on-farm improvements or reductions are central to the achievability and viability of Variation 2.

Overseer variability

- 36 The Everest report used OVERSEER 6.0 for modelling root zone leaching. However, versions 6.1 and 6.2 of the software have been released since then. The newer versions show a substantial increase in predicted N leaching from irrigated land. Agricultural experts, Dr Alison Dewes, of Headlands Environmental, will explain the differences in predicted leaching between the OVERSEER versions.
- 37 As a result of the change in versions, it is likely that the Canterbury Regional Council has significantly under-estimated current and future leaching within the catchment. The following table, obtained from Dr Dewes' evidence, shows the extent of the change:

⁷ Hinds Catchment Nutrient and On-Farm Economic Modelling, Mark Everest, Macfarlane Rural Business Limited, 14 December 2013

N Leaching Variation Between Overseer Version 6.1.1 & 6.2 on Dairy Business of the Year Farms					
Farm	Soil type	Base file version 6.1.1	Base file version 6.2	% Change in N leaching between versions	Net % difference between overseer versions
DBOY Farm 1	Light (Lismore)	14	32	128.6%	128.6%
DBOY Farm 2	Light (Lismore)	69	72	4.3%	4.3%
DBOY Farm 3	Medium (Ashwick)	62	65	4.8%	4.8%
DBOY Farm 4	Light (Lismore)	86	121	40.7%	40.7%
DBOY Farm 5	Sandy (Templeton)	39	53	35.9%	35.9%
DBOY Farm 6	Light (Lismore)	11	29	163.6%	163.6%
Average = 32 = Average = 53				Average	63.0%

38 I note that in addition to this, the increase in predicted N leaching from Version 6.0 to Version 6.1 is around 100% for some soils. In total, this means that the leaching, and therefore total loads from irrigated land in the lower catchment could be more than double what has been calculated so far. The table below shows the extent of the problem:

<u>Overseer 6.0/Everest (2013) load assumptions, current state</u>	<u>Overseer 6.0/Everest (2013) load assumptions, with development</u>	<u>Overseer 6.2 load possibility, development scenario</u>	<u>2035 target load</u>
4,600 tonnes/year	5,900 tonnes/year	9,617 tonnes/year	3,200 tonnes/year

39 I raise this point primarily to show that Variation 2 may underestimate the scale of the challenge, and to request that the Canterbury Regional Council undertake further modelling based on Overseer 6.2 to more accurately determine leaching rates in the catchment. This is a valid exercise to undertake, given that a further

plan change is proposed for the catchment. It may be that more accelerated leaching reductions are required from 2023, or the timeframe for achieving the water quality target.

40 However, the significant underestimate in the leaching and load calculations requires a reassessment of the future for future irrigation expansion in the catchment. The Variation allows for an additional 30,000 hectares of new land, most of it on light, coarse soils with high leaching potential. Given the average leaching rates presented above, this could represent an additional load of between 960 to 1,560 tonnes/N/year, up to a total load assessed within Overseer 6.0 of 5,900 tonnes/year, but it may very well be as high as 9,617 tonnes/year using the expected increase in leaching between Overseer 6.1 and Overseer 6.2.

41 Given this expert evidence and the possibility of an underestimate in leaching, it would be imprudent to allow for future expansion in the catchment within this Variation, and Fish and Game's relief seeks the removal and amendment of rules that provide for this expansion. Future expansion should not be provided for until such time as the catchment is on a clear trajectory of improvement as proven by water quality sampling. This is required by the following:

(a) From the National Policy Statement on Freshwater Management (2014) - **Objective A2**

The overall quality of freshwater within a region is maintained or improved while:

a) *Protecting the significant values of outstanding freshwater bodies;*

b) *Protecting the significant values of wetlands; and*

c) ***Improving the quality of fresh water in water bodies that have been degraded by***

human activities to the point of being over allocated

- (b) **Policy A1(b)** of the NPS also requires regional councils to establish methods (including rules) to avoid over-allocation.

I note the use of the “avoid” test within Policy A1(b), which reinforces Fish and Game’s position that the variation cannot allow for further intensification because of the existing overallocation.

- (c) **Objective 7.2.2** of the Canterbury RPS – parallel processes for managing freshwater:

- (1) improvements in the efficiency with which water is allocated for abstraction, the way it is abstracted and conveyed, and its application or use;*
- (2) the maintenance of water quality where it is of a high standard and the improvement of water quality in catchments where it is degraded; and*
- (3) the restoration or enhancement of degraded fresh water bodies and their surroundings.*

- 42 The principal reasons for adopting this policy provide further explanation:

“Parallel processes’ does not mean additional abstraction first and dealing with environmental effects later; nor does it mean no more abstraction until all environmental issues have been addressed.”

- 43 This objective encourages improvements in abstraction, conveyance, and end use of water, but not at the expense of the maintenance or improvement of water quality, or the requirement to restore degraded rivers. New intensification on the Hinds plains will

come from increased use alpine water sources that are outside of the catchment, and this may be inconsistent with this objective.

44 **Policy 7.3.6** – Fresh water quality requires the following:

In (1), the establishment of minimum water quality standards for surface and groundwater.

In (2), the management of activities that which may affect water quality (including land uses), singularly or cumulatively, to maintain water quality at or above the minimum standard set for that water body

In (3), to avoid additional allocation of water for abstraction from that water body and any additional discharges of contaminants to that water body, where any further abstraction or discharges, either singularly or cumulatively, may further adversely affect the water quality in that water body, until standards for the water body are met, or accepts an integrated solutions or catchment plans under policy 7.3.9.

45 As with Policy A1(b) above, the test provided in (2) is “avoid” before the conditional elements of the policy are introduced. In this case, the policy is clear, no further allocation until water quality standards are met, or if a catchment plan or integrated solution provides a pathway or timeframe for those water quality standards to be met. Variation 2 contains elements of an integrated solution to the catchment, but I will explain later in my evidence how it fails to provide for an improvement or even maintenance of water quality standards in its current form.

46 **Policy 7.3.11** recognises existing activities and infrastructure, including irrigation schemes, but requires an improvement in the water use efficiency of these schemes and a reduction in the adverse environmental effects of them, where appropriate.

47 I interpret in the context of the previous policies as stating that existing infrastructure should remain in place and improve, but that

new irrigation infrastructure must meet the test of avoiding adverse impacts on fresh water quality

- 48 Finally, **Policy 7.3.12** requires a precautionary approach to be taken when setting policies that affect water. It states clearly of the need for precaution where the effects of activities are singularly or cumulatively unknown or uncertain.
- 49 Given the uncertainty in leaching rates within the catchment, the degree of existing allocation, I believe that allowing new irrigation will be inconsistent with this policy.
- 50 Given the above policies, obtained from the RPS, in my opinion allowing new irrigation developments within the catchment is inconsistent with both the NPS-FM (2014) and the RPS. This option could be discussed in a future plan change after the catchment can be shown to be on a path of improvement.

Managed aquifer recharge

- 51 It is useful at this point to address the issue of managed aquifer recharge. This is an unproven technology in the catchment at this point, and it would be unwise to rely on its dilution effect to avoid the need to reduce N loss as quickly or to allow for expansion. Having a technological panacea, even unproven, can become an excuse for not acting now on a known problem, in the hope that future technology may resolve it. Large scale modifications of environmental systems are known to create unexpected outcomes, and precaution is best.
- 52 If MAR does work, its benefits will be added to the known N loss reductions that can be achieved now. However if it doesn't, water quality will further deteriorate.
- 53 However, it is worth researching and trialling to see if it can offer benefit, and if it can, the possibilities and any amendments to the rules can be introduced by way of a future plan change

Viability of leaching reductions

- 54 Fish and Game's experts (Dr Dewes and her reliance on Mr Ridler's report) address the possibility and extent of on-farm N leaching reductions through farm system optimisation and improvements. Variation 2 requires up to 45% N leaching reductions by 2035.
- 55 A summary of the expert evidence which relates to the specific N reduction targets in Variation 2 is as follows:
- (a) Many farms are operating beyond their optimum profitability point, i.e. the point where marginal costs, the cost of an extra unit of production exceed the marginal return, or the added value from that unit of production. Within this envelope, it is possible to reduce leaching whilst improving profitability, and the overall resiliency of the farm system to external shocks.
 - (b) That the 15% reduction in N loss assumed by "good management practice", to use the term currently in Variation 2, has already been factored into the load calculations for the catchment, because Overseer assumes that these measures are in place within farm systems. Therefore either the load is under-calculated (likely), or farm systems are not optimised based on Overseer assumptions.
 - (c) Beyond this 15% reduction, North Island studies have shown the ability for farmers to reduce leaching between 5-25% with minor negative to slightly positive effects on profit.
 - (d) A few farms have reduced stocking and increased per animal milk production through better feeding and improved genetics, resulting in up to 50% reduction in N leaching, without significant effects on profitability.
 - (e) The ability to reduce N leaching beyond a certain point, given current technology requires either high commodity prices or significant capital investments on farm, such as cow barns. The drop in milk price does place an added challenge on the

range of possible N reductions.

- 56 Given the evidence, I consider the N leaching targets for dairy and dairy support farming activities in the first two reduction periods, 2020 and 2025 in Policy 13.4.13(c)(i)-(ii) are fair and achievable.
- 57 The reduction targets beyond 2025 are more challenging, given current technology, and the possibility of a 45% reduction in N leaching by 2035 may not be possible. There is likely to be a need, in the future plan change in 2023/2024, to reassess the 2035 target.

Allocation and equity

- 58 An issue arises with the current approach for allocating the N reductions. As stated by Ms Dewes, the current approach “rewards polluters for being less efficient with nutrient usage and losses whilst penalising the innovators”. In other words, early adopters and innovators in N reductions carry a greater burden of the required reduction in N leaching. Other systems of allocation used in New Zealand take a natural capital approach based on the biophysical and soil properties of the farming enterprise, and/or they allocate the required N reductions out to all farming activities within a catchment.
- 59 Currently, it is only dairy and dairy support that have specific reduction percentages, beyond the required N loss which is as yet undefined by good management practice or good environmental practice, as I believe it should be called.
- 60 However, there is more knowledge about N loss reduction possibilities on dairy and dairy support farms, and it makes some sense to begin reductions with what we know. During a future plan change, I would support investigating an allocation regime based off biophysical properties, such as land use capability, if updated based on more recent soil data.
- 61 It is hoped that the amount of N loss possible on a farm enterprise is taken into account by the consent authority at consent time as a specific matter of discretion to avoid the above scenario. I have

therefore suggested an amendment to Policy 13.4.13 to provide a basis for this assessment.

