

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

An application by the Hurunui Water Project Limited for a discharge permit to discharge nutrients into or onto land where contaminants may enter water.

BETWEEN

HURUNUI WATER PROJECT LIMITED

Applicant

AND

CANTERBURY REGIONAL COUNCIL

Consent Authority

REPORT AND DECISION OF HEARING COMMISSIONERS

Sharon McGarry and Yvette Couch-Lewis

11 December 2018

Heard on the 22 May and 23-24 October 2018

at the offices of the Canterbury Regional Council, 200 Tuam Street, Christchurch.

Representations and Appearances

Applicant:

Ms S. Watson, Counsel (Duncan Cotterill)

Mr C. Pile, Chief Executive Officer (Hurunui Water Project Limited)

Ms C. Taylor, Planner (Planz Consultants Limited)

Mr I. Lloyd, Senior Water Engineer (Davis Ogilvie)

Ms C. Robb, Consent and Environmental Manger (Hurunui Water Project Limited)

Submitters:

Te Rūnanga o Ngāi Tahu and Te Ngāi Tūāhuriri Rūnanga

- **Mr J. Winchester**, Counsel (Simpson Grierson)
- **Mr P. Horgan**, Environmental Policy and Legal Advisor (Mahaanui Kurataiao Limited)
- **Ms H. Burgman**, Kaumatua (Te Ngāi Tūāhuriri Rūnanga)

Section 42A Reporting Officers:

Ms A. Dawson, Senior Resource Management Consultant (Incite)

Ms A. Fenemor, Senior Resource Management Consultant (Incite)

- **Dr A. Meredith**, Principal Surface Water Quality Scientist (Canterbury Regional Council)
- **Mr H. Graham**, Groundwater Scientist (Canterbury Regional Council)

It is the decision of the Canterbury Regional Council, pursuant to sections 104, 104B, 105 and 107, and subject to Part 2 of the Resource Management Act 1991, to REFUSE Discharge Permit CRC182166 to discharge nutrients into and onto land where contaminants may enter water.

BACKGROUND AND PROCEDURAL MATTERS

1. This is the report and decision of independent Hearing Commissioners Ms Sharon McGarry (Chair) and Ms Yvette Couch-Lewis. We were appointed by the Canterbury Regional Council (**CRC** or ‘the Council’) to hear and decide an application by the Hurunui Water Project Limited (**HWP** or ‘the Applicant’) pursuant to the Resource Management Act 1991 (**RMA** or ‘the Act’) for a resource consent to discharge nutrients into and onto land where contaminants may enter water, as part of an irrigation command area located in the Omih Valley and the upper Waipara/Mason’s Flat area within the Waipara catchment.
2. The Applicant has obtained resource consents for diverting, damming, taking and using surface water from the Hurunui River and the discharge of water to enable the development of an irrigation scheme¹. These consents were lodged in 2011 and were granted in 2015. When the applications were lodged there was no requirement in a regional plan for the use of land for farming or the discharge of nutrients from farming activities.
3. Since this time, the Land and Water Regional Plan (**LWRP**) and the Hurunui and Waiau River Regional Plan (**HWRRP**) have become operative and consent is required to use the land and to discharge nutrients from irrigation activities.
4. In 2015, the Applicant was granted Land Use Consent CRC172780 which authorises the use of land for farming within the Hurunui River Catchment under the Hurunui and Waiau River Regional Plan (**HWRRP**).
5. This application seeks authorisation for the discharge of nutrients onto or into land from the supply of irrigation water to the Waipara catchment under the LWRP, as there is currently no sub-regional plan for this catchment. The most relevant existing consent to this application is Water Permit CRC120675 which authorises the take and use of water from the Hurunui River to irrigate properties located in the Hurunui, Waiau, Waipara and Kowai catchments.
6. Prior to the hearing, a report was produced pursuant to section 42A of the Act by CRC’s Reporting Officer, Ms Adele Dawson. This ‘s42A Report’ included a technical review of the applications by - Dr Adrian Meredith, Principal Surface Water Quality Scientist for CRC; Mr Hamish Graham, Groundwater Scientist for CRC; Mr Ian Brown, Principal Strategy Advisor – Land for CRC; and Mr Leo Fietje, Principal Planning Advisor for CRC.
7. The s42A Report provided an analysis of the matters requiring consideration and stated that subject to receiving further information from Te Rūnanga o Ngāi Tahu and Te Ngāi Tūāhuriri Rūnanga to confirm the recommended conditions addressed their concerns in relation to cultural values, the consent sought may be granted.
8. The s42A Report, the Applicant’s evidence and submitter expert evidence was pre-circulated to the parties prior to the hearing in accordance with section 103B of the Act. This evidence was pre-read prior to the hearing and was ‘taken as read’ at the hearing.
9. The hearing commenced at 9am on Tuesday 22 May 2018 and was adjourned at 5pm the same day.
10. The hearing was adjourned on 22 May 2018, after hearing from the submitter, and was scheduled to resume on 31 May 2018 to hear from the Reporting Officer and the Applicant’s right of reply.

¹ Resource consents CRC120687, CRC120695, CRC120691, CRC120696, CRC120692, CRC120694, CRC122547, CRC120675 and CRC130467.

However, following the adjournment, we received a Memorandum of Counsel for HWP seeking adjournment of the hearing under section 91A of the Act until 31 July 2018. The memorandum stated that HWP accepted that the adjournment sought would require an extension of the requirement of section 103A(3) for the hearing to be completed no later than 45 working days after the closing date for submissions.

11. In accordance with section 91A(5), CRC subsequently provided written notice to the Applicant that the requested suspension of the processing of the application started on 28 May 2018. Notice was also given to the parties that the resumption of the hearing scheduled for 31 May 2018 was cancelled.
12. Following the suspension of the application, we received a Memorandum of Counsel for Te Rūnanga o Ngāi Tahu and Te Ngāi Tūāhuriri Rūnanga (collectively referred to as '**Ngāi Tahu**') (dated 30 May 2018). The memorandum requested that the Hearing Commissioners determine whether it had jurisdiction to consider the grant of consent in accordance with section 104(3)(d) of the RMA given the application had not been publicly notified.
13. On 31 May 2018, we issued a Minute responding to the memorandum from Ngāi Tahu. We informed the parties that we would be seeking further information and submissions at the hearing to determine the matter and that we would make the determination in conjunction with our consideration of a number of matters under section 104 at the close of the hearing.
14. The requested suspension of processing the application ceased on 31 July 2018. We were advised by CRC that the Applicant had requested a further suspension under section 91A that had started on 1 August 2018 and ceased 23 October 2018.
15. On 7 August 2018, we issued Minute #2 giving notice of the resumption of the hearing on 23 and 24 October 2018 and directing the pre-circulation of an Addendum to the s42A Report, the Applicant's evidence and submitter expert evidence.
16. The hearing was reconvened on 23 and 24 October 2018 and evidence was heard over the course of two days. The hearing was adjourned on the second day to enable the Applicant to provide further information and revised proposed consent conditions, and for the Reporting Officer to update the Addendum to the s42A report.
17. On 25 October 2018, we issued Minute #3 directing the provision and circulation of the further information, further comments from the parties and the Applicant's written right of reply within set timeframes.
18. The Applicant agreed to an extension of the period of time specified under section 103A(3) to complete the hearing. Having considered the requirements of section 37A, we extended the time period to complete the hearing under section 37 of the Act by 18 working days.
19. The Applicant's written right of reply was provided on 20 November 2018. We closed the hearing on 21 November 2018.
20. We did not undertake a site visit as part of our consideration of the application.

THE APPLICATION

21. The application and Assessment of Environmental Effects (**AEE**) was prepared by Ms Keri Johnston of Irricon.
22. The application proposed a nitrogen load limit that comprises new nutrient losses arising from irrigated land uses and the existing losses from properties that are supplied with water. The original application sought a maximum rate of nitrogen discharge onto land of:
 - a. 460 tonnes per year for any new irrigated areas; PLUS
 - b. The sum of the good management practise (**GMP**) nitrogen baseline for each property supplied with irrigation water for land that will not be irrigated; PLUS
 - c. The sum of GMP nitrogen baseline for each property supplied with irrigation water that held, prior to being supplied with scheme water, an existing consent to take and use water for irrigation.
23. The application sought a consent expiry date of 10 August 2050, to align with the other Phase 1 consents held for the irrigation scheme.
24. Further information was requested by CRC under section 92 on 14 November 2017 and was provided by the Applicant on 7 December 2017. The further information response amended the application by reducing nitrogen losses from new irrigation areas of 460 tonnes to 355 tonnes per year.
25. The Applicant made a further amendment to the application on 7 February 2018, to reduce the nitrogen losses sought to 146.3 tonnes per year, based on the nitrogen losses assessed under Water Permit CRC120675.
26. At the reconvened hearing, the Applicant further amended the application by proposing a three staged approach of:
 - a. Stage 1 – 50 tonnes per year;
 - b. Stage 2 – up to 100 tonnes per year; and
 - c. Stage 3 – up to 146.3 tonnes per year.
27. It is proposed that Stage 2 and Stage 3 would only commence if CRC certified that irrigation could proceed to the next stage by taking into account the report and recommendations from a Technical Review Panel (**TRP**). It is intended that CRC would only certify the commencement of the next stage if it was satisfied that an additional nutrient discharge would not cause a change in the abundance and composition of the periphyton community.
28. The AEE and s42A Report included a description of the proposed activity and the affected environment. We adopt the description of the affected environment contained in the s42A Report pages 14-15².

² In accordance with section 113 of the RMA.

NOTIFICATION AND SUBMISSIONS

29. The application was limited notified on 22 February 2018 to Ngāi Tahu. The s42A Report stated that limited notification under section 95B of the Act was determined necessary because:
- ‘Public notification was precluded in accordance with section 95A(5) as Rule 5.62 includes two preclusion clauses, the first of which applies to this application as the applicant has applied for a discharge permit to authorise nutrient losses no greater than what is currently authorised through water use permit CRC120675;*
 - No special circumstances apply that would warrant public notification;*
 - The Waipara River is a Statutory Acknowledgement Area which relates to Te Rūnanga o Ngāi Tahu. It was determined there may be potential adverse effects on the Waipara River and therefore, notification of Te Rūnanga o Ngāi Tahu was deemed necessary;*
 - In accordance with section 95B(5), notification of other parties is precluded as Rule 5.62 precludes limited notification where the application is for a discharge permit for nutrient losses no greater than those already authorised by a water permit.’*
30. A submission in opposition to the application was received from Ngāi Tahu. The s42A Report summarised the key points of the submission.