62 Fish and Game has also recommended changes to Policy 13.4.13 to require other farming activities to undertake N reductions. This change is required to ensure consistency with Policy 4.7 of the parent plan. Policy 4.7 as amended by Order of the High Court on 27 March 2015 states:

Resource consents for new or existing activities will not be granted if the granting would cause a water quality or quantity limit set in Schedule 8 or Sections 6 to 15 to be breached or further over allocation (water quality and/or water quantity) to occur or in the absence of any water quality standards in sections 6 to 15, the limits set in Schedule 8 to be breached.

Replacement consents, or new consents for existing activities, may be granted to:

- (a) Allow the continuation of existing activities at the same or lesser rate or scale, **provided the consent contains conditions that contribute to the phasing out of the over allocation (water quality and/or water quantity) within a specified timeframe**; or*
- (b) Exceed the allocation limit (water quality and/or water quantity) to a minor extent and in the short-term if that exceedance is part of a proposal to phase out the over-allocation within a specified timeframe included in Sections 6 to 15 of this Plan."*

63 Currently, Variation 2 is inconsistent with Policy 4.7 of the parent plan because its policies and rules do not require or guarantee consent conditions that contribute to the phasing out of the over allocation, for replacement consents, or new consents for existing activities.

FISH AND GAME'S APPROACH FOR THE HINDS/HEKEAO PLAINS

- 64 Given the above discussion and Fish and Game's submission, I will now discuss the changes requested to the Officers' Report version of Variation 2. Apart from removing the policies and rules related to the expansion of irrigation, which is not possible given the increase in load, these changes are relatively minor.
- 65 For **policy 13.4.9**, I recommend the removal of the term "overall", as this implies that improvement in some areas will come at the expense of the others. There is always seasonal and spatial variation in water quality but the targets in this variation do provide for maintenance and improvement of surface and groundwater quality across the catchment. Therefore there is no need for the "overall" term.
- (a) The insertion of new points (a1) and (a2) will better link policy 13.4.9 to the limits and targets in Table 13(a) and (g).
 - (b) The amendment to (d) adds on the 2035 target year for achievement of the N loss reductions.
 - (c) The new (d1) links land use practice that might result in a discharge back to the practices listed in Schedule 7 and Schedule 24A. I have then tried to consistently carry through the requirement to follow both Schedule 24A and Schedule 7 through all the relevant rules.
 - (d) I have amended (e) to "researching", to better reflect the current knowledge of managed aquifer recharge.
- 66 For **Policy 13.4.10**, I have added an additional point (a1), to better link the loss of contaminants, phosphorus and sediment to the need for riparian planting and buffers on waterways, and a point (b) which better states the requirements for farm environmental plans and good environmental practice.

- 67 For **Policy 13.4.11**, I have expanded the policy into two separate subsections.
- 68 For **Policy 13.4.13**, there are several amendments I recommend:
- (a) A new (a), requiring all properties for which the rules apply to prepare and implement farm environment plans and good environmental practice
 - (b) An amended (b), which requires all existing farming activities for which the rules apply to implement staged reductions in nutrient leaching to achieve optimal farm leaching performance as demonstrated through techniques such as farm system modelling.
 - (c) This is places parity on other farming activities, not just dairying, to implement reductions based on the current state of knowledge. It also places a requirement on farm system modelling to determine what leaching reductions are available.
 - (d) A new (d), which requires, from 1 January 2020, time framed further reductions for other land uses, in accordance with Policy 4.7 of the parent plan.
- 69 The existing policy and corresponding rule, which apply reductions only to dairy and dairy support, are inconsistent with Policy 4.7, which specifically requires the phasing out of the over allocation for all replacement consents, and new consents for existing activities.
- 70 Within the rules, I recommend the following changes:
- (a) For **Rule 13.5.9**, the linkage is changed from an “or”, to an “and”, to require both Schedule 24A information keeping requirements and a farm environment plan to be prepared.
 - (b) For **Rule 13.5.14**, an additional condition is added to require any new irrigation developments to be proven that they will not

result in an exceedance or breach of the targets set in Table 13(g),(k), and (i). The reasons for this will be explained in legal submissions.

- (c) Rules **13.5.21 and 13.5.22** have been deleted on the basis of legal submissions, along with any explanatory text.
- (d) For **Rule 13.5.31**, an additional clause 6 in the matters for discretion is introduced based on Mr Webb's evidence, where upstream groundwater abstraction may be, surprisingly, having a positive effect on seasonal water quality in downstream drains. This is a matter for consideration as the phasing out of overallocation in these locations may in some cases result in a seasonal decline in downstream water quality in that drain.

71 I recommend specific changes to **Table 13(a) and 13(j)**– freshwater outcomes based on Dr Canning's evidence⁸. The main changes are to introduce dual and multiple contaminant management to what is current a single-nutrient management model. Specific phosphorus, E coli, DIN and turbidity standards have been introduced, along with new measures of ecological health based on invertebrates.

Defining environmental practice

72 The term "good management practice" in the variation is not defined, is a placeholder term and is often another way of referring to the status-quo. It means many things within the industry, not all of those are related to environmental improvement. The Officers' report on the basis of industry submissions recommends the removal of "good management practice nitrogen loss rates" as a definition from the plan, and I support this recommendation. I note also the risk of creating an inconsistency between the parent plan and the variation.

⁸ Table 1, EiC, Dr Adam Canning

73 Furthermore, I note that Schedule 7 and Schedule 24A define appropriate on-farm practice, which indicates the need to be specific with the description of on-farm practices.

74 It is thus better to use the term “good environmental practice” which is used in the wider plan, under section 3.24, which states:

3.2.4 - All activities operate at “good environmental practice” or better to optimise efficient resource use and protect the region’s fresh water resources from quality and quantity degradation.

75 I consider this to be appropriate term, and have inserted this text where it occurs.

76 I further reinforces this by referencing Schedule 7 and Schedule 24A in policies and rules to define what “practice” is.

Schedule 24A

77 Section (a) does not currently require OVERSEER to be operated by a qualified person. This creates a risk of incorrect data preparation and entry, leading to incorrect results. Other water plans⁹ require OVERSEER to be operated by Certified Nutrient Management Advisors, of which there are a growing number in Canterbury, including within fertiliser companies and some rural support businesses. Fish and Game requests this as minor and inconsequential relief.

78 Section (a)(iii) requires soil nutrient information to be kept and supplied to the Canterbury Regional Council on request. This is particularly important in farming activities that are not currently within the OVERSEER model. I recommend that these industry types be listed to ensure that accurate record-keeping is maintained. The land use types at the time of writing are:

⁹ Otago Regional Water Plan, Rule 12.C.1.3;

- a) Outdoor pork
- b) Fruit (excluding grapes)
- c) Berry
- d) Rotational vegetable production

79 At some point, these land use types will be modelled within Overseer, but until then, a specific requirement for these farm activities to collect information is necessary.

Proposed Variation 2 to the Proposed Canterbury Land and Water Regional Plan - Section 13 Ashburton

Version Showing Officer s42A Report
Recommendations as **red** “Tracked Changes”
Fish and Game changes shown in **blue**

~~01 May 2015~~

15 May 2015

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Part 1: Scope of the Variation

This Variation proposes changes to the proposed Canterbury Land and Water Regional Plan in accordance with Policies 4.9 and 4.10 of the proposed Canterbury Land and Water Regional Plan and Appendix 2 to the Canterbury Regional Policy Statement 2013.

Additions have been made to Section 13 'Ashburton' of the proposed Canterbury Land and Water Regional Plan for the Hinds/Hekeao Plains Area. The Variation introduces changes to describe the limits, targets, time frames and additional policies and rules to address over-allocation of water quantity and water quality for the Hinds/Hekeao Plains Area as required by the objectives and strategic policies of the proposed Canterbury Land and Water Regional Plan. The changes proposed achieve the purpose of the Resource Management Act 1991.

Variation 2 also includes minor consequential changes to two region-wide rules, and an amendment to the boundary between Sub Regional Sections 12 and 13 of the Proposed Canterbury Land and Water Regional Plan so that the amended boundary of Section 13 aligns with the boundary of the Mayfield-Hinds Groundwater Allocation Zone.

All the rules in Variation 2 have immediate legal effect under section 86B of the Resource Management Act 1991 from the date of notification.

Part 2: Amendments to Region-Wide Rules

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strikethrough~~.

Amend Rule 5.124 as follows:

5.124 The taking and use of surface water from a river or lake that does not meet ~~condition 2 or 3 in Rule 5.123~~ one or more of the conditions of Rule 5.123 excluding condition 1 is a non-complying activity.

Amend Rule 5.129 as follows:

5.129 The taking and use of groundwater that does not meet one or more of the conditions of ~~1 and 4 in Rule 5.128~~ excluding conditions 2 and 3 is a non-complying activity.

Part 3: Amendments to Section 13 - Ashburton

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strikethrough~~.

After the first paragraph on page 13-1 insert following text:

Within this section there are policies and rules for water quantity in the Hakatere/Ashburton River catchment, and policies and rules for water quality and quantity in the Hinds/Hekeao Plains Area. For all other areas within this section only the region-wide policies and rules apply.

After map on page 13-1 insert the following text:

The following sustainable water management priority outcomes for the Hakatere/Ashburton River catchment have been identified by the Ashburton Zone Committee:

Before heading 13.1 on page 13-2 insert the following text:

The Hinds/Hekeao Plains Area consists of the Hinds River/Hekeao catchment, and the plains between the Rangitata and Hakatere/Ashburton Rivers. The Upper Hinds/Hekeao Area includes the foothills and basins that drain into the north and south branches of the Hinds River/Hekeao. The Lower Hinds/Hekeao Plains Area contains the middle and lower reaches of the Hinds River/Hekeao as it flows out across the Canterbury Plains and contains more than 30 spring-fed lowland water bodies by the coast. Many of the water bodies in the Lower Hinds/Hekeao Plans Area are the remnants of what was once an expansive wetland.

~~For Ngāi Tahu water is taonga. The wetlands of the Lower Hinds/Hekeao Plains Area supported a rich and varied mahinga kai resource. The cultural significance of the Hinds River/Hekeao is recognised by its Statutory Acknowledgement status.~~

~~The Hinds/Hekeao Plains Area today is highly modified. Drainage of the wetland area east of State Highway began in the 1850s allowing the establishment of one of Canterbury's most productive agricultural areas. An artificial channel, cut in the 1860s-1870s, created a permanent outlet for the river to flow to the sea. A small hapua (lagoon) is present at the river mouth, although this is blocked to the sea most of the time. Many of the Artificial drains, stock water races and modified channels which replaced the wetlands and waterways, provide substitute habitats for a variety of fish and invertebrate species.¹~~

~~The Hinds/Hekeao Plains Area was historically, and is currently, an important area for food production. It currently provides significant employment in the area, both on-farm and in processing and servicing industries. The social and economic wellbeing of the community is reliant on the agricultural industry and it is important that it is retained so that the communities can thrive.²~~

Agricultural development, however, has had a significant impact on the cultural, ecological and recreational values and opportunities of the area. Today drainage remains a primary function of many of the lowland

¹ V2 pLWRP-416 – Director General of Conservation

² V2 pLWRP-471 – Barrhill Chertsey Irrigation, V2pLWRP-941 – Dairy Holdings, V2pLWRP-607 – Horticulture NZ, V2pLWRP-815 – Fertiliser Association of NZ, V2pLWRP-541 – Dairy NZ, V2pLWRP-739 – Fonterra
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water bodies, however they continue to be a taonga and source of mahinga kai for Ngāi Tahu and support significant ecological and recreational values.