THE HEARING

Applicant’s Case

31. **Ms Sarah Watson**, Counsel, conducted the Applicant’s case presenting legal submissions, tabling a set of proposed conditions and calling three witnesses. In summary, she made the following key points:
- The application seeks to authorise the discharge of nutrients from the irrigation of 11,000 hectares (**ha**) of land, of which 1,500 ha is already irrigated under separate consents but are seeking a more reliable source of water;
 - The resource consents granted in 2013 and issued in August 2015 authorise the use of water to irrigate the entire HWP command area (CRC120675) and specify an annual allocation of 514 tonnes of nitrogen for the Hurunui catchment;
 - Consent CRC120675 does not specify an annual allocation in relation to the Waipara and Kowai catchments because the HWRRP (which included load limits for nitrogen and phosphorus) only covered the Hurunui catchment;
 - The level of increase in nitrogen from the irrigation of land within the Waipara catchment was calculated to be 146.3 tonnes by Mr Peter Callander in the AEE prepared for the Phase 1 consents;
 - The decision granting consent CRC120675 considered the effects of nutrient loss on water quality and is therefore critical in evaluating the existing environment;
 - In determining whether consent CRC120675 forms part of the existing environment the specific factors of the application need to be taken into account;
 - The CRC has processed a number of other applications for discharge and land use consents associated with irrigation schemes and in all those cases it has applied an existing environment approach;
 - HWP finds itself in a similar situation to the Central Plains Water irrigation scheme at the time of Variation 1 to the LWRP and that to not recognise the water use consent as part of the existing environment was inconsistent with a ‘real world’ approach;
 - Plan Change 5 (**PC5**) to the LWRP is not yet operative and to give full weight to Policy 4.41C(b) would create a significant injustice to the shareholders in the Waipara catchment who have invested heavily in the scheme;

- j. The adaptive management approach proposed supports the precautionary principle and would ensure potential diverse effects are avoided and/or mitigated;
 - k. The grant of consent would bring huge social and economic benefits to the area, including the ability to withstand drought, and the ability to improve the existing situation; and
 - l. Eighteen months of baseline monitoring is proposed to build on existing knowledge and near farm and groundwater monitoring is proposed to ensure there would be no further degradation of surface waterways.
32. At the reconvened hearing, Ms Watson presented supplementary legal submissions outlining the progress made during the suspension of the application and the proposed further amendment to the application for a stage approach. She also addressed section 104(3)(d), the definition of regionally significant infrastructure, and the sensitivity of the receiving environment.
33. **Mr Chris Pile**, Chief Executive Officer for HWP, provided a written statement of evidence outlining the philosophy of the scheme, the history of the project, progress made since 2015, the rationale for the application, requirements for monitoring and mitigation, and interaction with Ngāi Tūāhuriri. He noted there was no intention to pursue any increase in nitrogen loads over that inherent in the existing consents. He said the scheme would allow for reporting loads for unirrigated land under a single Farm Environmental Management Plan (**FEMP**) and for existing irrigators operate under the consent sought. He said that the extensive monitoring proposed recognised the sensitivity of the catchment to nitrogen inputs and FEMPs would require riparian planting and wetland protection in line with GMP. He highlighted the scheme would provide an alternative supply in a catchment that was considered to be over allocated.
34. At the reconvened hearing, Mr Pile provided a supplementary statement of evidence (dated 28 September 2018) providing an update of the Water Right Share subscriptions, research into science and monitoring opportunities, and engagement with Ngāti Tūāhuriri and Te Rūnunga o Kaikoura. He stated that the uptake of the Water Right Share offer had been lower than previously indicated which provided for a staged implementation approach. He noted this information had allowed HWP to better define the proposed monitoring network and targeted near-field and on farm monitoring to provide short cycle feedback. He said the information also confirmed the intent of farmers to supplement their predominantly sheep and beef systems by irrigating parts of farms, rather than wholesale dairy conversions. He reiterated the advantages of a centralised mechanism for monitoring and reporting that is not possible under individual consents. He considered that HPW would be the catalyst for change needed to improve degradation and that without the scheme water quality in the catchment was likely to deteriorate further.
35. **Mr Ian Lloyd**, a Senior Water Engineer with Davis Ogilvie, provided a written statement of evidence addressing the surface water resources and groundwater resources of the Waipara catchment, land use and soils within the scheme command area, and compliance with the nitrogen loads and proposed conditions. He concluded that the potential impacts of the nutrient discharge needed to be weighed against the potential positive impacts associated with bringing water into a water short catchment. He considered the proposed conditions to be thorough and extensive and were expected to mitigate the actual effects of the discharge to an acceptable level.
36. At the reconvened hearing, Mr Lloyd provided a supplementary statement of the evidence (dated 28 September 2018) addressing the proposed environmental system, implications of the HWP uptake, near farm monitoring, proposed staging and adaptive management, and the proposed TRP. Appended to his evidence were the minutes of a workshop held on 17 September 2019 on near farm monitoring options.

37. Mr Lloyd provided a further supplementary statement of evidence (dated 31 October 2018) providing further details on deep soil nitrogen monitoring, monitoring timeframes, soil properties, existing groundwater and surface water takes, the total nitrogen load for the catchment, CRC groundwater monitoring, and the link between shallow groundwater and surface water.
38. **Ms Carmen Taylor**, a Consultant Planner for Planz, provided a written statement of evidence outlining background to the application, potential effects of the discharge, and the statutory framework. She stated that the Phase 1 consents were subject to a comprehensive suite of conditions to mitigate and offset the effects of the irrigation scheme and that these would apply to this application. She concluded that given the limits and controls proposed in conditions and the management and mitigation measures included in the HWP's existing irrigation consents the proposal was not contrary to the relevant policy framework of the National Policy Statement for Freshwater Management (**NPS-FM**), the Canterbury Regional Policy Statement (**RPS**), and the Land and Water Regional Plan (**LWRP**); and was therefore in accordance with the purpose and principles of Part 2 of the Act.

Submitters

39. **Mr James Winchester**, Counsel, presented legal submissions on behalf of Ngāi Tahu and called two witnesses. His submissions set out a number of important factual issues that he said provided context for the application. He expressed disappointment at the interpretation and application of the planning documents as set out in the s42A Report and considered the grant of consent would undermine their integrity. He submitted the Applicant had not directly confronted the readily apparent issue of the proposal being contrary to the planning framework. He highlighted the material uncertainty underlying and inherent in the HWP proposal, the absence of baseline information and the nature and severity of adverse effects that would result. He said there was no evidence the scheme would be adaptable or that adverse effects would be attributable to their source; meaning mitigation and adaptation would be, at best, guesswork which is inappropriate given the sensitivity and degradation of the catchment. He highlighted the significant elements of uncertainty and the lack of evidence regarding the environmental baseline. He noted the heavy reliance on the TRP to set appropriate limits and standards and questioned their ability to identify a cause if there is an adverse effect detected. He also noted the absence of detail as to the mitigation measures and their efficacy. He submitted granting consent would, at best, set up a process for the TRP to effectively become the consent authority that would make material and substantive decisions on the nature and exercise of the consent without a public, contestable and accountable process such as a consent process. He considered it was inappropriate for trigger levels and limits to be left to the management plan. He concluded that the application should be refused both on its merits under section 104(1) and for jurisdictional reasons under section 104(3)(d). In response to questions, he considered a cultural impact assessment (**CIA**) should be undertaken before the consent is granted to allow importance values to be acknowledge and triggers set for their protection.
40. At the reconvened hearing, Mr Winchester submitted that since the initial hearing a lot had changed, but again little had changed. He acknowledged there was more information, but that the fundamental barriers to the grant of consent remained. He suggested the lack of a further statement of evidence from Ms Taylor was because the application fails the statutory tests. He reiterated that the policy direction was clear for a 'Red' zone and there can be no additional nutrient inputs. He highlighted the evidence that water quality was likely to get worse before it gets better and that this was clearly not allowed. He submitted the application took a 'trust us' approach and relied on the ability of the Applicant to force change on land owners if there was a further decline in water quality. He considered the staged approach did not address the potential adverse effects of the additional nutrients from first stage and that there was no suggestion that Stage 1 discharges would cease if effects on the receiving waters were detected. He concluded there was far too much risk and

uncertainty to enable the consent to be granted and that the TRP would effectively be delegated the decisions as to whether the consent could be exercised and on what terms. He considered this level of discretion was unacceptable.

41. At our request, Mr Winchester followed up his oral submission at the reconvened hearing and provided these in writing as supplementary legal submissions (dated 7 November 2018).
42. **Ms Hoana (Joan) Burgman**, a kaumātua of Te Ngāi Tuāhūriri Rūnanga and Kaitiaki Portfolio Committee member for Te Ngāi Tuāhūriri Rūnanga, presented a written statement of evidence at the initial hearing on behalf of Ngāi Tahu providing understanding of the historical and cultural relationship of Ngāi Tahu with the Waipara catchment and the potential effects on their cultural values. She outlined the immense significance of the Waipara River to mana whenua and as an important source of mahinga kai. She stated that mana whenua were deeply aggrieved at the current degradation from rural land use in the catchment and the issues of poor water quality, low flows, the loss of wetlands (due to drainage), habitat loss and resulting loss of mauri/life force of the Waipara River. She considered the application had the potential to further degrade the catchment and therefore posed a significant risk to mahinga kai values.
43. **Mr Paul Horgan**, an Environmental Policy and Legal Advisor for Mahaanui Kurataiao Limited, presented a written statement for Ngāi Tahu reviewing the relevant principles and caselaw associated with the application of the precautionary approach, and conducting a critique of the planning assessments undertaken. He outlined the significant uncertainties surrounding the effects of the scheme on water quality and the need to adopt a precautionary approach under Policy 7.3.12 of the RPS. He outlined the components of the Applicant's adaptive management approach to address uncertainties and set out the Supreme Court's guidance to adopting a precautionary approach. He considered there was no evidential foundation to conclude that the adaptive management approach proposed would achieve the goal of reducing uncertainty and adequately managing any remaining risks; particularly given the absence of details on proposed trigger levels and the nature of mitigation to be employed in the event triggers are exceeded. He noted the grant of consent relied on the development of FEMPs and the Scheme Environmental Management Plan (**SEMP**), and the delegation by the consent authority of its decision-making obligations given the consent conditions do not set clear limits and outcomes. He considered an adaptive management approach would include proceeding in incremental stages to lessen the risk of irreversible effects occurring. He noted the difficulties in establishing casual connections between the operation of the scheme and a deterioration in water quality, particularly given there was likely to be a significant time lag in any resulting effects in surface water.
44. At the reconvened hearing, Mr Horgan provided a supplementary statement of evidence (dated 12 October 2018) addressing the implications of the Waipara catchment as a 'Red' nutrient allocation zone, the updated adaptive management regime, cultural risk, the requirements to improve water quality, the potential transfer of the consent sought, and notification issues. He concluded that the proposed staged approach does not address the requirements of the planning framework, the high degree of uncertainty, the likelihood of an increase in biological growths, or the gravity of the cultural consequences if there was a shift to a cyanobacteria community. He remained firmly of the view the application should be refused on both its merits and under section 104(3)(d).