For Ngāi Tahu water is taonga. The wetlands of the Lower Hinds/Hekeao Plains Area supported a rich and varied mahinga kai resource. The cultural significance of the Hinds River/Hekeao is recognised by its Statutory Acknowledgement status.³

There are a number of irrigation schemes in the Hinds/Hekeao Plains Area. There are also individual surface and groundwater takes throughout the area. Agriculture now makes up 98 percent of land use in the Hinds/Hekeao Plains Area. The availability of plentiful clean water has been one of the critical ingredients to the economic success of the area.

Water resources are now showing signs of stress. Nitrogen concentrations in 2013/14 year average around 11 milligrams of nitrogen per litre in shallow wells, and are increasing while water availability is decreasing. These trends have not only had an adverse effect on cultural and ecological values but have also adversely affected the reliability of supply for users.

During 2013 and 2014 the Ashburton Zone Committee engaged with the local community and stakeholders to develop a package of actions (the 'Solutions Package') that was considered the most effective in protecting cultural values and opportunities to gather mahinga kai safely, maintaining water quality and quantity in the Upper Hinds/Hekeao Plains Area, and improving water quality and quantity in Lower Hinds/Hekeao Plains Area while also sustaining a healthy economy and community.

The Committee's Solutions Package consists of four main parts with both regulatory and non-regulatory recommendations: catchment scale actions (e. g. on-farm mitigation measures, managed aquifer recharge, and increased irrigation area); local scale actions (e. g. riparian fencing , planting , and well head protection); investigations, monitoring and review of the Solutions Package; and community engagement. The Committee's Solutions Package is fully outlined in the Ashburton Zone Implementation Programme Addendum 2014. This section of the Plan includes policies and rules that reflect the regulatory recommendations in the Ashburton Zone Implementation Programme Addendum 2014.

The Solutions Package requires a 45 percent reduction in nitrogen losses from farming activities in the Lower Hinds/Hekeao Plains Area by 2035. All farming activities are to operate at good [environmental](#) management practice as defined in [Schedule 7 and Schedule 24A](#) by 2017. Dairy and dairy support farms are then required to further reduce nitrogen loss rates by 45 and 25 percent respectively, by 2035. Change in land use or land use intensification is provided for on a maximum of 30,000ha provided the nitrogen loss is no more than 27 kilograms of nitrogen per hectare per annum.

In conjunction with managed aquifer recharge, on-farm mitigation is anticipated to reduce the concentrations of nitrogen in shallow groundwater in Lower Hinds/Hekeao Plains Area to 6.9 milligrams of nitrogen per litre and achieve the 80 percent protection level for aquatic species in the lowland spring-fed streams and the 90 percent protection level for the Lower Hinds River/Hekeao.

In the Upper Hinds/Hekeao Plains Area water quality is to be maintained through adoption of good management practices to minimise losses of sediment, phosphorus and microbial contamination and increases in nitrogen losses are restricted to achieve a 99 percent protection level for aquatic species in the hill-fed streams.

³ Consequential amendment for clarification – paragraph shifted

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The Solutions Package also includes actions to improve flows in the lowland streams and the Hinds River/Hekeao. Provision is made for switching from surface water or hydraulically connected groundwater to deep groundwater. New abstractions of surface water or groundwater from the Valetta and Mayfield-Hinds Groundwater Allocation Zones, beyond domestic and stock needs and community supplies, is prohibited while allocation limits are not being met. Transfers of surface water consents and groundwater consents within the Valetta Groundwater Allocation Zone are also prohibited while limits are not being met. The Solutions Package also includes the establishment of a Hinds Drains Working Party to develop and recommend revised allocation limits and minimum flows for the spring-fed plains rivers in the Lower Hinds/Hekeao Plains Area by no later than 2020.

Insert new heading:

13.1A: Definitions

Insert the following table and text under new '13.1A: Definitions' heading:

For the Hinds/Hekeao Plains Area the following definitions apply in addition to the definitions contained in Section 2.9

Definitions

Word	Definition
<u>Adaptive Management Conditions</u>	means a condition or conditions on a resource consent to take groundwater that specifies an annually variable volume dependent on the annually assessed volume of the groundwater resource in a zone.
<u>Augmenting</u>	means the addition of water to surface water or groundwater specifically for the purpose of reducing the concentration of nitrate nitrogen in groundwater or increasing flows in lowland streams.
<u>Baseline Land Use</u>	means the land use, or uses, on a property between 1 July 2009 and 30 June 2013 used to determine the property's 'nitrogen baseline' as defined in section 2.9 of this Plan.
Good Management Practice Nitrogen Loss Rates	means nitrogen loss rates (in kilograms per hectare per annum) from property to water for different soils, rainfall and farm type operating at good management practice. ⁴
<u>Hinds/Hekeao Plains Area</u>	means the area identified as the 'Hinds/Hekeao Plains Area' on the planning maps.
<u>Lower Hinds/Hekeao Plains Area</u>	means the area identified as the 'Lower Hinds/Hekeao Plains Area' on the planning maps.
<u>Lower Hinds River/Hekeao</u>	means the Hinds River/Hekeao in the Lower Hinds/Hekeao Plains Area.
<u>Upper Hinds/Hekeao Plains Area</u>	means the area identified as the 'Upper Hinds/Hekeao Plains Area' on the planning maps.

⁴ V2pLWRP-122 – NZPork, V2pLWRP-545 - Dairy NZ, V2pLWRP-750 – Fonterra
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13.3 Iwi Management Plans that apply to the Hinds Plains Area

Delete heading and text:

~~13.3 Freshwater Outcomes~~

See Objectives in section 3, Policies 4.1, 4.2, 4.3 and 4.4.

Insert a new heading and following text:

13.3 Iwi Management Plans that apply to the Hinds Plains Area

Te Rūnanga o Ngāi Tahu Freshwater Policy Statement 1999

Iwi Management Plan of Kati Huirapa for the area Rakaia to Waitaki July 1992

Amend Policies 13.4.5 and 13.4.6

Amend Policies 13.4.5 and 13.4.6 as follows:

- 13.4.5 To address over-allocation of surface water in the Hakatere/Ashburton catchment and the LowerHinds/Hekeao Plains Area, enable an applicant to take deep groundwater provided the applicant holds a lawfully established surface water take or stream depleting groundwater take for an equal or greater rate and volume than is sought from the deep groundwater, and the surface water take or stream depleting groundwater take is surrendered.
- 13.4.6 The water resulting from any surrendered surface water and stream depleting groundwater takes in the Hakatere/Ashburton River catchment and in the Hinds/Hekeao Plains Area⁵ will not be reallocated and will be left in the river until such time as the catchment is no longer over allocated and in the Hinds/Hekeao Plains Area will not be reallocated and will be left in the river.

Insert Policies 13.4.9 to 13.4.19

Insert Policies 13.4.9 to 13.4.19 as follows at the end of section '13.4 Policies':

- 13.4.9 Improve the ~~overall~~ water quality in the Hinds/Hekeao Plains Area by:
- (a) establishing two management areas the Upper Hinds/Hekeao Plains Area and Lower Hinds/Hekeao Plains Area;
 - (a1) Where water quality currently meets the limits set out in Tables 13(a), (g), (k) and (j) that the limits are not exceeded.
 - (a2) Where water quality currently exceeds the targets set in Tables 13(a), (g), (k) and (j) that water quality is improved.
 - (b) improving management of ~~nitrogen~~⁶, ~~microbial contaminants~~, ~~microbes~~⁷, phosphorus and sediment in both areas;

⁵ V2 pLWRP – 988 Synlait Farm

⁶ V2pLWRP-597 – Dairy NZ, V2pLWRP-752 – Fonterra

⁷ V2pLWRP-419 – Director General of Conservation

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- (c) ~~preventing restricting~~⁸ increases in nitrogen losses in the Upper Hinds/Hekeao Plains Area; ~~and~~
- (d) ~~reducing overall nitrogen losses by 45 percent in the Lower Hinds/Hekeao Plains Area by 2035 and~~⁹
- (d1) ~~Minimising the potential of any land use to discharge contaminants to water by adopting the practices listed in Schedule 7 and Schedule 24A~~
- (e) ~~researching the use of managed aquifer recharge to augment groundwater and/or surface water.~~

13.4.10 ~~Reduce discharges of microbial contaminants microbes~~¹⁰, phosphorus and sediments in the Hinds/Hekeao Plains Area by:

- (a) ~~excluding intensively farmed stock cattle, pigs and deer~~¹¹ from drains in addition to the region-wide stock exclusion rules; and
- (a1) ~~constructing, planting, and maintaining suitable riparian areas to buffer waterways, including artificial waterways, from the effects of stock and surrounding land use; and~~
- ~~(b) implementing the farm practices in Schedule 24a; and~~
- (b) ~~preparing and implementing Farm Environment Plans in accordance with Schedule 7, and Schedule 24A which set out and define good environmental practice~~¹².