Section 42A Report

45. **Ms Adele Dawson**, a Senior Resource Management Consultant for Incite, tabled her s42A Report at the initial hearing. The Report addressed background to the application, notification, a description of the proposed activity, legal and planning matters, consultation, a description of the affected environment, an assessment of actual and potential effects, objectives and policies of the relevant

planning documents, other relevant matters, and Part 2 matters. Following suspension of the application, Ms Dawson went on leave from work and was unavailable at the reconvened hearing.

46. **Ms Angela Fenemor**, a Senior Resource Management Consultant for Incite, appeared at the reconvened hearing as the replacement Reporting Officer for the CRC. She provided an Addendum to the s42A Report (dated 23 October 2018) addressing the further information provided by the Applicant and assessing the amended application. She considered the Applicant’s adaptive management approach, the evidence of Mr Horgan, the further comments of Dr Meredith and Mr Graham, and the further evidence of Mr Lloyd. She concluded that there was no certainty that adverse effects of the discharges would be avoided or that mitigating or offsetting measures available would minimise and reverse adverse effects in a timely manner. She reviewed Ms Dawson’s assessment of the planning framework and concluded that the application may be inconsistent with the relevant provisions of the statutory documents. She considered the conditions proposed would ensure that any further deterioration of surface water quality would be identified and addressed. She considered the scheme provided an opportunity for environmental benefits, but that this was not guaranteed and had not been quantified. She expressed concern as to what extent the consent could be exercised given it remained uncertain as to what extent the discharge of nitrogen could occur without exceeding trigger levels. She acknowledged that the staged approach reduced some of the risk, but not the effects of Stage 1 and uncertainty remained as to whether those effects would be able to be reversed.
47. Ms Fenemor verbally addressed matters raised during the reconvened hearing in relation to the notification decision, planning provisions, and section 104 of the Act. On the basis of the evidence of Mr Graham and Dr Meredith and the increased weight of PC5 she recommended that the consent should be refused. In response to questions, she made a number of changes to the wording of her Addendum, particularly in relation to use of the words ‘inconsistent’ and ‘contrary’ and her overall recommendation.
48. At our request, following the adjournment of the hearing, Ms Fenemor provided a tracked change version of her Addendum outlining her consideration of the application under section 104, 105 and 107, and Part 2 of the Act.
49. Ms Fenemor provided a second Addendum to the s42A Report (dated 9 November 2018) and a supplementary report from Mr Graham and Dr Meredith. The Addendum addressed the Applicant’s further information and the revised proposed conditions.
50. **Dr Adrian Meredith**, Principal Surface Water Quality Scientist for CRC, provided a technical review of the application appended to the s42A Report and attended the initial hearing to answer questions. He described the existing surface water quality, assessed the effects of the application, and outlined the uncertainty of the assessment of effects. He concluded the Applicant’s AEE had taken a minimalist and simplistic approach to the Waipara River system and had not relied on the most recent information. He highlighted the high ecological value of the tributaries, as well as the main stem, and the lack of assessment of the effects on these valuable habitats. He emphasised the inter-relationship between water quality and flow regimes, and the need for integrated management to improve water quality and water flows. He outlined the significant risks to the Waipara River from increasing nutrient concentration and the potential changes in the periphyton community. He assessed the effects of near stream augmentation and the importance of site selection in relation to detrimental features (e.g. stock access, active erosion, dewatering and poor ecological habitat). He also discussed the advantage and disadvantages of willow removal and the need to take a holistic assessment of the benefits to ensure there was a nett environmental benefit. He considered approaches to monitoring, including a minimum number of sites, water quality parameters and baseline monitoring.

51. At the reconvened hearing, Dr Meredith provided a further report to the s42A Report Addendum (dated 23 October 2018) responding to the evidence provided and summarising his findings. He concluded that the supplementary evidence from the Applicant and the amendments to the application had not changed his technical assessment and his conclusions reached on the potential effects on the Waipara catchment.
52. Dr Meredith provided a further supplementary report to the second Addendum to the s42A Report (dated 9 November 2018) responding to the further evidence of Mr Lloyd.
53. **Mr Hamish Graham**, Groundwater Scientist for CRC, provided a technical review of the application appended to the s42A Report and attended the initial hearing to answer questions. His report described the hydrogeology of the catchment, groundwater quality, and soils, and reviewed the assessment of effects. Mr Graham concluded that the application had the potential to cause adverse effects on groundwater and surface water. He considered there was considerable uncertainty as to the effects of the discharge given the lack of details regarding farm locations, and farming land use and practices. He noted considerable reliance on the SEMP to avoid, remedy and mitigate adverse effects and that management of adverse effects is complicated by the complex nature of the groundwater system in the Waipara catchment. He considered a significant number of groundwater monitoring sites would be required and that individual water quality triggers needed to account for variable groundwater quality. He also considered that a robust mitigation plan would be needed in case of trigger level exceedances.
54. At the reconvened hearing, Mr Graham provided a further report to the s42A Report Addendum (dated 23 October 2018) responding to the evidence provided and summarising his findings.
55. Mr Graham provided a further supplementary report to the second Addendum to the s42A Report (dated 9 November 2018) responding to the further evidence of Mr Lloyd.
56. **Mr Ian Brown**, Principal Strategy Advisor – Land for CRC and **Mr Leo Fietje**, Principal Planning Advisor for CRC provided a technical review of the application appended to the s42A Report. Their report reviewed the Applicant’s farming/modelling information, the ability for farming practices to go beyond GMP, proposed nutrient modelling conditions, and proposed FEMP objectives and auditing conditions. They concluded that while deeper soils generally have lower rates of drainage and leach less than lighter soils, most of the soils within the scheme are categorised as light. They noted there was limited opportunity to go beyond GMP given the high standards prescribed.

Applicant’s Right of Reply

57. Ms Watson provided a written right of reply on behalf of the Applicant and a final set of proposed conditions on 20 November 2018. The right of reply addressed an integrated solution, policy approach to red zones, the technical review panel, notification, catchment total nitrogen inputs versus the proposed nitrogen increased, the planning evidence Part 2 of the Act and revised consent conditions. She concluded that there was no jurisdictional barrier to the grant of consent; the proposal would make improvements and was likely to be part of the catchment wide solution; the proposed monitoring would provide robust information to ensure adverse effects can be avoided; the benefits of granting the proposal outweigh the risk; and the scheme would be the catalyst for an integrated solution to address the degraded nature of the catchment.

ASSESSMENT

58. In assessing the application, we have considered the application documentation and assessment of environmental effects (AEE), the s42A Report and Addendums and technical reviews, all submissions received and the all evidence provided during and after the hearing adjournment. We have summarised this evidence above. We record we have considered all the issues raised in making our determination.
59. We were also provided with, and have reviewed copies of, the following reference documents:
- a. Report and Decision of the Hearing Commissioners for resource consents CRC120687, CRC120695, CRC120691, CRC120696, CRC120692, CRC120694, CRC122547, CRC120675 and CRC130467 by the Hurunui Water Project Limited dated 1 August 2013;
 - b. CRC Notification Decision and Report for CRC182166 dated 20 February 2018;
 - c. 'Assessment of Environmental Effects: Groundwater Quantity and Groundwater Quality Assessment for the Hurunui Water Project' by Pattle Delamore Partners Limited dated October 2011; and
 - d. Canterbury Regional Council Technical Report No. R17/29 'Hydrogeology of the Waipara catchment' dated July 2017.

Status of the Application

60. The starting point for our assessment of the application is to determine the status of the proposed activity.
61. There was agreement that the application should be considered pursuant to Rule 5.62 of the LWRP as a discretionary activity. We agree.

Statutory Considerations

62. In terms of our responsibility for giving consideration to the application, we are required to have regard to the matters listed in sections 104, 104B, 105 and 107 of the Act.
63. In terms of section 104(1), and subject to Part 2 of the Act, which contains the Act's purpose and principles, we must have regard to-
- (a) *Any actual and potential effects on the environment of allowing the activity;*
 - (ab) *Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;*
 - (b) *Any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement or a proposed regional policy statement, a plan or proposed plan; and*
 - (c) *Any other matters the consent authority considers relevant and reasonably necessary to determine the application.*
64. Section 104(2) states that when forming an opinion for the purposes of section 104(1)(a), we may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect. This is referred to as consideration of the 'permitted baseline'.
65. Section 104(3)(d) states that we must not grant a resource consent if the application should have been notified and was not.

66. In terms of section 104B for a discretionary activity, we may grant or refuse the application, and if granted, may impose conditions under section 108.
67. In terms of section 105, when considering section 15 (discharge) matters, we must, in addition to section 104(1), have regard to-
- (a) *The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*
 - (b) *The applicant's reason for the proposed choice; and*
 - (c) *Any possible alternative methods of discharge, including discharge to any other receiving environment.*
68. In terms of section 107(1), we are prevented from granting consent allowing any discharge into a receiving environment which would, after reasonable mixing, give rise to all or any of the following effects, unless the exceptions in section 107(2) apply³ -
- (c) *The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material;*
 - (d) *Any conspicuous change in the colour or visual clarity;*
 - (e) *Any emission of objectionable odour;*
 - (f) *The rendering of fresh water unsuitable for consumption by farm animals;*
 - (g) *Any significant adverse effects on aquatic life.*
69. We consider each of these sections of the RMA separately below.

SECTION 104(1)(a) - ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT

The Existing Environment

70. In making our assessment, we are required to consider the actual and potential effects of the activities on the existing environment. The existing environment is that which exists at the time this determination is made and includes lawful existing activities, permitted activities and activities authorised by existing resource consents.
71. A key consideration is whether the effects of the discharge of nutrients is authorised under Water Permit CRC120675.
72. The application stated that *'It is considered that the effects of the discharge form part of the existing environment'* (pg.3). In relation to effects of the nutrient discharge in the Waipara catchment, the application noted that the Hearing Commissioners' decision for the Phase 1 consents stated that the impact on water quality was one of the key considerations and that the effects on water quality had been taken into account. The application stated that *'the HWP project is an anticipated potential increase in nitrogen in a red nutrient allocation zone'* (pg.21) and that the Hearing Commissioners envisaged higher increased leaching than what is now proposed.
73. Ms Watson submitted that the scope of Water Permit CRC120675 is critical in evaluating the existing environment, as it is clear that effects on water quality were key considerations in assessing the use of water for irrigation of the entire command area.

³ The exceptions being:
(a) that exceptional circumstances justify the granting of the permit; or
(b) that the discharge is of a temporary nature; or
(c) that the discharge is associated with necessary maintenance work—
and that it is consistent with the purpose of this Act to do so.

74. Ms Watson submitted that Rule 5.62 (the applicable rule) is intended to ‘avoid duplication of consenting requirements’ in exactly this situation where the discharge of nutrients had been considered as part of the grant of consent CRC120675 and conditions to avoid, remedy and mitigate effects on water quality have been imposed.
75. Ms Watson disagreed with the view of the Council that the use of water within the Waipara catchment cannot form part of the existing environment because additional consents are required and noted the Courts had not found this to be an automatic conclusion without consideration of the specific facts of the case. In this regard, she noted that HWP had taken significant steps to implement consent CRC120675 and there is clear evidence it intends to give effect to the water use consent.
76. Mr Winchester submitted that it would be too speculative to consider the water use consent as part of the existing environment. He noted that the situation in relation to this application was quite different to the other applications referred to by Ms Watson. He submitted that the implementation of consent CRC120675 within the Waipara catchment was contingent on the grant of this application and considered the appropriate process to consider the effects of the discharge of nutrients is this application. He highlighted that consent CRC120675 did not authorise the discharge of nutrients outside of the Hurunui catchment. He cautioned making comparisons with consideration of the existing environment in the planning process and other consent applications, given each situation is different.
77. Mr Winchester submitted that the Applicant’s planning evidence noted it does not directly rely on the use of water as part of the existing environment, but seeks to minimise or diminish the weight to be given to the additional nutrient discharges on comparison with the ‘intent’ of the existing consent. He considered this suggested the intent of the existing scheme consent should prevail over the effects of the application and any issues of inconsistency with the planning framework. He stated that the s42A Report correctly identified that the existing irrigation scheme consents did not form part of the existing environment given it was not operational and there was no certainty when or to what extent it would become operational. He said that in a ‘real world assessment’ the implementation of the existing consents was entirely dependent on the grant of this application and potentially other consents may be required before the existing consents could be exercised.
78. In the s42A Report Ms Dawson stated that the High Court has stated that the view of the existing environment should be based on ‘real world analysis of the future environment’. She considered the Applicant was unable to implement consent CRC120675 without either obtaining a discharge permit or landowners maintaining their baseline nutrient losses and obtaining individual land use consents. In addition, she noted that other consents were required for construction and operational consents (Phase 2 consents) and there was therefore a moderate level of uncertainty as to whether consent CRC120675 was likely to be implemented.
79. Ms Fenemor agreed with Ms Dawson’s conclusions that the proposed irrigation scheme did not form part of the existing environment as other consents are required prior to implementation.

Findings

80. In considering whether the Phase 1 consents, and specifically consent CRC120675, form part of the existing environment, we have taken into account the specific factors as set out by Ms Watson in paragraph 23 of her legal submissions. We accept that the existing environment includes the environment as it might be modified by existing resource consents where it appears likely those resource consents will be implemented. However, we do not accept that consent CRC120675 can be implemented in the Waipara catchment without consent to authorise the discharge of nutrients. The ability to implement consent CRC120675 in the Waipara catchment is contingent on the grant of

this application and we consider it is appropriate that the effects of the discharge are considered as part of this decision.

81. While we accept that the Hearing Commissioners decision granting the Phase 1 consents considered water quality effects of the use of water for irrigation over the entire command area, it was clearly anticipated that further consents may be required to authorise the discharge of nutrients outside of the Hurunui catchment. In our view, it would be a nonsense to accept that the consideration of the wider water quality effects and the grant of consent CRC120675 in some way pre-determines that any water quality effects of the discharge of nutrients in the Waipara catchment are authorised or deemed permitted.
82. Rule 5.62 recognises that in some circumstances it may be appropriate to avoid public notification of applications such as this application, but it does not follow that the effects of the application have been assessed under an existing consent or that an existing consent forms part of the existing environment. We consider Rule 5.62 is a pathway to allow irrigation schemes to apply for additional consents that may be required to authorise irrigation, without public or limited notification, but it does not follow that it is anticipated that the consents sought will be granted.
83. We consider consent CRC120675 does not form part of the existing environment, as it does not authorise the discharge of nutrients in the Waipara catchment.
84. We do not consider the application of a permitted baseline is helpful in this case.

Actual and Potential Environmental Effects

85. The s42A Report considered the effects on surface water and ecology, groundwater quality and groundwater users, recreational users, Ngāi Tahu cultural values and positive effects.
86. Ms Fenemor considered the key concerns were the impacts on surface water quality and subsequent adverse effects on cultural and recreational values. She also noted the potential positive effects of the proposal included significant social and economic benefits for landowners and the possibility for environmental benefits for reducing over-allocation of the groundwater management zone and improving stream flows through augmentation.
87. We accept that the application would have significant social and economic benefits for the landowners and HPW shareholders, and the wider community. We have had regard to these positive effects. We consider the environmental benefits under section 104(1)(ab) below.
88. On the basis of the evidence presented, we have focussed our assessment on water quality and ecological effects (surface water and groundwater) and effects on cultural values and relationships. These matters are assessed below.
89. We note the key concerns raised by Ngai Tahu relate to surface water contamination and the evidence that the groundwater resource is not as sensitive as surface water to an increase in nutrients. However, we acknowledge the evidence that the groundwater and surface water are interconnected and are part of one highly complex and heterogenous system. We have therefore considered the effects on water quality and ecological values as one and note that this assessment is directly linked to effects on recreational users. While we heard little evidence on the effects on recreational users, we acknowledge that any further deterioration in water quality and ecological values is likely to have adverse effects on recreational users that may be significant.

90. We consider effects on cultural values and relationships separately below. However, we acknowledge that our assessment of the effects on water quality, ecological effects and recreation users is a sub-set of the assessment of effects on cultural values given mana whenua's world view that everything is related and interconnected. We recognise that the assessment of the effects as separate parts is contrary to this world view. However, our separate consideration of the effects on cultural values and relationships allows us to consider the evidence as presented and to structure our assessment.

Water Quality and Ecological Effects

91. In his evidence in chief, Mr Lloyd noted there was a natural continuum between perennial (flow permanently), intermittent and ephemeral waterbodies. He stated that the perennial waterways had been suggested for water quality monitoring, as well as focussing on monitoring on-farm drainage and near field shallow groundwater. He acknowledged there would be increased drainage from irrigation, but that it was not known where flow increases will occur.
92. Mr Lloyd noted it is accepted that the Waipara catchment is flow sensitive and that the lack of water (particularly low summer flows) was the key restriction on water quality and aquatic ecological health. He considered that any proposal to bring water into a water short catchment should be encouraged and any potential adverse effects weighed against the benefits of bringing additional water into the catchment.
93. Mr Lloyd noted the groundwater resources in the Waipara catchment have been extensively studied and are relatively well understood. However, he noted that relatively little was known about the Culverden Basin Groundwater Allocation Zone, except that the groundwater and surface water catchments are expected not to align. He noted that the command area covers all of the Culverden Basin Groundwater Allocation Zone and the majority of the Omihi Valley portion of the Waipara Groundwater Allocation Zone.
94. Mr Lloyd considered there was insufficient data to conclude that all groundwater beneath the scheme command area that was not abstracted via groundwater bores would discharge to surface water. He stated that –
'Groundwater surface water interactions are not well understood and that there is unlikely to be a direct, simple or short flow path connecting drainage from the irrigated land to the area's surface water bodies. While there is a lack of data on the groundwater system that underlies the Upper Waipara section of the command area, a similar complicated groundwater system is expected based on the similar geological setting and depositional history.' (pg. 7).
95. Mr Lloyd considered that a 'proportion' of the groundwater scheme would not discharge to surface water within the Waipara catchment. In response to questions, he said that the water balance calculations suggest 20-25% of water is unaccounted for. He estimated that water lost under the Waipara River, towards Amberley, was likely to be in the order of 5% and that the Omihi Valley sub catchment would lose the most. He considered there was more uncertainty in the command area above Masons Flat and that areas below this would likely discharge to the Waipara River.
96. Mr Lloyd noted a distinct lack of known springs, wetlands or drainage ditches within the Upper Waipara and Omihi Valley command areas. He stated groundwater in the area is known to be old which implied that flow paths for both recharge and discharge were likely to be long and slow and would be difficult to determine.
97. Mr Lloyd stated –
'The expected limited drainage from the irrigated land, the long and slow flow path through the groundwater system to the area's surface water bodies coupled with the intermittent nature of

flow in many reaches means that the discharges to flowing surface water bodies are expected to be subtle with potentially a significant time lag and any additional nitrogen loads associated with the proposed increased irrigation are likely to be difficult to detect.’ (pg.10)

98. Mr Lloyd stated that the entire nitrogen load from the command area had been attributed to the Waipara River catchment. However, he noted that if a proportion of the drainage does not discharge to the Waipara River or there was attenuation of nitrate-nitrogen via denitrification, there would be a reduction in the nitrogen load the river receives from the command area. For these reasons, he considered the assumption represented a worst-case scenario and the assessment conservative.
99. Mr Lloyd agreed with Mr Graham’s assessment that existing nitrate-nitrogen concentrations in groundwater were generally low and well below the maximum concentrations specified in the LWRP, except for bore N34/0109 located within the Omihi Valley. He considered the elevated concentrations were likely to be due to a local point source rather than widespread diffuse discharge associated with upgradient land use.
100. Mr Lloyd noted current land use in the Waipara catchment was not very intensive, with no milking dairy farms, very limited intensive cattle grazing and limited intensive cropping other than viticulture.
101. Mr Lloyd outlined the Landcare Research S-Map characteristics of the soils within the command areas and said that in general the soils were well suited to irrigation. He stated that soil moisture balance investigations indicated that the relatively high-water holding capacity of the soils, the areas dry climate, and the proposed use of efficient, deficit spray irrigation mean that while irrigation demand would be high, driven by the hot dry summer climate), deep drainage (or groundwater recharge) was expected to be low.
102. Mr Lloyd noted that SEMP required the implementation of triggers and mitigation actions in the event that triggers were reached; and he outlined mitigation measures such as improving practices beyond GMP, partial irrigation, environmental enhancement (wider riparian plantings and restorative planting) and changes of land use, stocking rates and fertiliser use. He also stated that there would be the ability to increase surface flow and/or groundwater levels through reduction in water abstraction by HWP shareholders, removal of willows or environmental use of irrigation scheme water such as near stream augmentation. He also noted potential measures outside of the command areas, such as addressing erosion hotspots and encouraging increased fencing and development of FEMPs by non-shareholding landowners. He highlighted that some of these options were only possible because water is coming into the catchment.
103. Mr Lloyd stated the proposed monitoring was significantly more intensive due to the complicated nature of the catchment and the sensitivity of the receiving environment. He said a key aspect was the ability to adapt, modify and refine the monitoring programme based on results. He noted the importance of focussing monitoring close to source at a farm level on soils, leachate and local shallow groundwater. He stated that surface and groundwater monitoring combined with requirements to track and report irrigated areas, Overseer budgets, and on farm data, would facilitate the interpretation of the monitoring results, the identification of trends, and would assist in setting triggers for the introduction of mitigation actions. He noted that surface water monitoring proposed focussed on periphyton growth in perennial sections of water bodies and comparing data over time.
104. Mr Lloyd stated that FEMPs were a practical and effective mechanism for encouraging improved on farm performance and were critical to ensuring the effects of the application would be mitigated.
105. In his supplementary evidence (dated 28 September 2018), Mr Lloyd outlined the proposed staged and adaptive management approach and noted that advancement to the next stage could only

happen if defined outcomes were met. He stated that the role of the TRP was to confirm monitoring programmes, set targets, review results and guide the adaptive management process. He provided Figure 1 summarising the system and the various feedback loops at an on-farm and scheme level. He noted that Stage 1 in the Omihi Valley was predominantly in the upper and middle parts of the valley above Baxters Road; and Stage 1 on the Upper Waipara was predominantly in the North Branch sub-catchment.