13.4.14A ~~Recognise the cultural significance of the Hekeao/Hinds River to Ngāi Tahu and enable Ngāi Tahu to exercise kaitiakitanga and mahinga kai in the catchment through:~~

- ~~1. Continual improvement in the flows in lowland streams and springs over time;~~
- ~~2. Continual reductions in the concentrations of nitrogen in groundwater over time;~~
- ~~3. Minimising the potential discharge of contaminants into water through land use practices, riparian management, and waterway and drain maintenance; and~~
- ~~4. Encouraging the protection or restoration of natural wetland areas and other mahinga kai.~~¹³

13.4.11 ~~Maintain water quality in the Upper Hinds/Hekeao Plains Area by:~~

- a) ~~capping discharges of nitrogen at 114 tonnes of nitrogen per year; and~~
- b) ~~requiring all farming activities to prepare and implement farm environment management plans in accordance with schedule 7 and 24A which set out and define good environmental practice operate at good management practice to maintain reduce current phosphorus and microbial contaminant losses.~~¹⁴

13.4.12 ~~Improve water quality in the Lower Hinds/Hekeao Plains Area by reducing the discharge of nitrogen from farming activities to achieve a target load of 3,400 tonnes of nitrogen per year by 2035.~~

13.4.13 ~~Farming activities and including~~¹⁵ farming enterprises in the Lower Hinds/Hekeao Plains Area, whether or not they are supplied with water by an irrigation scheme or a principal water supplier, achieve a target load of 3,400 tonnes of nitrogen per annum year by 2035 through¹⁶:

⁸ V2pLWRP-731 – Ravensdown

⁹ V2pLWRP-597 – Dairy NZ

¹⁰ V2pLWRP-420 – Director General of Conservation

¹¹ V2 pLWRP-472 – Fish and Game

¹² V2 pLWRP 472 – Fish and Game

¹³ V2pLWRP-183 - Nga Rūnanga and Te Rūnanga O Ngāi Tahu

¹⁴ CSI submission and drafting change to make policy more readable

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- a) Preparing and implementing farm environment plans in accordance with schedule 7 and 24a which set out and define good environmental practice; and
- b) Requiring, from the 1 January 2017, all existing farming activities to ~~discharge no more nitrogen than the loss rate that could reasonably be expected from the implementation of meet good management practices, nitrogen loss rates~~ 17 ~~from 1 January 2017~~ implement staged reductions in nutrient leaching to achieve optimal farm leaching performance as demonstrated through techniques such as farm system modelling, ~~calculated on the baseline land uses~~
- c) requiring, from 1 January 2020, time framed further reductions beyond those set out in (b) for dairy farming and dairy support¹⁸ of:
 - (i) from 1 January 2020, dairy 15% and dairy support 10% reductions
 - (ii) from 1 January 2025, dairy 25% and dairy support 15% reductions
 - (iii) from 1 January 2030, dairy 35% and dairy support 20% reductions
 - (iv) from 1 January 2035, dairy 45% and dairy support 25% reductions ~~from 1 January 2020, in accordance with Table 13(h); and~~¹⁹
- d) requiring from 1 January 2020, time framed further reductions in nitrogen leaching beyond those set out in (c) for other land uses that do not meet the requirements of (a) and (b) to assist in achieving of the target load of 3,400 tonnes per year by 2035 in accordance with Policy 4.7 of the parent plan.

enabling, ~~by way of resource consent process, land use intensification or changes in land use~~

- 13.4.13A (1) Enable the establishment of farming enterprises in circumstances where, for the purpose of nutrient management, the total farming activity does not exceed the aggregate of the nitrogen baselines of all the parcels of land used in the enterprise, and any time-framed reductions set out in Policy 13.4.13 are achieved (whether or not the parcels are held in single, multiple, or common ownership).
- (2) Enable the disestablishment of farming enterprises, by which each parcel of land formerly used in the enterprise does not exceed either:
- (a) the individual nitrogen baseline of the land in that parcel, following any time-framed reductions set out in Policy 13.4.13; or
 - (b) a nitrogen baseline limit to be determined so that the aggregate of the baselines of all the parcels formerly used in the enterprise, following any time-framed reductions set out in Policy 13.4.13, is not exceeded.¹⁵

13.4.14 Improve flows in spring-fed waterbodies and/or decrease nitrate nitrogen concentrations in the Hinds River/Hekeao spring-fed waterbodies and groundwater in the Lower Hinds/Hekeao Plain Area by researching managed aquifer recharge and targeted stream augmentation, where:

- (a) adverse effects on cultural values, including those associated with unnatural mixing of water are ~~satisfactorily~~¹⁶ avoided ~~as the first preference, and where avoidance is not practicable, they are remedied or mitigated~~¹⁷;
- (b) adverse effects on the availability and quality of community drinking water supplies are avoided;
- (c) adverse effects on fish passage are avoided or mitigated;
- (d) inundation of existing wetlands is avoided, remedied or mitigated through scheme design,

¹⁵ V2-pLWRP – 992 Dairy Holdings

¹⁶ V2pLWRP-566 – Dairy NZ

¹⁷ V2pLWRP-649 – RDRML

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- construction and operation;
- (e) there is no net loss, including through inundation¹⁸, of significant biodiversity habitat of indigenous biodiversity; and
- (f) adverse effects on people and property from raised groundwater levels and higher flows are avoided as the first preference, and where avoidance is not practicable, they are remedied or mitigated¹⁹.
- 13.4.15 Enable catchment restoration activities that protect springheads; protect, establish or enhance planted riparian margins; create, restore or enhance wetlands; and target removal of fine sediment from water ways.
- 13.4.16 Improve flows in spring-fed waterbodies and the Lower Hinds River/Hekeao to meet economic, cultural, social and environmental outcomes in the Hinds/Hekeao Plains Area by requiring adherence to flow and allocation limits, limiting the volume and rate of abstraction on replacement water permits to reasonable use calculated in accordance with method 1 in²⁰ Schedule 10 and prohibiting increased use arising from the transfer of consented volumes of water within surface water catchments and the Valetta Groundwater Allocation Zone.
- 13.4.17 Until such time as the Valetta Groundwater Allocation Zone limits in Table 13(f) are no longer exceeded apply adaptive management conditions upon replacement of any groundwater permits that have previously been subject to adaptive management conditions on the same or similar terms as the pre-existing conditions.
- 13.4.18 In the Lower Hinds/Hekeao Plains Area, with the exception of the Lower Hinds River/Hekeao, and until 30 June 2020, any water permit granted to replace an existing water permit will be subject to the minimum flow and allocation limits in Table 13(e).
- 13.4.19 After 1 July 2020 a minimum flow of 50% 7DMALF and an allocation limit of 20% 7DMALF will be applied to all water permits granted to abstract surface water from the waterbodies listed in Table 13(e), or to abstract groundwater with a direct, high or moderate stream depletion effect on those waterbodies, unless there is a collaboratively developed flow and allocation regime that has been included in this Plan through a Schedule 1 RMA process.

13.5 Rules

Insert the following under '13.5: Rules'

The following index identifies region-wide rules that are modified by the Hinds/Hekeao Plains Area rules introduced into this section.

Topic	Region-wide	Additions to	Sub-regional	New	Sub-
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¹⁸ V2pLWRP-274 – Te Rūnanga o Arowhenua and Te Rūnanga o Ngāi Tahu

¹⁹ V2pLWRP-649 – RDRML

²⁰ V2 pLWRP-160 Hydrotrader, V2 pLWRP-179 Irrigation NZ, V2 pLWRP-236 Synlait Milk, V2 pLWRP-276 Nga Rūnanga and Te Rūnanga o Ngāi Tahu, V2 pLWRP-295 Federated Farmers, V2 pLWRP-305 HPLWP, V2 pLWRP- 295 Federated Farmers, V2 pLWRP-410 Mayfield Hinds Irrigation, V2 pLWRP-693 Valetta Irrigation, V2 pLWRP- 1003 Farm, V2 pLWRP-1094 Eiffelton Community Irrigation Scheme

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		<u>Rule</u>	<u>Region-wide Rules⁽¹⁾</u>	<u>Rules that prevail over Region-wide Rules</u>	<u>regional Rules</u>
<u>Pest Control and Agrichemicals</u>		<u>5.22</u>	<u>13.5.7</u>		
<u>Nutrient Management⁽²⁾</u>	<u>Red, Lake Zone, Orange, Green or light Blue</u>	<u>5.41-5.59</u>		<u>13.5.8-13.5.20</u>	
	<u>Irrigation Scheme</u>	<u>5.60-5.62</u>		<u>13.5.21-13.5.23</u>	
	<u>Incidental Nutrient Discharges</u>	<u>5.63-5.64</u>		<u>13.5.24-13.5.25</u>	
<u>Stock Exclusion</u>		<u>5.68-5.71</u>	<u>13.5.26</u>		
<u>Sediment Removal from Rivers and Streams</u>					<u>13.5.27-28</u>
<u>Small and Community Water takes</u>		<u>5.111</u>		<u>13.5.29</u>	
<u>Take and use Surface Water</u>		<u>5.123-5.126</u>	<u>13.5.30</u>		-
<u>Take and use of Groundwater</u>		<u>5.128-5.132</u>	<u>13.5.30</u>		<u>13.5.31-13.5.32</u>
<u>Transfer of Water Permits</u>		<u>5.133-5.134</u>		<u>13.5.33-13.5.34</u>	
<u>Augmenting Groundwater or surface water</u>					<u>13.5.35-13.5.37</u>

1 Additional conditions or matter of discretion to region-wide rules that apply to the Hinds/Hekeao Plains Area only.

2 Hinds/Hekeao Plains Area rules cover nutrients, sediment and microbial contaminants.

Hinds/Hekeao Plains Area

Insert the following rules and associated headings and text after Rule 13.5.6 in '13.5 Rules':

Pest Control and Agrichemicals

Rule 13.5.7 applies as an addition to Region-wide Rule 5.22 in the Hinds/Hekeao Plains Area.

13.5.7 Within the Hinds/Hekeao Plains Area, Region-wide Rule 5.22 shall include the following condition:

1. For discharges to surface water, excluding to surface water within land in private ownership²¹ signs are erected at all public access points within 2km of the discharge location at least 48 hours prior to commencement of the discharge, and shall remain in place for at least 48 hours following the discharge. Signs shall include the following information:
 - (a) The name of the agrichemical discharged, the date and time the discharge will commence and a description of the application area; and

²¹ V2-pLWRP-311 – Federated Farmers
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- (b) A warning to avoid contact with surface water, and to avoid collection of shellfish or mahinga kai; and
- (c) A contact name and phone number for the person carrying out the discharge.

Note: for all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013²²

Nutrient Management, Sediment and Microbial Contaminants

Rules 13.5.8 to 13.5.20 prevail over Region-wide Rules 5.41 to 5.59 (Nutrient Management - Red, Orange and Green Zones) in the Hinds/Hekeao Plains Area.

Upper Hinds/Hekeao Plains Area

13.5.8 Despite any of Rules 13.5.9 to 13.5.12 the use of land for a farming activity in the Upper Hinds/Hekeao Plains Area is a permitted activity provided the following conditions are met:

1. The property is less than 5 hectares; and
2. The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum or the nitrogen baseline, whichever is the greater.

13.5.9 The use of land for a farming activity in the Upper Hinds/Hekeao Plains Area is a permitted activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property does not increase above the nitrogen baseline; and either
2. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to the Canterbury Regional Council on request; and
3. A Farm Environment Plan has been prepared and implemented in accordance with Schedule 7 Part A, and supplied to Canterbury Regional Council on request.²³

13.5.10 The use of land for a farming activity as part of a farming enterprise in the Upper Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:

1. The aggregated²⁴ nitrogen loss calculation for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming²⁵ the farming enterprise does not increase above the aggregated nitrogen baseline for those parcels of land²⁶; and
2. The farming enterprise is solely in the Upper Hinds/Hekeao Plains Area; and
3. A Farm Environment Plan for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming the farming enterprise²⁷ has been prepared in accordance with Schedule 7 Part A.
4. The practices in Schedule 24a are being implemented

13.5.11 The use of land for a farming activity that does not comply with conditions 2 or 3 of Rule 13.5.9 or

²² V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee

²⁴ C16 – minor amendment to improve certainty (recommendation consistent with Variation 1)

²⁵ Consequential amendment to 13.5.18.