106. Mr Lloyd considered preventing a change in the composition of the periphyton community was considered a realistic and appropriate goal and was therefore a suitable criterion for allowing advancement to the next stage. He said that if adverse change or effects were detected in either surface water or deep groundwater that it would essentially be too late to change activities to avoid the effects and options such as offsetting to mitigate the effects on surface water are likely to be required. He noted HWP had recently explored and identified options available for more rapid near source or near farm monitoring which could be used as part of an adaptive management approach and had included these in the overall scheme monitoring.
107. Mr Lloyd set out the relevant consent limits in Table 2 (supplementary evidence) and stated these limits were seen as initial baselines which HPW would raise or tighten if monitoring showed adverse change or effects. He considered the TRP could directly influence the SEMP, FEMPs and monitoring to direct change (through setting and adjusting standards and triggers) and influence performance as required. He noted that, as necessary, HWP can set higher performance standards which would ensure performance was above GMP; and could also undertake offsetting type activities to further mitigate adverse effects on water quality. He noted that HWP would have the ability to influence on-farm environmental performance on all shareholder land, both irrigated and dry land.
108. Mr Lloyd stated that the further work undertaken by HWP since the adjournment had allowed the proposed monitoring to be further refined and formed a start point for the TRP to further refine.
109. In response to questions, Mr Lloyd considered that any existing effects of deep groundwater abstraction on surface water flows was likely to be low due to the depth of the takes and the fact there are no groundwater takes in the upper catchment which drives surface water flows. He considered that existing surface water takes were affecting the nature of the water resource and natural flow regimes.
110. In his supplementary evidence (dated 31 October 2018), Mr Lloyd explained deep soil nitrogen monitoring used to understand the nutrient cycle within the soil profile. He noted it can be used to assess the amount of nitrogen present in the soil, how it is moving through the soil profile, and the risk of nitrogen leaching below the root zone. He noted that the monitoring proposed consisted of:
 - a. Climate monitoring;
 - b. Deep nitrogen testing of the root zone soils;
 - c. Extra deep nitrogen testing below the root zone to assess the denitrification potential; and
 - d. Shallow groundwater monitoring.
111. Mr Lloyd noted that monitoring of downgradient surface water (monthly samples, monthly visual assessments of periphyton and potential effects on cultural values, and annual survey of periphyton) provided a check on the overall system and was aimed at confirming the effectiveness of the overall system in achieving no detrimental change in the abundance or nature of the periphyton communities and cultural health. He provided Figure 1 outlining the monitoring timeframes and feedback system.
112. Mr Lloyd provided Table 1 summarising the soils in the command area and the area targeted in Stage 1. He considered this showed that very well drained soils are very uncommon within the command

area (<1%); and shallow well drained soils make up approximately 25% (with a higher proportion in the upper Waipara zone). He stated that the shallow well drained soils were located within and immediately adjacent to river beds and were unlikely to be targeted for irrigation.

113. Mr Lloyd provided a map showing the existing water takes and irrigated land. He noted that there were numerous consented water takes within or surrounding the Omihi section of the command area and that the vast majority of the approximately 1,500 ha of existing irrigation in the Omihi Valley lay within the HWP command area; and that of this, 420 ha was located adjacent to or upstream of Baxters Road within the area targeted for Stage 1. He stated that HWP could potentially provide an alternative water source for the majority of the currently irrigated land.
114. Mr Lloyd noted that no detailed nitrogen load had been calculated for the whole catchment, but that estimates based on CRC's nitrate-nitrogen look up tables indicated a 6% increase for the full development and therefore a 2% increase for Stage 1 (based on 1/3 of the full proposal). Using Overseer, he estimated the full proposal represented a 13.2% increase, with Stage 1 representing a 4.5% increase. He provided the results in Table 2 of his evidence.
115. Mr Lloyd considered the deep and poor draining soils (which cover large sections of the Waipara catchment) were expected to encourage considerable denitrification which had not been accounted for. He stated that a nitrogen attenuation factor had not been determined for the Waipara catchment, but that it was expected to be significantly greater than for the Hurunui catchment (i.e. less nitrogen would reach the Waipara River).
116. Mr Lloyd referred to a study of water quality and periphyton measurements in the Waipara River by Hayward *et al.* (2003)⁴ and considered the results suggested that significant denitrification was occurring in the soil immediately below the root zone and that the nitrogen load that reaches the main stem is significantly reduced.
117. Mr Lloyd disagreed with the comment made by Ms Fenemor that groundwater was known to be connected with surface water and disagreed with her conclusion based on a report by Topelen (2018)⁵. He noted that Topelen (2018) did not differentiate between the three sources of flow gains (direct overland flow or runoff to watercourses, tributary inflow, and gains from groundwater and springs) and that for the vast majority of the catchment tributary inflow was the dominating factor. He noted it was only during periods of low flow that groundwater gains became apparent and could be assessed. He stated that his investigations during low flow conditions (in 2000 and 2002) concluded limited gains in surface flow from groundwater in few locations.
118. Mr Horgan outlined the areas of uncertainty in relation to the assessment of effects on water quality. He was also concerned that it was unclear whether the comparatively short duration of the proposed baseline monitoring was sufficient to gain an understanding of the existing state of the Waipara River catchment given the potential for significant climatic fluctuations and the unique nature of the river system. He considered there was a lack of detail regarding the process to be followed to set trigger levels, the relationship between trigger levels and water quality standards set for the receiving waters, and whether trigger levels would align with the protection on cultural values. He noted that without pre-application baseline monitoring there was no guidance about the capacity of the Waipara River to absorb the additional nitrogen loads; or the likely characteristics and features of the proposed trigger levels.

⁴ Hayward, S A; Meredith, A S; Lavender, R M, 2003. Waipara River: assessment of water quality and aquatic ecosystem monitoring, 1999 to 2002

⁵ Topelen, J., 2018. Hydrological information for the Waipara catchment. Environment Canterbury Memo, C18C/137754

119. Mr Horgan noted there was no information on how severe an adverse effect would have to be before the supply of scheme water would be stopped, or the degree to which the mitigation measures would be able to ensure the avoidance of irreversible adverse effects. He noted the evidence suggested there was very little margin for error given the existing degradation and the potential for not only aesthetic and ecological nuisance, but also public health issues from the production of toxins.
120. In his supplementary evidence, Mr Horgan considered the proposed staged approach and the revised proposed conditions. He acknowledged that there was little more the Applicant could do to reduce uncertainties and to manage the effects of the discharge. However, he noted the evidence that, at best, the application would only maintain water quality in its current degraded state and that this was contrary to the primary driver for Ngāi Tahu for the restoration of the catchment. He reiterated the high likelihood that the additional nutrient inputs would further strain an already stressed system, the gravity of the consequences if it resulted in an irreversible shift in the composition of the biological growth communities, and the significant uncertainty that effects can be mitigated.
121. In his technical review appended to the s42A Report, Dr Meredith noted that the current adverse effects of nutrient enrichment in the Waipara catchment were long periods of excessive growth of filamentous green algae. He stated –
- ‘The consequence of increasing the nitrogen concentration in the Waipara River is likely to result not only an increase in detrimental periphyton growth, but also in a significant change to the periphyton community composition from filamentous green algae growth to cyanobacteria mat type growths. Periphyton community change to cyanobacteria mat type growths are now common in many Canterbury rivers and have developed either as a switch from green filamentous algae growth, or as the first development of nuisance growths’ (pg. 32).*
122. In his initial review of the application, Dr Meredith noted the important distinction between filamentous green algae growths, which were considered an aesthetic and ecological nuisance (a slippery conspicuous green carpet on the river bed), and black cyanobacteria mats which were also considered to be a public health issue. He stated that because cyanobacteria produced potent toxin compounds it can be toxic to people and lethal to domesticated animals (particularly dogs) and can taint water and gathered food, and emit objectionable odours dominating the smell of the river. He noted that changes to water quality that promote such variation in nuisance algal growths can potentially generate a wide range of significant adverse ecological effects and reduction in the use of river values.
123. Dr Meredith noted it was difficult to assess the instream effects from additional nitrogen loads because of complex inter-relationships with other factors such as flow and flow stability, degree of exposure to sunlight and water temperature. He stated it was not easy or reasonable to model empirical periphyton growth outcomes from a specific nitrogen load, but considered it was valid to describe significantly increasing risks in both periphyton community type and biomass from increasing nutrient concentrations in the Waipara River.
124. Dr Meredith outlined the uncertainty around where irrigation would occur and what land use would result and the inability to set effective water quality triggers until this was known. He considered a SEMP should describe the mitigation measures to be implemented, including where they may be more effective, whether they provide rapid response for immediate mitigation, or whether they require long or short timeframes to provide benefit. He noted it also required a strategy for monitoring and reporting on the effectiveness of the mitigation measures. He considered the development of an appropriate and effective surface water quality monitoring programme to identify and set appropriate triggers was critical to confidently manage water quality effects. He

noted that some triggers would need to be set on a site by site basis due to each site having a different baseline.

125. Dr Meredith noted the since consent CRC120675 was issued in 2012/13 the understanding of nutrient effects and relationships, and outcome effects for different algal communities in rivers has changed or become better understood. He also noted that the Waipara River is somewhat unique with its own stressor and limiting determinants, and although degraded had not switched to cyanobacteria mat algae communities which are of concern to public and cultural health.
126. At the reconvened hearing, Dr Meredith stated that ‘any meaningful increase’ in nitrogen loads to the Waipara River was very likely to both increase nuisance periphyton and change the community composition to one dominated by cyanobacteria. He highlighted that the flow status of the Waipara River and its tributaries, as described by Mr Lloyd, described their current state and that this was strongly influenced by the current water allocation and abstraction regime. He expected the scheme would change the existing flow regime and character, which would result in changes between the baseline monitoring period and the exercise of the consent. He considered it was important to acknowledge that the current state of the Waipara River gives rise to a suite of adverse effects. He was concerned that the irrigation would potentially open up unidentified pathways for groundwater to re-enter surface water that are currently obscured by the highly altered natural flow regime.
127. Dr Meredith assessed the proposed adaptive management approach. He considered the approach had some risks given it was a reactive strategy requiring the identification of effects and rapid action to reverse effects. He was not confident the SEMP would enable the early identification of adverse water quality trends given they would be difficult to detect due to the slow movement of groundwater and difficulty in detecting nutrient loads in groundwater. He considered that once nutrients reached surface water the effect may be difficult or impossible to reverse. He considered that the mitigation options outlined by Mr Lloyd were to reduce the additional nutrient loads rather than to address the current degraded state of the Waipara River. He considered the adaptive monitoring strategy proposed would only be effective if source losses can be halted or reversed. He was concerned that annual surveys of periphyton growth could miss significant effects on river condition and values.
128. Dr Meredith considered it was important the SEMP was well designed from its inception, without the need for major changes, as this would affect the ability to interpret results if it deviated from the methods used for baseline monitoring. He agreed there was insufficient information to confirm the monitoring sites at this stage. He noted that the evidence of Mr Lloyd appeared to anticipated adverse effects would occur and assumed that these can be mitigated to an acceptable level. He questioned the effectiveness of the mitigation options outlined and considered that significant risks remained. He considered avoidance of risks should be the primary consideration given the potential for irreversible effects on river values even under Stage 1 nitrogen loads.
129. Dr Meredith emphasised that the Waipara River system was now one of only 2-3 remaining catchments in Canterbury that had not switched to a system dominated by cyanobacteria mat growths and the significant adverse effects that follow this change. He noted that although the processes of that switch are complicated, experience showed it tended to follow the development of irrigation intensification with higher nutrient load losses. He noted that none of the rivers that had degraded to a cyanobacteria environment had to date been able to be reverse this pattern or to successfully manage adverse nutrient effects. On the basis of this, and on his assessment of the effect of this application, he expected irrigation in the Waipara catchment would degrade the Waipara River to a cyanobacteria mat dominated river, with the loss of many of its values, in a similar way many other intensified catchments in Canterbury had over the past 20 years; and that this was likely to be irreversible.

130. In response to questions, Dr Meredith said that only the big alpine rivers remained unchanged to a state dominated by cyanobacteria growths and that the Hurunui River had recently switched.
131. In response the further supplementary evidence of Mr Lloyd (dated 31 October 2018), Dr Meredith noted he was one of the authors of the Hayward *et al.* 2003 report. He disagreed this supported Mr Lloyd's argument for high nitrogen loss via denitrification in the soils. He noted the report clearly stated that differences in nutrient enrichment along the length of the river were caused by the rapid uptake of dissolved nutrients by periphyton. He considered the report findings demonstrated the high dissolved nutrient uptake by plants and periphyton leading to the adverse effect of high nuisance periphyton biomass. He considered any nitrogen 'attenuation factor' was dominated by in-river processes and that any additional dissolved nutrient loss from further irrigation would lead to additional in-river dissolved nutrients resulting in additional adverse effects on periphyton biomass and other changes to the periphyton community.
132. In his initial review of the application, Mr Graham noted that all groundwater in the catchment was connected to surface water and that a minor amount discharges to the Culverden-Hurunui groundwater allocation zone. He considered there would be significant flow south, discharging into the Waipara River with some discharging via the Omihi River. He noted that the 14 groundwater level monitoring sites maintained by CRC showed stable long-term trends at eight sites and long-term declining trends at six sites. He considered that of the six sites showing declining trends, three sites were within the command areas and were likely to be declining due to abstraction pressure; and three sites more likely to be due to lower than average precipitation over the last four years. He noted that south of the Waipara River (outside of the command area) almost all groundwater level monitoring sites were showing declining levels. He noted there was very little groundwater level information for the upper Waipara catchment, but that there was a groundwater divide on Masons Flat.
133. Mr Graham stated that groundwater movement in the Omihi Valley was relatively slow, with long residence times and old water. He noted this made monitoring impacts challenging because of the lag times. He said little was known about groundwater movement south of Masons Flat, but it was assumed to be faster than the Omihi Valley. He noted that groundwater quality north of the Waipara River was relatively good.
134. Mr Graham considered the scheme would increase nitrate-nitrogen concentration in groundwater and was likely to degrade water quality in connected surface water bodies, including the Waipara River. He noted that adverse water quality effects would likely be cumulative and incremental and may take sometime to show up in surface water receiving bodies. He stated that effects may only become evident several years after the farming practices change.
135. Mr Graham noted that nitrate-nitrogen concentrations in some monitoring bores (e.g. N34/0109) were elevated and have at times exceeded the Maximum Acceptable Value (MAV) for drinking water. He stated that there were no apparent long-term trends of increasing nitrate in monitoring bores north of the Waipara River and concentrations were lower than on the south side of the river where farming was more intensive and water abstraction is greater. His evidence included figures which showed nitrate-nitrogen versus depth for the Waipara catchment and the HWP command area and noted these showed concentrations decrease with depth.
136. Mr Graham considered phosphorous inputs and noted that irrigation had the potential to increase concentrations, with studies showing irrigation could increase losses by an order of magnitude over those of dryland sheep farming. His evidence included figures showing maximum dissolved reactive phosphorous (DRP) concentrations across the catchment and noted the catchment had a naturally

(geological) phosphorous source, with concentrations generally less than 0.03 milligrams per litre (mg/L). He noted a trend of decreasing concentration with depth, with shallow groundwater showing land use impacts (i.e. high DRP concentrations).

137. Mr Graham noted that the primary soil types in the upper Waipara catchment were light to very light, with small areas of medium soils and fragipan present. He stated that light to medium soils dominate the Omihi Valley with fragipan layers found around the margins. He noted that fragipan has the potential severely limit land surface recharge and instead diverts flows laterally to surface water systems. He noted lighter soils readily transmit water and have higher nutrient leaching potential to groundwater.
138. Mr Graham noted it was challenging to assess the effects of the application given the uncertainty around where irrigation would be occurring and what land use would occur; and that this made it difficult to recommend effective groundwater triggers and monitoring locations. He noted this uncertainty coupled with the complex nature of the groundwater system meant the development of a robust SEMP was critical. He considered it was impossible to recommend monitoring sites until there is a clear understanding of where irrigation will occur and what the land use would be. However, he considered it critical to set a minimum number of sites to ensure it was sufficient to account for the complexity of the groundwater system. He noted that trigger levels would need to be set on a per well basis in the SEMP and acknowledged this could not be done without at least 12 months of baseline data for each site. He noted the actual trigger levels would need to be set out and agreed in the SEMP, with detail of what should be done to avoid effects on water quality and detail on mitigation and remediation options. He stated that baseline information would also need to be undertaken for properties within community drinking water protection zones.
139. At the reconvened hearing, Mr Graham reiterated that a high level of uncertainty remained and that much weight had been placed on the SEMP to deal with effects that may arise. He considered it must be assumed that there would be no reduction in groundwater takes, as this was uncertain and unlikely given water permits can be transferred under the Act. He stated there was no further clarity as to where within the identified command areas Stage 1 irrigation would occur or what the land use would be. In response to the further evidence of Mr Lloyd, he noted that the limited data available and piezometric contours from a 2017 survey showed the groundwater and surface water boundaries do align. He considered this was a conservative assessment on the best available information. He clarified that his comments that all groundwater discharges to the Waipara River was in reference to the upper Waipara catchment.
140. Mr Graham agreed with Mr Horgan that nothing is known about the nature of the mitigation measures or when, where and how they will be implemented. He considered adaptive management in the Waipara catchment would be complicated as it may be challenging to find the rapid feedback loops required in groundwater given long lag times and long period for the full effect of Stage 1 on the groundwater system. He stated that in the event adverse effects were identified, the effects would likely get worse before any improvement from mitigation or remediation was seen. He noted it may be challenging to find groundwater monitoring sites with a high proportion of young water to enable the provision of useful information for adaptive management.
141. Mr Graham provided further information on connections of groundwater with the sea and groundwater surface water interaction. He noted there were 212 springs in the Waipara catchment, with the majority located in the hills and bordering the HWP scheme command area. He noted 26 springs within the HWP command areas. He considered shallow groundwater in the Waipara Basin discharges to the Waipara River; and that some groundwater discharges south to the Kowai zone and offshore. He stated out of zone volumes were uncertain, but that water balances estimated 10-20% of the total water balance of the Waipara Basin. He noted that the over-allocation of

groundwater and surface water abstraction would be impacting on the groundwater surface water interaction (potentially reducing surface water flows) and contributing to spring flow variability.

142. Mr Graham noted the need for dedicated monitoring bores and importance of bore construction and screen depth. He considered groundwater age-dating groundwater during baseline monitoring was crucial for developing a robust groundwater monitoring programme. He considered all groundwater monitoring sites needed to be shallow and to have a proportion of young groundwater. He supported the use of lysimeters in addition to groundwater monitoring, but not instead of, to provide more insight into nutrient loads entering groundwater.
143. In response the further supplementary evidence of Mr Lloyd (dated 31 October 2018), Mr Graham noted that denitrification conditions in groundwater was only known to occur in anoxic groundwater conditions which occurs in deep groundwater. He reiterated that little is known about the shallow groundwater system. In relation to the link between groundwater and surface water, he stated that for the upper Waipara catchment all groundwater in the HWP command areas would discharge to the Waipara River and enter the Waipara Basin via White Gorge; and for the Omihi, there were surface water gains from groundwater and that vertical gradients indicated groundwater discharge from the bottom of Stage 1 to the Omihi River.
144. In her s42A Report, Ms Dawson outlined the uncertainty in determining whether the mitigation proposed would be sufficient to manage effects and the time it would take for the additional nitrogen to reach groundwater and ultimately surface water. She considered this would have implications for the responsiveness of any mitigation measures. Furthermore, lag times in contaminants reaching surface water and naturally high levels of phosphorous would make establishing casual links with the scheme difficult. She concluded that the application may result in adverse effects on surface water quality and result in further degradation.
145. Ms Fenemor noted that the adaptive management of environmental effects relied on the preparation and implementation of a SEMP and FEMPs. She considered the conditions proffered did not provide sufficient certainty that they would effectively manage adverse effects and did not clearly define environmental bottom lines or performance standards. She agreed with Mr Horgan that a precautionary approach was required.
146. Ms Fenemor noted that the further evidence submitted by the Applicant on 28 September 2018 addressed a number of concerns raised by Ngāi Tahu and went some way towards satisfying the requirements of an effective adaptive management approach. However, she concluded that on the basis of the evidence it cannot be guaranteed the adverse effects of the discharge would be avoided or sufficient certainty that adverse effects could be identified and mitigated in a timely manner.
147. In her revised Addendum (date 9 November 2018), Ms Fenemor drew on the evidence of Mr Graham and Dr Meredith and concluded that the effects on groundwater quality were likely to be 'acceptable', but that there remained a high level of uncertainty surrounding the effects on surface water quality and ecology, and consequently on cultural values and recreational uses of the Waipara River. She highlighted the evidence of Dr Meredith that a detrimental shift in the composition of the periphyton communities to cyanobacteria mat growths would be difficult to shift and could be irreversible. She considered this to be an effect of moderate to high probability and high potential impact.
148. Ms Fenemor noted that the Applicant relied on the preparation of the SEMP in consultation with the TRP, but had not demonstrated that the mitigation actions available would be capable of reversing any adverse effects, should they arise. She considered the evidence suggest there were limited

options to successfully improve water quality when periphyton communities become dominated with cyanobacteria growths.