²⁶ Consequential amendment to 13.5.18

²⁷ Consequential amendment to 13.5.18.

condition 3 of Rule 13.5.10 is a non-complying activity.

13.5.12 The use of land for a farming activity that does not comply with condition 1 of Rule 13.5.9 or condition 1 or 2 of Rule 13.5.10 is a prohibited activity.

Lower Hinds/Hekeao Plains Area

13.5.13 Despite any of Rules 13.5.15 to 13.5.20 the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity provided the following conditions are met:

1. The property is less than 5 hectares; and
2. The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum or the nitrogen baseline, whichever is the greater.

13.5.14 Despite any of Rules 13.5.15 to 13.5.20 the use of land for a farming activity or farming enterprise in the Lower Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:

1. The ~~future~~²⁸ nitrogen loss calculation for the area of land subject to any application for resource consent made under this rule will be less than or equal to 27 kg per hectare per annum for the activity applied for; and
2. The area of land subject to the application, in addition to the²⁹ total area of the land subject to any existing³⁰ resource consent granted under this Rule and any area of land subject to Row B of Table 13(i) does not exceed 30,000 hectares; and
3. The farming activity or farming enterprise is solely in the Lower Hinds/Hekeao Plains Area; and
4. A Farm Environment Plan has been prepared in accordance with Schedule 7 Part A; and
5. The practices in Schedule 24a are being implemented
6. Where water quality currently meets the limits set out in Tables 13(a), (g), (k) and (j) that the limits are not exceeded. Where water quality currently exceeds the targets set in Tables 13(a), (g), (k) and (j) that water quality is improved.
- ~~5. The Farm Environment Plan identifies the area of land subject to any application for a resource consent made under this Rule.³¹~~

13.5.15 Until 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property, excluding any area of land subject to a resource consent granted under Rule 13.5.14, does not increase above the nitrogen baseline; and either
2. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to Canterbury Regional Council on request; or
3. A Farm Environment Plan has been prepared and is being implemented in accordance with Schedule Part A, and supplied to Canterbury Regional Council on request.

13.5.16 From 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area

²⁸ V2pLWRP-245 – Synlait Milk, V2pLWRP-576 – Dairy NZ, V2pLWRP-653 – RDRML, V2pLWRP-789 – Fonterra, V2pLWRP-1013 – Synlait Farms.

²⁹ Cl 16 – minor clarification

³⁰ Cl 16 – minor clarification

³¹ V2pLWRP-576 – Dairy NZ, V2pLWRP-789 – Fonterra

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is a permitted activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum; and
2. The nitrogen loss calculation for the property, excluding any area of land subject to a resource consent granted under Rule 13.5.14, does not increase above the nitrogen baseline; and either
3. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to Canterbury Regional Council on request; or
4. A Farm Environment Plan has been prepared and is being implemented in accordance with Schedule Part A, and supplied to Canterbury Regional Council on request.

13.5.17 From 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a restricted discretionary activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property is greater than 20 kg per hectare per annum; and
2. The nitrogen loss calculation for the property, excluding any area of land subject to a resource consent granted under Rule 13.5.14, does not increase above the nitrogen baseline; and
3. A Farm Environment Plan has been prepared in accordance with Schedule 7 Part A.
4. The practices in Schedule 24a are being implemented

The exercise of discretion is restricted to the following matters:

1. The quality of, compliance with and auditing of the Farm Environment Plan; and
2. The nitrogen loss rates to be applied to the property, including any staged reductions ability to meet the nitrogen load target for farming activities set out in Policy 13.4.13 in Table 13(g); and³²
3. ~~From 1 January 2017 the Good Management Practice Nitrogen Loss Rates to be applied for the baseline land uses; and³³~~
4. ~~Any nitrogen loss rates to be applied in accordance with Table 13 (h); and³⁴~~
5. The potential benefits of the activity to the applicant, the community and the environment.

13.5.18 The use of land for a farming activity as part of a farming enterprise in the Lower Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:

1. The farming enterprise is solely in the Lower Hinds/Hekeao Plains Area; and
2. The aggregated³⁵ nitrogen loss calculation for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming³⁶ the farming enterprise, excluding any area of land subject to a resource consent granted under Rule 13.5.14, does not increase above the aggregated nitrogen baseline for those parcels of land³⁷; and
3. A Farm Environment Plan for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming the farming enterprise³⁸ has been

³² Consequential amendment to Policy 13.4.13.

³³ V2pLWRP-632 – Horticulture NZ

³⁴ V2pLWRP-192 – Irrigation NZ, V2pLWRP-325 – Federated Farmers.

³⁵ C16 – minor amendment to improve certainty (recommendation consistent with Variation 1)

³⁶ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme

³⁷ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme

³⁸ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme, V2pLWRP-992 – Dairy Holdings Ltd, V2pLWRP- 793 – Fonterra, V2pLWRP-580 – Dairy NZ

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prepared in accordance with Schedule 7 Part A

4. The practices in Schedule 24a are being implemented

13.5.19 The use of land for a farming activity that does not comply with any of conditions 2 or 3 in Rule 13.5.15, conditions 3 or 4 of Rule 13.5.16, condition 3 of Rule 13.5.17, or a farming enterprise that does not comply with condition 3 of Rule 13.5.18, is a non-complying activity.

13.5.20 The use of land for a farming activity that does not comply with condition 1 of Rule 13.5.15, condition 2 of Rule 13.5.16, condition 2 of Rule 13.5.17 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.

Irrigation Schemes

~~*Rule 13.5.21 and 13.5.23 prevail over Region wide Rules 5.60, 5.61 and 5.62 in the Hinds/Hekeao Plains Area.*~~

~~**13.5.21 Despite Rules 13.5.13 to 13.5.20, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity, provided the following condition is met:**~~

~~1. The property is irrigated with water from an irrigation scheme or a principal water supplier, and the irrigation scheme or principal water supplier holds a discharge consent granted under Rule 5.61, Rule 5.62 or Rule 13.5.22.~~

~~**13.5.22 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water in the Lower Hinds/Hekeao Plains Area that would otherwise contravene s15(1) of the RMA is a discretionary activity, provided the following conditions are met:**~~

~~1. The applicant is an irrigation scheme or a principal water supplier, or the holder of the discharge permit will be an irrigation scheme or a principal water supplier; and~~

~~2. The nitrogen loss calculation for the total area of the land will not exceed the nitrogen load calculated in accordance with Rows A and/or B in Table 13(i); and~~

~~3. The total area of the land subject to any resource consent granted under Rule 13.5.14 and any area of land subject to Row B of Table 13(i) does not exceed 30,000 hectares.~~

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.~~

~~Note that limited notification to affected order holders in terms of section 95F of the RMA will be necessary, where relevant under section 95B(3) of the RMA~~

13.5.23 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA that does not meet one or more of the conditions in Rule 13.5.22 is a prohibited activity.

Note:

~~*If the applicant is not an irrigation scheme or a principal water supplier, or the holder of the discharge permit will not be an irrigation scheme or a principal water supplier, then the discharge is assessed under Rules 13.5.24 and 13.5.25.*~~

Incidental Nutrient Discharges

Rule 13.5.24 and 13.5.25 prevail over Region-wide Rules 5.63 and 5.64.

13.5.24 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA is a permitted activity, provided the following condition is met:

1. The land use activity associated with the discharge is authorised under Rules 13.5.8 to 13.5.20.

13.5.25 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA and does not meet condition of Rule 13.5.24 is a non-complying activity.

Stock Exclusion

Rules 5.68, 5.69, 5.70 and 5.71 (Stock Exclusion) apply in the Hinds/Hekeao Plains Area. Rule 13.5.26 applies as an addition to Rules 5.68, 5.69, 5.70 and 5.71.

13.5.26 Within the Hinds/Hekeao Plains Area any reference to the bed of a lake, river or wetland in Rules 5.68, 5.69, 5.70 and 5.71 also includes a drain, but does not include any sub-surface drain, ~~stormwater swale or other artificial watercourse which is ephemeral in nature or drain that does not have water in it~~³⁹.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁴⁰

Sediment Removal from Rivers and Streams

Rules 13.5.27 and 13.5.28 are new rules

13.5.27 Within the Hinds/Hekeao Plains Area the taking and use of water from a river and the disturbance of the bed of a river to remove fine sediment less than 2 mm in diameter for the sole purpose of habitat restoration is a restricted discretionary activity provided the following conditions are met:

1. A management plan has been prepared that includes the location, ~~timeframe~~⁴¹ and method of sediment removal, management and disposal, erosion control methodology, an inventory of sensitive ecological habitats and species, and an assessment of the environmental risks including effects downstream; and
2. The activity does not occur when the river is at or below the minimum flow in Table 13(d) or 13(e); and
3. Following removal of fine sediment any abstracted water is returned to the river not more than 250 m from the point of take; and
4. The maximum instantaneous rate of water abstraction shall not exceed 50% of the flow in the stream to the site being remediated; and
5. The activity does not take place on a site listed as an archaeological site on the New Zealand

³⁹ V2 pLWRP-1195 – Terralea Partnership

⁴⁰ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee

⁴¹ V2 pLWRP 451 – Director General of Conservation

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- Archaeological Association Site Recording Scheme website; and
6. The activity is not undertaken within a Community Drinking Water Protection Zone as listed in Schedule 1; and
 7. The activity is undertaken at a distance greater than 50 m from any lawfully established surface water intake.

The exercise of discretion is restricted to the following matters:

1. The content and adequacy of the management plan; and
2. The location, method and timing of sediment removal with respect to the life stage and habitat of sensitive ecological communities including fish and invertebrates; and
3. The adverse effects of the activity on downstream water quality, flows and significant habitats of indigenous fauna and flora; and
4. The effect of the activity on reliability for any authorised surface water take; and
5. The volume and rate at which water is abstracted and returned to the river, **including the effects of erosion, bank stability and waterway capacity**⁴²; and
6. Any adverse effects on mahinga kai, wāhi tapu or wāhi taonga; and
7. The benefits of the activity to the community and the environment.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁴³

13.5.28 Within the Hinds/Hekeao Plains Area the taking and use of water from a river and the disturbance of the bed of a river to remove fine sediment less than 2 mm in diameter for the sole purpose of habitat restoration that does not meet one or more of the conditions in Rule 13.5.27 is a discretionary activity.

Notes:

In addition to the provisions of this Plan and any relevant district plan, any activity which may modify damage or destroy any pre 1900 archaeological sites is subject to the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority is required from Heritage New Zealand Pouhere Taonga to modify, damage or destroy any archaeological site, whether recorded or not in the New Zealand Archaeological Association Site Recording Scheme website.

For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁴⁴

Small and Community Water Takes

Rules 5.112, 5.113, 5.114 and 5.115 apply in the Hinds/Hekeao Plains Area. Rule 13.5.29 prevails over Rule 5.111.