149. Ms Fenemor noted that while conditions had been proposed requiring the avoidance of adverse effects on ecosystem health, she considered the Applicant had not demonstrated what level of increase in nitrogen would result in adverse effects. She considered this placed considerable responsibility on the TRP to set appropriate trigger levels and that the residual risk that adverse effects could be irreversible if the levels were set too high. She was therefore not satisfied there was sufficient certainty that the proposed conditions could be achieved.
150. In the Applicant's right of reply, Ms Watson submitted that an integrated solution would not be found by doing nothing and that the HPW scheme would be the catalyst for this. She noted that the experts accepted that to see an overall improvement in the Waipara catchment additional flow is needed. She submitted that without irrigation the door was closed on flow augmentation and no alternative source of water would be available for those current irrigators taking surface water during the summer months. She considered these alternative options would be very important when CRC initiates a plan process to address over-allocation in the catchment.
151. Ms Watson submitted that the implementation of environmental enhancements such as the removal of willows and riparian planting was much more likely with the scheme than individually. She highlighted the evidence of Mr Lloyd that near-farm monitoring and feedback loops utilising the best current technology would ensure the activity was closely monitored and any high concentrations of nutrients in drainage water or groundwater were responded to in a timely manner. She noted denitrification was expected to be high given the nature of the soils, but that this would be quantified using deep nitrogen testing below the root zone. She noted the supplementary evidence of Mr Lloyd estimated that the increase in the catchment nitrogen leaching load would approximately 4.5% using Overseer; and his conclusion that the biological growth downstream of irrigation suggested very little nitrogen was reaching surface water and that the system was not as sensitive to small increases as suggested by Dr Meredith.
152. Ms Watson submitted that the irrigation scheme provider would have the ability to encourage (with a carrot or a stick, if required) its shareholders to put in place measures and undertake actions which would improve the health of the Waipara catchment.

Findings

153. There is agreement that the Waipara River catchment is a 'Red' nutrient allocation zone where water quality outcomes are not currently being met. The Applicant's assessment confirms this, particularly in relation to QMCI⁶, macrophyte cover, sediment cover and suitability for recreation. We accept the evidence of Dr Meredith that the water quality based on DIN and DRP is, at best, accurately described as 'average'. We also accept the evidence of Dr Meredith and Mr Graham that the existing degraded state of the Waipara River and its tributaries and the suite of associated adverse effects is the direct result of the over-allocation of groundwater and current land use activities within the catchment.
154. There is a high level of agreement that groundwater and surface water interactions are not well understood and are complex due to slow groundwater movement. There is a high level of uncertainty as to the connection between groundwater and surface water, groundwater movement and lag times to reach surface water, and shallow groundwater quality. We agree that existing surface water flows are currently impacted by existing groundwater abstraction and that this likely

⁶ Quantitative Macroinvertebrate Community Index.

to obscure groundwater connections and pathways. There is agreement that flow paths are unlikely to be direct or simple and that they may be long and slow. This makes monitoring and mitigation difficult. It also has implications for establishing cause-effect links when water quality impacts would be cumulative and incremental.

155. We accept the evidence of Mr Graham on the basis of the best available information that a large proportion of groundwater from beneath both Stage 1 command areas will discharge to surface water. We note there is less certainty as to how much groundwater discharges to surface water in the Omihī catchment, but we note the evidence there are gaining reaches and springs. We also note there is not much difference in the estimated loss from the catchment using water balances between Mr Lloyd and Dr Meredith.
156. We consider it must be assumed that there will be little denitrification given the generally light soils. This is reinforced in technical review of Mr Brown and Mr Fietje and in CRC Technical Report R17/29. We accept the evidence of Dr Meredith that nitrogen attenuation primarily occurs in-river in the Waipara catchment. Overall, we consider it is reasonable and conservative to assume all nutrients discharged will enter surface water. This approach is also consistent with the highly sensitive nature of the receiving waters.
157. There is agreement that the application will, at best, result in small increases in nutrients entering surface water and that it is not known where this will occur. There was also agreement that if adverse effects were detected in deep groundwater and surface water it would essentially be too late to change activities to avoid the effects and options offsetting or mitigating effects would be required.
158. In light of this, the Applicant has focussed on avoiding nutrient discharges by minimising drainage and on-farm and near field monitoring, and the ability to adapt on farm management in response to monitoring information.
159. The key consideration is whether the staged adaptive management approach can address uncertainty and whether the proposed conditions can avoid additional discharges to surface water through implementation of a SEMP and FEMPs.
160. While we acknowledge the staged approach limits the discharge of additional nutrients to the level authorised by Stage 1 (i.e. 50 tonnes per year) it does not address the extent, scale, nature or duration of the potentially irreversible effects on the Waipara River. The evidence suggests there is significant uncertainty as to whether any increase in nutrients in the already degraded Waipara River may result in the river reaching a tipping point and becoming dominated by cyanobacteria communities. The region wide picture of most other Canterbury rivers suggests this poses a very real risk and that such a change in other rivers has to date proven to be irreversible. The evidence of Dr Meredith that the Hurunui river has recently switched is alarming and underpins his conclusion that it is highly likely to occur in the Waipara River if there is any further increase in nitrogen inputs.
161. We consider the implementation of FEMPs is positive, but consider this will be required regardless of this application and will be required to address current over-allocation and water quality degradation as part of any integrated solution. We accept the evidence of Mr Brown and Mr Fietje that there are limited opportunities to go beyond GMP given the high standards required.
162. It is unknown what mitigation or remedial actions would be taken, what evidence would be required to establish whether any adverse effects are attributable to the scheme and the discharge, what level of adverse effects would be tolerated before actions would be taken, or whether adverse effects

would be irreversible or if they accumulate over time. Given the evidence on long lag times, it is possible that the next stage could commence before the full impact of Stage 1 is reached.

163. It is agreed that to limit further algal growth in the Waipara River additional nitrogen inputs into surface water need to be avoided. It is also agreed that periphyton growth is a complex interaction between nutrient supply and flow regime; and that naturally derived phosphorous also plays a role. We note the evidence of Dr Meredith that it is not easy or reasonable to model empirical periphyton growth outcomes from specific loads and therefore it is difficult to assess the likely effects of Stage 1. However, Dr Meredith noted that a 50 tonne increase in nitrogen inputs was not insignificant in the context of the estimated current nitrogen loads in the catchment.
164. We were told that the key driver in biological growths is flow and that increased growth correlates with low flows. We consider we need to be very careful about using periphyton growth to monitor effect on water quality because if changes occur it would be very difficult to prove any cause-effect link or to distinguish water quality versus water quantity effects. Furthermore, annual surveys may miss significant changes of conditions and values.
165. We agree with Mr Winchester that the grant of consent would effectively delegate the decision as to whether or not the consent could be exercised (past Stage 1) and on what terms to the TRP. We agree that the breadth of discretion delegated to the TRP is too broad and open-ended. Furthermore, there is no ability to halt the discharge of nitrogen from Stage 1 in the event that adverse effects in the Waipara River exceed trigger levels. There is agreement that once trigger levels are exceeded any mitigation or remediation would be difficult, if not impossible, and that water quality is likely to get worse before it would improve.
166. In light of the evidence presented regarding the risk of irreversible effects we consider the avoidance of adverse effects must be likely to enable the consent to be granted. We consider the Applicant has not demonstrated that an adaptive management approach will avoid significant irreversible impacts on surface water given the risk that the river is highly likely to switch to a system dominated by cyanobacteria growth with any meaning-full increase in nitrogen concentration. We find that an adaptive management system would only be effective if the nutrient losses from Stage 1 could be halted or reversed. The Applicant does not propose to cease Stage 1 discharges in the event adverse changes are observed and the adverse effects would be difficult to reverse.
167. Overall, we find that conditions proposed would not avoid adverse effects on surface water quality.
168. We accept that evidence of Dr Meredith that the Waipara River and its tributaries have high ecological value and that the impact of the application on these values has not been adequately assessed. We rely of the evidence of Dr Meredith that any further addition of nutrient inputs to an already stressed and degraded system is high likely to have significant adverse effects on ecological values and the significant habitat of indigenous species.
169. The weighing up of or balancing of the positive effects with the negative effects requires some level of certainty that the potential positive effects will actually occur. We consider there is a high probability that the positive effects may not occur. There is no certainty that there will be any reduction in existing groundwater abstraction and we therefore agree with Mr Graham that we must assume this will not happen. There is no certainty that any environmental enhancement measures will be implemented unless trigger levels are breached and mitigation is required. There is therefore no certainty that this application would help ease demand on the catchments water resources or to address flow regime concerns. Mr Lloyd acknowledged that groundwater takes in the catchment

generally had a high reliability of supply and some had relatively long consent terms. Mr Pile confirmed that scheme water would be more expensive than existing consented groundwater.