13.5.29 Within the Lower Hinds/Hekeao Plains Area Region-wide Rule 5.111 does not apply.

⁴² V2 pLWRP 1084 – Ashburton Hinds Drainage Rating District Liaison Committee

⁴³ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee

⁴⁴ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee

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Take and Use of Ground and Surface Water

Region-wide Rules 5.123, to 5.127 'Surface Water' and Rules 5.128 to 5.132 'Groundwater' apply in the Hinds/Hekeao Plains Area. Rule 13.5.30 applies as an addition to Rules 5.123 and 5.128. Rules 13.5.31 and 13.5.32 are additional rules in the Valetta and Mayfield-Hinds Groundwater Allocation Zones.

Note: Nothing in this Plan affects an individual's right to take water in accordance with section 14(3)(b) of the RMA.⁴⁵

~~13.5.30 Within the Hinds/Hekeao Plains Area Region-wide Rules 5.123 and 5.128 shall include the following additional condition:~~

- ~~1. If the proposed take is the replacement of a lawfully established take, the annual volume and maximum rate of take has been calculated in accordance with method 1 in Schedule 10.~~⁴⁶

13.5.31 The taking and use of groundwater within the Valetta and Mayfield-Hinds Groundwater Allocation Zones that will substitute an existing surface water or groundwater permit with a direct, high or moderate stream depletion effect is a restricted discretionary activity provided that the following conditions are met:

1. The use of groundwater ~~take will is be abstracted~~⁴⁷ on the same property as the existing resource consent and there is no increase in the ~~proposed~~ annual volume; and
2. The groundwater take will not have a direct or high stream depletion effect; and
3. The bore interference effects are acceptable, as determined in accordance with Schedule 12.

The exercise of discretion is restricted to the following matters:

1. Whether the volume and abstraction rate of water to be taken and used is reasonable for the proposed use assessed in accordance with ~~method 1 in~~⁴⁸ Schedule 10; and
2. The timing of the surrender of the existing surface water or groundwater permit or permits; and
3. The effects the take has on any other authorised abstraction, including interference effects as indicated by a ~~Step~~ Aquifer⁴⁹ Test undertaken in accordance with the requirements of Schedule 11 and well interference calculated in accordance with the method in Schedule 12; and
4. Where the take is less than 2 km from the coast, whether salt-intrusion into the aquifer or inland movement of the salt water/fresh water interface is prevented; and
5. The protection of groundwater from contamination, including the prevention of backflow of water or contaminants.
6. Any effects, including positive effects, that the abstraction of groundwater may have on the

⁴⁵ V2 pLWRP-163 Hydrotrader, V2 pLWRP-953 E Winchester, V2 pLWRP-261 Synlait Milk, V2 pLWRP-349 Federated Farmers, V2 pLWRP-334 HPLWP, V2 pLWRP-1057 and 1059 Eiffelton Community Irrigation Scheme, V2 pLWRP-585 and 586 Dairy NZ, V2 pLWRP-1133 Longbeach Estate

⁴⁶ V2 pLWRP – 164 Hydrotrader, V2 pLWRP – 194 Irrigation NZ, V2 pLWRP – 267 Synlait Milk, V2 pLWRP – 350 Federated Farmers, V2 pLWRP – 411 Mayfield Hinds Irrigation, V2 pLWRP – 695 Valetta Irrigation, V2 pLWRP – 954 E Winchester, V2 pLWRP – 1023 Synlait Farm, V2 pLWRP 1101– Eiffelton Irrigation

⁴⁷ V2 pLWRP – 339 HPLWP, V2 pLWRP – 352 Federated Farmers, V2 pLWRP – 587 Dairy NZ, V2 pLWRP – 800 Fonterra, V2 pLWRP – 391 Mayfield Hinds Irrigation, V2 pLWRP – 679 Valetta Irrigation, V2 pLWRP – 1062 and V2 pLWRP – 1102 Eiffelton Irrigation, V2 pLWRP – 1126 P Everest, V2 pLWRP – 1080 Ashburton Hinds Drainage

⁴⁸ V2 pLWRP – 165 Hydrotrader, V2 pLWRP – 268 Synlait Milk, V2 pLWRP – 412 Mayfield Hinds Irrigation, V2 pLWRP – 696 Valetta Irrigation

⁴⁹ V2 pLWRP – 165 Hydrotrader, V2 pLWRP – 268 Synlait Milk, V2 pLWRP – 412 Mayfield Hinds Irrigation, V2 pLWRP – 696 Valetta Irrigation

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seasonal nutrient concentrations in downstream drains and watercourses

13.5.32 The taking and use of groundwater that does not meet one or more of the conditions of Rule 13.5.31 is a prohibited activity.

Transfer of Water Permits

Rules 13.5.33 and 13.5.34 prevail over Region-wide Rules 5.133 and 5.134 in the Hinds/Hekeao Plains Area

13.5.33 The temporary or permanent transfer, in whole or in part, (other than to the new owner of the site to which the take and use of water relates and where the location of the take and use of water does not change) of a water permit to take or use surface water within the Hinds/Hekeao Plains Area must not under section 136 of the RMA be approved, in the same was as if it were ⁵⁰ is a prohibited activity.

13.5.33A Despite Rule 11.5.33, the temporary or permanent site-to-site transfer, in whole or in part, of a water permit to take or use water for gravel extraction (and ancillary activities) is to be considered as if it is a discretionary activity, provided the following conditions are met:
1. The water continues to be used only for gravel extraction and ancillary activities.⁵¹

13.5.34 The temporary or permanent transfer, in whole or in part, (other than to the new owner of the site to which the take and use of water relates and where the location of the take and use of water does not change) of a water permit to take or use groundwater within Valetta Groundwater Allocation Zone must not under section 136 of the RMA be approved, in the same was as if it were ⁵² is a prohibited activity.

13.5.34A Despite Rule 11.5.34, the temporary or permanent site-to-site transfer, in whole or in part, of a water permit to take or use water for gravel extraction (and ancillary activities) is to be considered as if it is a discretionary activity, provided the following conditions are met:
1. The water continues to be used only for gravel extraction and ancillary activities⁵³

Augmenting Groundwater or Surface Water

Rules 13.5.35 to 13.5.37 are new rules that apply in the Hinds/Hekeao Plains Area

13.5.35 The taking and use of surface water or groundwater in the Lower Hinds/Hekeao Plains Area for the sole purpose of augmenting surface water or groundwater to reduce concentrations of nitrate nitrogen in surface water or groundwater and/or increase flows in lowland streams is a discretionary activity.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁵⁴

⁵⁰ Cl16 – minor amendment for consistency with Variation 1

⁵¹ V2 pLWRP-145 - Fulton Hogan

⁵² Cl16 – minor amendment for consistency with Variation 1

⁵³ V2 pLWRP-145 - Fulton Hogan

⁵⁴ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee
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13.5.36 The discharge of water into water or onto land in circumstances where it may enter water and the water may contain contaminants, for the purpose of augmenting groundwater or surface water within the Hinds/Hekeao Plains Area is a restricted discretionary activity, provided the following conditions are met:

1. The discharge is part of a trial for investigative purposes and the duration of the trial will not exceed years; and
2. The activity does not take place on a site listed as an archaeological site; and
3. The discharge is not within a Community Drinking Water Protection Zone as set out in Schedule 1; and
4. The discharge is not within 100 m of any well used to supply potable water; and
5. The discharge is for the purpose of reducing the concentration of nitrate nitrogen in surface water or groundwater or increasing flows in lowland streams for ecological or cultural benefits.

The exercise of discretion is restricted to the following matters:

1. The location, method and timing of the discharge to groundwater or surface water; and
1A The rate and volume of discharge; and
2. The adequacy of the scheme design, construction, operation, monitoring, reporting; and
3. The appropriateness of integration with existing or planned infrastructure and water conveyance systems; and
4. Any adverse effects on people and property from raised groundwater levels and reduced drainage capacity in the drainage system; and
5. Any adverse effects on water quality in the receiving aquifer or river, significant habitats of indigenous flora and fauna; and
6. Any adverse effects on sites or values of importance to Ngāi Tahu from moving water from one catchment or water body to another; and
7. Any adverse effects on sites or areas of wāhi tapu, wāhi taonga or mahinga kai; and
8. The potential benefits of the activity to the community and the environment

*Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013*⁵⁵

13.5.37 The discharge of water into water or onto land in circumstances where it may enter water and the water may contain contaminants, for the purpose of augmenting groundwater or surface water in the Hinds/Hekeao Plains Area that does not meet one or more of the conditions of Rule 13.5.36 is a discretionary activity.

*Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013*⁵⁶

Insert a new heading and text as follows:

⁵⁵ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee

⁵⁶ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee
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13.6: Freshwater Outcomes

The following table sets out the fresh water outcomes, in combination with Policies 4.3 and 4.4, for the Hinds/Hekeao Plains Area that are to be maintained where the outcomes are already met, or achieved by 2035 where they are not currently met.⁵⁷ The achievement of these outcomes will be through a combination of the implementation of this Plan along with implementation of the recommendations of the Ashburton Zone Implementation Programme Addendum: Hinds Plains Area, 2014.

For all other areas in the Ashburton section see policies 4.3, 4.4 and Tables 1a or 1b.

Insert Table 13(a) as follows after new heading '13.6 Freshwater Outcomes'.

⁵⁷ V2 pLWRP 393 – Fish and Game
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Table 13(a): Freshwater Outcomes for Hinds/Hekeao Plains Area Rivers

Management Unit	River	Ecological health indicators							Macrophyte indicators		Periphyton indicators			Siltation indicator	Minimum clarity black disc (m)	Maximum turbidity (NTU)	Microbial indicator for contact recreation [SET ⁵⁹ FG]		
		QMCI [min Score 80 th percentile values on a 5 year annually updated rolling average ⁵⁸	%EPT taxa – minimum score	%EPT – abundance, minimum score	Minimum fish -IBI	Dissolved oxygen [min saturation %]	Dissolved oxygen (mg/L) minimum daily concentration	Temperature [max] (°c) Summer (1 October to 30 April) / Winter (1 May to 30 September)	Dissolved Inorganic Nitrogen	Emergent Macrophytes [max cover of bed] (%)	Total Macrophytes [max cover of bed] (%)	Chlorophyll a [max biomass] (mg/m ³)	Filamentous algae > 20mm [max cover of bed] (%)					Cyanobacteria [max cover of bed] (%)	Fine sediment, 2 mm diameter [max cover of bed] (%)
Hill-fed – Upland	Upper Hinds River/Hekeao	6	70	70	40	90	8	19 / 11	0.3mg/l	50	No value set	50	10	Variation 2 to the Proposed Canterbury Land and Water Regional Plan – Section 13 Ashburton	15-20 15	20-15 13	4	5	Good
Hill-fed - Lower	Lower Hinds River/Hekeao	6	70	70	40	90	8	19 / 11	0.5mg/l	50	No value set	200-50	30 20	Variation 2 to the Proposed Canterbury Land and Water Regional Plan – Section 13 Ashburton	15-50 15	50-15 13	4	5	Good-Fair
Spring-fed Plains	Including but not limited to: Blees Drain Flemington Drain Parakanoi Drain Windermere Drain Boundary Drain Stormy Drain Spicers Creek Dawson Drain Home Paddock Drain Deals Drain O'Shaughnessys Drain Taylors Drain Northern Drain Griggs Drain Dobsons Drain Twenty One Drain Crows Drain Harris Drain Yeatmans Drain Oakdale Drain McLeans Swamp Road Drain Montgomerys Drain Pyes Drain	5	50	50	40	70	7	19 / 11	0.5mg/l	30 50	50	200-120	30 20	Variation 2 to the Proposed Canterbury Land and Water Regional Plan – Section 13 Ashburton	20-50 20	50-20 ⁶⁰ 13	3	10	No value set

Key:
 QMCI = Quantitative Macroinvertebrate Community Index
 SFRG = Suitability for Recreation Grade – from Microbiological water quality guidelines for Marine and Freshwater Recreational Areas 2003⁶¹

Footnotes:
 (1) Upstream of the Rangitata Diversion Race siphon on both North and South branches of the Hinds River.⁶²
 (2) In reaches with gravel or hard bottom substrates; in all other areas “no value set”.⁶³

⁵⁸ Cl16 – minor correction to make consistent with Variation 1
⁵⁹ Cl16 – minor correction of a typo
⁶⁰ V2pLWRP-213 – Ashburton DC, V2pLWRP-593 – Dairy NZ, V2pLWRP-708 – RDRML, V2pLWRP-805 – Fonterra, V2pLWRP-1058 – CDHB.
⁶¹ Cl16 – minor correction to make consistent with Table 1a
⁶² V2 pLWRP 981 – Upper Hinds Plains Land User Group
⁶³ Cl16 – minor correction to make consistent with Variation 1

Delete headings ~~13.6 Allocation Limits~~ and ~~13.6.1 Environmental Flow and Allocation Limits~~

Replace with new headings **13.7: Environmental Flow and Allocation and Water Quality Targets/Limits** and

13.7.1 Environmental Flow and Allocation Limits

Amend the number of table 'Table 12: Hakatere/Ashburton River Catchment Environmental Flow and Allocation Limits' to 'Table 13(b): Hakatere/Ashburton River Catchment Environmental Flow and Allocation Limits'.

Amend the number of table 'Table 13: Hakatere/Ashburton River Restriction Regime' to 'Table 13(c): Hakatere/Ashburton River Restriction Regime'.

Insert Table 13(d) and Table 13(e) as follows at the end of new section heading '13.7.1 Environmental Flow and Allocation Limits'.

Table 13(d) Hinds River/Hekeao Environmental Flow and Allocation Limits

River	Minimum flow sites	Topo 50 Map reference	Minimum flow (L/s)		Allocation (L/s)	Restriction regime ⁽¹⁾	
			1 October 2014 – 30 June 2020	From 1 July 2020		1 October 2014 – 30 June 2020	From 1 July 2020
South Branch	Not applicable	Not applicable	No minimum flow		32	No restriction regime	
North Branch	Not applicable	Not applicable	No minimum flow		0	No restriction regime	
Lower	Poplar Road	BY20:9080-1949	700	770	1522	No restriction regime	1973

¹ Flows at which pro-rata restrictions start (l/s)

Table 13(e): Lower Hinds/Hekeao Plains Area Environmental Flow and Allocation Limits

Spring-fed Plains Rivers ⁽¹⁾	Minimum flow sites	Topo 50 Map reference	1 October 2014 – 30 June 2020	
			Minimum flow (L/s)	Allocation (L/s) ⁽²⁾
Blees Drain	Lower Beach Road	BY21:0132-2104	As per existing minimum flow and partial restriction conditions on existing resource consents	349
Flemington Drain	Lower Beach Road	BY21:0112-2059	As per existing minimum flow and partial restriction conditions on existing resource consents	547
Parakanoi Drain	Lower Beach Road	BZ21:9575-1779	As per existing minimum flow and partial restriction conditions on existing resource consents	588
Windermere Drain	Poplar Road	BZ21:9273-1599	As per existing minimum flow and partial restriction conditions on existing resource consents	690
Boundary Drain	Trigpole Road	BZ20:8982-1672	As per existing minimum flow	987

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			<u>and partial restriction conditions on existing resource consents</u>	
<u>Stormy Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8764-1178</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>436</u>
<u>Spicers Drain</u>	<u>Lower Beach Road</u>	<u>BY21:0012-2019</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>184</u>
<u>Dawson Drain</u>	<u>Twenty One Drains Road</u>	<u>BY21:9773-1919</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>35</u>
<u>Home Paddock Drain</u>	<u>Poplar Road</u>	<u>BZ21:9443-1679</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>333</u>
<u>Deals Drain</u>	<u>Poplar Road</u>	<u>BZ21:9273-1599</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>347</u>
<u>O 'Shaughessys Drain</u>	<u>Poplar Road</u>	<u>BY20:9123-1969</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>426</u>
<u>Taylor's Drain</u>	<u>At corner Hinds River Road and Newpark Road</u>	<u>BY20:9033-2189</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>513</u>
<u>Northern Drain</u>	<u>Surveyors Road</u>	<u>BY20:8863-2164</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>634</u>
<u>Griggs Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:9173-1479</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>100</u>
<u>Dobson Drain</u>	<u>Twenty One Drains Road</u>	<u>BZ20:8953-1449</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>447</u>
<u>Twenty One Drain</u>	<u>Twenty One Drains Road</u>	<u>BZ20:8933-1299</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>351</u>
<u>Crows Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8603-1059</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>314</u>
<u>Harris Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8504-0979</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>260</u>
<u>Yeatmans Drain</u>		<u>BZ20:8588-1048</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource</u>	<u>72</u>

			<u>consents</u>	
<u>Oakdale⁶⁴ Drain</u>	<u>Rangitata Mouth Road</u>	<u>BZ20:8276-1004</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>190</u>
<u>McLeans Swamp Road Drain</u>	<u>Windermere cut off</u>	<u>B Y20:8673-2799</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	
<u>Moffats Drain</u>	<u>Boundary Road</u>		<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>353</u>
<u>Montgomerys Drain</u>	<u>At confluence with Hinds River</u>	<u>BZ21:9223-1569</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>125</u>
<u>Pyes Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8893-1249</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>381</u>

1 The drains referred to in this column are considered to be modified watercourses for the purposes of the Resource Management Act 1991.

2 Existing rates of allocation

Delete heading **~~13.6.2 Groundwater Allocation Limits~~** and replace with new heading **13.7.2: Groundwater Allocation Limits/Targets**

Amend table number and heading of '**Table 14: Ashburton Groundwater Limits**' to '**Table 13(f): Ashburton Section Groundwater Limits/Targets**'.

Amend the A allocation limit from 148 (million m³/yr) to 122.25 (million m³ /yr) for the Mayfield-Hinds Groundwater Allocation Zone.

Delete heading **~~13.6.3 Catchment Nutrient limits and Allowances~~**

Replace with the following new heading and text:

13.7.3: Water Quality Limits and Targets

In the Hinds/Hekeao Plains Area the water quality limits and targets in Table 13(g) are additional limits and targets to the region-wide limits in Schedule 8. In the Hinds/Hekeao Plains Area the water quality limits in Tables 13(j) and 13(k) prevail over the region-wide limits in Schedule 8. Rules 13.5.14, 13.5.17 and 13.5.22 use Tables 13(h), and 13(i) to manage activities to achieve the limits/targets for the Hinds/Hekeao Plains Area. For all other areas covered by the Ashburton section refer to Schedule 8.

Insert Tables 13(g), 13(h), 13(i), 13(j), 13(k) as follows after new heading '**13.7.3 Water Quality Limits and Targets**'.

⁶⁴ V2 pLWRP -957 Edward Winchester
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Table 13(g): Hinds/Hekeao Plains Area Targets or Limits for Nitrogen Losses from Farming Activities

Area	Nitrogen Load (tonnes/year)	Limit/Target
Upper Hinds/Hekeao Plains Area	114	Limit
Lower Hinds/Hekeao Plains Area	3400	Target to be met by 2035

Table 13(h): Required Nitrogen Loss Rates Beyond Good Management Practice⁶⁵

Land-use	2020	2025	2030	2035
<u>Dairy Farm</u>	<u>15%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>25%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>35%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>45%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on the</u> <u>baseline land uses-</u>
<u>Dairy Support</u>	<u>10%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>15%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>20%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on-</u> <u>the baseline land uses-</u>	<u>25%</u> <u>Reduction from good-</u> <u>management practice-</u> <u>nitrogen loss rates-</u> <u>calculated based on the</u> <u>baseline land uses-</u>
<u>Other farming activities</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>

Table 13(i): Irrigation Scheme or Principal Water Supplier Load Calculator

Row	Land Area (hectares)	Prior to 31 December 2016	From 1 January 2017	From 1 January 2020	From 1 January 2025	From 1 January 2030	From 1 January 2035
A	Land supplied with water from a Principal Water Supplier or that is within an irrigation scheme command area which was irrigated with scheme ⁶⁶ water prior to 1	The tonnage of nitrogen per year shall be calculated by multiplying: A x B; where A = The number of hectares irrigated with scheme water. B = The Nitrogen Baseline.	The tonnage of nitrogen per year shall be calculated by multiplying: A x B; where A = The number of hectares irrigated with scheme water. B = The Good Management Practice Nitrogen Loss Rates reasonably be expected from	The tonnage of nitrogen per year shall be calculated by multiplying: A x B x C; where A = The number of hectares irrigated with scheme water. B = The Good Management Practice Nitrogen Loss Rates that could reasonably be expected from implementing the practices in	The tonnage of nitrogen per year shall be calculated by multiplying: x B x C; where A = The number of hectares irrigated with scheme water. B = The Good Management Practice Nitrogen Loss Rates loss rates that	The tonnage of nitrogen per year shall be calculated by multiplying: A x B x C; where A = The number of hectares irrigated with scheme water. B = The Good Management Practice Nitrogen Loss Rates loss rates that could reasonably be expected from implementing	The tonnage of nitrogen per year shall be calculated by multiplying: A x B x C; where A = The number of hectares irrigated with scheme water. B = The Good Management Practice Nitrogen Loss Rates loss rates that could reasonably be expected from implementing

⁶⁵ V2pLWRP-382 - Federated Farmers, V2pLWRP-928 - W. Kingston, V2pLWRP-861 - Bowden Environmental⁶⁶ V2 pLWRP 357 – Hinds Plains Land and Water Partnership
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	<u>October 2014</u>		<u>implementing the practices in Schedule 7 and Schedule 24⁷² for the baseline land use.</u>	Schedule 7 and Schedule 24 for the <u>baseline land use.</u> C=The 2020 percentage reductions in Table 13(h) Policy 13.4.13 ⁶⁷	<u>could be reasonably expected from implementing the practices in Schedule 7 and Schedule 24 for the baseline land use. C = The 2025 percentage reductions in Table 13(h) Policy 13.4.13</u>	<u>the practices in Schedule 7 and Schedule 24 for the baseline land use. C =The 2030 percentage reductions in Table 13(h) Policy 13.4.13</u>	<u>the practices in Schedule 7 and Schedule 24 or the baseline land use. C= The 2035 percentage reductions in Table 13(h) Policy 13.4.13</u>
B	<u>Land supplied with water from a Principal Water Supplier or that is within an irrigation scheme command area which was not irrigated with water prior to 1 October 2014</u>	<u>The tonnage of nitrogen per year shall be calculated by multiplying the land area (in hectares) to be irrigated by 27 kg /N/ha/yr. (Example: 100 ha x 27 kg /N/ha/yr = 2.7 tonnes of nitrogen per year).</u>					

Table 13(j): ~~Limits/Targets~~⁶⁸ for the Hinds/Hekeao Plains Area surface waterbodies⁽¹⁾

<u>Surface Waterbody type</u>	<u>Type</u>	<u>Measurement</u>	<u>Target to be met by 2035</u> <u>Nitrate nitrogen concentration (mg/L)</u>
<u>Hill-fed Upland</u>	<u>Nitrate toxicity</u> <u>Ecosystem health</u>	<u>Annual median</u>	<u>1.0 0.3-0.5 mg/L</u>
		<u>Annual 95th percentile</u>	<u>1.5</u>
	<u>Dissolved reactive phosphorus</u>	<u>Annual median</u>	<u>0.0004 mg/L</u>
	<u>Ammonia</u>	<u>Annual median</u>	<u>0.35 mg/L</u>
	<u>E Coli</u>	<u>Annual median</u>	<u>100 cfu/100ml</u>
	<u>pH range</u>	<u>No greater than 0.5 change</u>	<u>6.5-8.5</u>
	<u>Minimum proportion % of reach protected and fenced and vegetation riparian buffer zone.</u>	<u>Buffer is 2-4m wide when MALF=15-200L/s, 5-7m when MALF=200-500L/s, and 10-30m when MALF >500 L/s</u>	<u>90%</u>
<u>Hill-fed Lower</u>	<u>Nitrate toxicity</u>	<u>Annual median</u>	<u>3.8 mg/L</u>

⁶⁷ Consequential amendment to Table 13(h) and Policy 13.4.13 recommendations.

⁶⁸ V2pLWRP-711 – RDRML

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		<u>Annual 95th percentile</u>	<u>5.6 mg/L</u>
	<u>Dissolved reactive phosphorus</u>	<u>Annual median</u>	<u>0.0004 mg/L</u>
	<u>Ammonia</u>	<u>Annual median</u>	<u>0.35 mg/L</u>
	<u>E Coli</u>	<u>Annual median</u>	<u>100 cfu/100ml</u>
	<u>pH range</u>	<u>No greater than 0.5 change</u>	<u>6.5-8.5</u>
	<u>Minimum proportion % of reach protected and fenced and vegetation riparian buffer zone.</u>	<u>Buffer is 2-4m wide when MALF=15-200L/s, 5-7m when MALF=200-500L/s, and 10-30m when MALF >500 L/s</u>	<u>90%</u>
<u>Spring-fed Plains</u>	<u>Nitrate toxicity</u>	<u>Annual median</u>	<u>6.9 mg/L</u>
		<u>Annual 95th percentile</u>	<u>9.8 mg/L</u>
	<u>Dissolved reactive phosphorus</u>	<u>Annual median</u>	<u>0.006 mg/L</u>
	<u>Ammonia</u>	<u>Annual median</u>	<u>0.35 mg/L</u>
	<u>E Coli</u>	<u>Annual median</u>	<u>260 cfu/100ml</u>
	<u>pH range</u>	<u>No greater than 0.5 change</u>	<u>6.5-8.5</u>
	<u>Minimum proportion % of reach protected and fenced and vegetation riparian buffer zone.</u>	<u>Buffer is 2-4m wide when MALF=15-200L/s, 5-7m when MALF=200-500L/s, and 10-30m when MALF >500 L/s</u>	<u>80%</u>

1. Waterbodies are to meet both (annual and median and 95th percentile) limits/targets

Table 13(k): ~~Limits~~ Targets⁶⁹ for Groundwater

<u>Contaminant</u>	<u>Measurement</u>	<u>Target to be met by 2035</u>
Nitrate-N	Annual average concentration	6.9 mg /L
<i>E. coli</i>	Annual median concentration	< 1 organism/100 millilitres
Other contaminants ⁽¹⁾	Any sample	<50% MAV ⁽²⁾

1. **Other contaminants of health significance as listed in NZ Drinking-water Standards*

2. ***Maximum acceptable value (as listed * above)*

Amend section number ~~13.7 Flow Sensitive Catchments~~ to 13.8 Flow Sensitive Catchments

Amend section number ~~13.8 High Naturalness Water Bodies~~ to 13.9 High Naturalness Water Bodies

13.10 Schedules

Insert new heading and text as follows:

13.10 Schedules

Schedules 1 to 23 apply in the Hinds/Hekeao Plains Area. Additions apply to Schedule 7.

Schedule 7 - Farm Environment Plan

Within the Hinds/Hekeao Plains Area Part B clause 5(a) shall also include the following:

- Achieve the ~~loss rates that could reasonably be expected from implementing good environmental management practices~~ ~~Good Management Practice Nitrogen Loss Rates~~⁷⁰ from 2017.
- In Lower Hinds/Hekeao Plains Area further reduce the nitrogen loss rate from 2020 in accordance with ~~Policy 13.4.13 Table 13(h)~~.⁷¹

⁶⁹ V2pLWRP-711 – RDRML

⁷⁰ V2pLWRP-271 – Synlait Milk, V2pLWRP-809 – Fonterra, V2pLWRP-598 – Dairy NZ, V2pLWRP-1028 – Synlait Farms

⁷¹ Consequential amendment to Policy 13.4.13.

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Part 4: Amendments to Section 16 - Schedules

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strikethrough~~

Insert a new Schedule 24a – Farm Practices as follows:

Schedule 24a- Farm Practices

(a) Nutrient Management:

- (i) ~~A nutrient budget based on soil nutrient tests has been prepared, by a Certified Nutrient Management Advisor using OVERSEER in accordance with the latest version of the~~⁷⁸
~~OVERSEER Best Practice Data Input Standards [2013],⁷⁹ or an equivalent model approved~~
by the Chief Executive of Canterbury Regional Council ~~and is reviewed annually.~~⁸⁰
- (ia) Where a material change in the land use associated with the farming activity occurs (being a change exceeding that resulting from normal crop rotations or variations in climatic or market conditions) the nutrient budget shall be prepared at the end of the year in which the change occurs, and also three years after the change occurs;
- (ib) Where a material change in the land use associated with the farming activity does not occur, the nutrient budget shall be prepared once every three years;
- (ic) An annual review of the input data used to prepare the nutrient budget shall be carried out by or on behalf of the landowner for the purposes of ensuring the nutrient budget accurately reflects the farming system. A record of the review shall be kept by the landowner.⁸¹
- (ii) Fertiliser is applied in accordance with the Code of Practice for Nutrient Management [2007].
- (iii) Records of soil nutrient tests, nutrient budgets and fertiliser applications are kept and provided to the Canterbury Regional Council upon request. This is of particular important for outdoor pork, fruit (excluding grapes), berry, and rotational vegetable production or other land uses that are not currently modeled within OVERSEER.

(b) Irrigation Management:

- (i) All irrigation systems installed or replaced after 1 October 2014 meet the Irrigation New Zealand Piped Irrigation Systems Design Code of Practice [2013], Irrigation New Zealand Piped Irrigation Systems Design Standards [2013] and the Irrigation New Zealand Piped Irrigation Systems Installation Code of Practice [2013].
- (ii) The irrigation system application depth and uniformity are self-checked annually in accordance with the relevant Irrigation NZ Pre-Season Checklist and IRRIG8Quick Irrigation Performance Quick tests for any irrigation system operating on the property.
- (iii) Irrigation applications are undertaken in accordance with property specific soil moisture monitoring, or a soil water budget, or an irrigation scheduling calculator. Soil monitoring means monitoring soil moisture using either volumetric or tension based methodology.
- (iv) Records of irrigation system application depth and uniformity checklists, irrigation applications, soil moisture monitoring or soil water budget or irrigation scheduling calculator results and rainfall are kept and provided to the Canterbury Regional Council upon request.

(c) Winter grazing of intensively farmed stock:

- (i) Winter grazing means grazing of stock between 1 May and 30 September. This is usually associated with break feeding behind temporary fencing.
- (ii) For all winter grazing of intensively farmed stock adjacent to any river, lake, artificial watercourse (excluding irrigation canals or stock water races) or a wetland, a 3m vegetative strip (measured from the edge of the bed of the river, lake, artificial watercourse, or wetland) from which stock are excluded, is maintained around the water body.

(d)⁷² Cultivation:

- (i) Cultivation means the preparation of land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes:
 - direct drilling of seed;
 - no-tillage practices;
 - re-contouring of land; and
 - forestry.
- (ii) For all cultivation adjacent to any river, lake, artificial watercourse (excluding irrigation canals ~~or~~ stock water races or ephemeral drains)⁷³ or a wetland, a 3m uncultivated vegetative strip (measured from the edge of the bed of the river, lake, artificial watercourse, or wetland) is maintained around the water body.

(e) Collected Animal Effluent:

- (i) Collection, storage and treatment systems for dairy effluent installed or replaced after 1 October 2014 meet the Dairy NZ Farm Dairy Effluent Design Standard and Code of Practice [2013].
- ~~(ii) The application, separation distances, depth, uniformity and intensity of dairy effluent disposal is checked annually in accordance with Section 4 'Land Application' in the Dairy NZ Farm Dairy Effluent Design Standard [2013]. The animal effluent disposal system application separation distances, depth, uniformity and intensity are self-checked annually in accordance with Section 4 'Land Application' in the guideline "A Farmer's Guide to Managing Farm Dairy Effluent - A Good Practice Guide for Land Application Systems" [2013].~~⁷⁴
- (iii) Records of the application, separation distances, depth, uniformity and intensity of dairy effluent disposal, in accordance with (e)(ii) above, are kept and provided to the Canterbury Regional Council upon request.

⁷² This was included in the notified variation as "(b)" in error.

⁷³ V2pLWRP 1083 - Ashburton Hinds Drainage Rating District Liaison Committee

⁷⁴ V2pLWRP-810 – Fonterra, V2pLWRP-599 – Dairy NZ

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