Effect on Cultural Values and Relationships

170. Ngāi Tahu’s submission opposed the discharge of nutrients onto or into land, in circumstance where contaminants may enter water, based on the need to avoid any additional nutrient inputs to the Waipara River and its tributaries, and any further increase in adverse effects on their cultural values and relationships.
171. Mr Winchester submitted that the Waipara River and its catchment was of immense cultural significance and importance to Ngāi Tahu and to Te Ngāi Tūāhuriri, who hold mana whenua over the area and resources affected by the proposal. He stated it was of great concern and sadness that the state of the river and its water quality had become degraded and contaminated, and that this had significant consequential adverse effects on cultural values and relationships. He emphasised these are matters of national importance under the Act and must be protected.
172. Mr Winchester stated that for Ngāi Tahu and Ngāi Tūāhuriri, the relationship with the takiwā is one of kaitiakitanga⁷ over the resources of the region. He noted that the ability of mana whenua to exercise kaitiakitanga over the Waipara catchment had been significantly compromised and that this was likely to be made worse by the proposal. He highlighted the evidence of Ms Burgman of the relationship of Ngāi Tūāhuriri with the Waipara River and the basis for their opposition to the application.
173. The evidence of Ms Burgman outlined Ngāi Tūāhuriri’s connection to the Waipara catchment through whakapapa and ancestral histories of fishing and birding, as verified by the wāhi tapu and wāhi taonga sites, which she described as rock drawings, burials, pā sites (including the big one at the mouth of the Waipara), waka landing places and trails. She noted that the river and its catchment were travelled by the descendants of those hapū who would become Ngāi Tūāhuriri and Ngāi Tahu. She said that the river was named after a species of fish caught within the river - ‘Paraki’ for smelts and ‘Koukoupapa’ for bullies – with either being shortened to just ‘Para’ for the name. She stated that this spoke to the river’s historical and contemporary importance as a mahinga kai for her people – past, present and future.
174. Ms Burgman explained her role as kaitiaki and described the Waipara catchment as she knew it as a child through her eyes, and as told by her pōua/grandfather, and how over the years she had watched the ongoing degradation of the catchment from unsustainable agricultural land practices. She told us of her time as a child spent within the catchment with her whanau and of the importance of mahinga kai. She stated –
- ‘My pōua didn’t have a whole lot of material things to leave us. But he had the rivers which he lived and fished on. He always told us that the rivers would always provide kai for us. The rivers were our inheritance; better than money in the bank, because they would always be there. My pōua left us the rivers and the knowledge of those rivers.’(pg.2)*
175. Ms Burgman explained why mana whenua were concerned, not only with the volume of water leaving the catchment, but because of the quality of the water coming into the catchment from land use practices, runoff and irrigation by-wash which affected mahinga kai species through

⁷ Meaning the concept of environmental guardianship or stewardship.

contamination, sedimentation and animal effluent. She noted concern at the effect of diffuse and point source pollution on water quality and how these may be compounded by low flows.

176. Ms Burgman stated that mahinga kai is a cornerstone of Ngāi Tahu cultural identity. Mahinga kai meant 'food workings' and included the places where food is gathered or produced. It embodies the traditions, customs and collection methods, as well as the gathering of natural resource for other cultural uses including weaving and traditional medicines. She explained that the Waipara catchment provided places and resources for sustaining Ngāi Tūāhuriri economic, social and cultural wellbeing. She said that mahinga kai activities were an extremely important expression of cultural identity for Ngāi Tahu and that the continuation of traditional mahinga kai practices was a means of passing values and knowledge on to both current and future generations.
177. Ms Burgman stated that the Waipara River has strong mahinga kai associations that are confirmed in the Ngai Tahu Claims Settlement Act and also holds two nohoanga entitlements. She noted that although the number of sites available to Ngāi Tahu had reduced and the abundance and diversity of mahinga kai species had also reduced, that mahinga kai continued to play a vital role in the health and well-being of Ngāi Tahu.
178. Ms Burgman noted that mana whenua had been working with CRC for more than 20 years seeking outcomes in regards to the mauri of the river and mahinga kai values, including:
 - a. Protection and preservation of the remaining indigenous forest or wetland areas;
 - b. Protection of traditional cultural values and uses (including physical access);
 - c. Protection of water quality from non-point source pollution and contamination discharges;
 - d. The water quality is able to support the health distribution, abundance and diversity of mahinga kai species of the river; and
 - e. That the mauri of the Waipara River be sustained.
179. Ms Burgman noted that to date these outcomes had still not be realised and the river had continued to degrade as land use activities have intensified. She expressed grave concern for the effects of the proposal on the current river environment and emphasised the significant risk that it could change biological growths from a general nuisance to a serious public health issue. If this occurred, she said that mana whenua would not be able to carry out traditional practices, including gathering mahinga kai. She said that any tainting or odour from cyanobacteria growths would render the mahinga kai inedible, which would be a significant impact on her people's health and well-being.
180. Ms Burgman stated it was her responsibility as kaitiaki to ensure taonga and natural resources are passed on in as good a state, if not better, to the generations that follow. She noted that the degradation had happened in her lifetime and that she was ashamed to pass them on to her children and mokopuna in their current state.
181. In response to questions, Ms Burgman was offended that no one had asked where the sites important to mana whenua are and which ones might be priorities for protection. She said there was no reassurance the remaining values would be protected and that things won't get worse.
182. Mr Horgan noted that the application was at odds with the Ngāi Tahu value of kaitiakitanga given the risks and consequences posed to a precious taonga such as the Waipara River and the importance of its protection. He considered the application was a 'gamble' with a river system that is already well below acceptable cultural standards. He said the gravity of the consequences of further degradation on Ngāi Tahu were profound and are supported by the evidence of Dr Meredith.

183. Mr Horgan set out the significant uncertainties surrounding the effect of the scheme on water quality, including:
 - a. Instream effects from additional nutrient loads given the complex inter-relationships between factors such as flow rate and stability, and exposure to sunlight and increase water temperature;
 - b. Effects on groundwater quality;
 - c. The degree of impact on water quality and what can be done to address impacts;
 - d. The risk of irreversible impacts;
 - e. The ability of the Applicant to avoid increases in nutrient loads to the Waipara River;
 - f. The nature, scale and intensity of any actual or potential adverse effects from an increase in nutrients entering the catchment; and
 - g. The ability to monitor effects and then establish cause-effect links.
184. Mr Winchester noted the significant uncertainty in relation to the connection between groundwater and surface water, and groundwater movement. He considered there were too many unknowns regarding groundwater within the upper Waipara catchment where the discharge of nutrients to surface water bodies was expected to be subtle, with potentially long lag times, and that this would make additional loads difficult to detect. He submitted that given the degraded state of the receiving environment, there was no room for any additional nutrients to be introduced into a catchment that is already classified as a 'Red Nutrient Allocation Zone'.
185. Mr Winchester and Mr Horgan considered that the Applicant had not demonstrated that groundwater flows would not reach the Waipara River and its tributaries; and may not safeguard the life supporting capacity of the ecosystems and indigenous species health, thereby further contributing to the degraded state of the river. They considered that the risk of further deterioration and the lack of certainty that water quality would improve was unacceptable to Ngāi Tahu.
186. Mr Winchester questioned the role and impartiality of the TRP and considered that such a scenario did not provide Ngāi Tahu with the confidence that the proposed decision-making vehicle for developing the monitoring programmes and recommending movement to the next stage of development would be suitably impartial.
187. The Applicant accepted that the scheme must ensure that its activities did not cause any further degradation and that it must play its part in improving the fresh water outcomes for the catchment. Evidence presented outlined the considerable work that HWP has done to get to a point of confidence where a staged approach could be proposed and conditions revised to reflect this outcome.
188. The evidence of Mr Lloyd was that the proposal would bring more water into the catchment, implement robust monitoring that would enable any effects to be avoided and mitigated, and provide coordination for good management on-farm including actions to enhance mahinga kai, willow control and suitable riparian planting.
189. Ms Watson submitted that for there to be an overall improvement within the Waipara catchment additional flow augmentation would be required and that without the irrigation scheme the status quo would continue. She submitted that the irrigation scheme would be part of an integrated solution to address water quality and quantity issues in the Waipara catchment and a catalyst in improving degradation in the receiving waters. She considered that without an integrated solution

to water management in the Waipara catchment there was a risk that the decline in water quality would not be reversed.

190. Ms Watson submitted that the requirement to improve water quality does not equate to a requirement that a single company or person is responsible for improving the water quality in the entire catchment. However, she considered it was very likely that improvements would be made, especially on-farm improvements as shareholders come up to the good management standards required by the scheme and that the Applicant can ensure this occurred.
191. Ms Watson highlighted that the conditions had been developed considerably in relation to including additional cultural objectives and the requirements for baseline monitoring. She stated that the TRP had an advisory function only and would make recommendation to the consent holder and CRC. She considered that the role of the independent experts in the resource management sphere were well understood and that their responsibilities are clear.
192. Ms Watson submitted that HWP would fund and work with a cultural advisor who would consult with farmers to ensure measures to avoid, remedy and mitigate effects on cultural values are incorporated into the FEMPs.
193. The s42A Report concluded that there was potential for adverse effects on cultural values and relationships given the risk that surface water quality may degrade further prior to impacts being addressed by the SEMP. It stated that an adaptive management approach may address cultural concerns, but that it was not clear whether the conditions proposed would avoid, remedy or mitigate adverse cultural effects. Ms Dawson's recommendation on whether to grant consent depended on receiving further feedback from Ngāi Tahu that the conditions proposed would address their concerns.
194. Ms Fenemor considered the evidence presented by Ngāi Tahu demonstrated that any further deterioration in water quality in the Waipara catchment was likely to have significant adverse effects on their cultural values. She concluded these effects were unacceptable given the evidence regarding the gravity of the effects on cultural values if the Waipara River were to switch to a cyanobacteria growth dominated community. She said it was clear from the evidence that there was a moderate to high risk that water quality in the Waipara River would deteriorate and that the consequences of any further degradation on cultural relationships and values were extremely high. She considered this risk was unacceptable.

Findings

195. The association Ngāi Tahu and Te Nga Tūāhuriri have to this cultural landscape is well documented in the Ngai Tahu Claims Settlement Act 1998 and the status of the Waipara River has been confirmed by the Crown as a Statutory Acknowledgement Area and in the two nohoanga entitlements.
196. The Mahaanui Iwi Management Plan 2013 states that the Waipara River (from the eastern foothills of Ngā Tirititiri o Te Moana (Southern Alps) to the Waipara Lagoon) and the Kowai River, and the coastal areas between them, are of immense significance as one large mahinga kai resource.
197. We understand that the discharge of nutrients into the Waipara River has the potential to further impact on and erode mana whenua's relationship with the river in terms of the Treaty of Waitangi, kaitiakitanga, wāhi tapu sites and mahinga kai. We have considered the potential impacts on these relationships and values, and on the ability of mana whenua to exercise kaitiakitanga over their precious taonga and natural resources.

198. We note that Te Rūnanga o Ngāi Tahu Freshwater Policy states that –
‘Water is essential to all Maori life. It is a taonga left by ancestors to provide and sustain life. It is for the present generation as tangata tiaki to ensure that the taonga is available for future generations in as good as, if not better quality.’
199. We understand that this is at the heart of Ngāi Tahu’s submission in opposition and that it is closely aligned to our findings on the adverse effects on water quality and ecological values.
200. We understand the Applicant’s case is that any small increase in nutrients in the receiving water will not result in any further deterioration in surface water quality which would increase the abundance or change the composition of the periphyton community. However, we agree with Mr Hogan that there are too many uncertainties given the sensitivity of the receiving waters to any further decline in water quality and the importance of the Waipara River to mana whenua.
201. The evidence of Dr Meredith and Mr Graham confirms the sensitivity of the catchment to additional nutrient inputs and the potential for irreversible impacts which would result in significant adverse effects on cultural values and ecological values.
202. We have considered the staged adaptive management approach and the conditions proposed by the Applicant to avoid, remedy and mitigate adverse effects on cultural values. We have paid particular attention to the proposed conditions which provide for the exercise of kaitiakitanga and for the maintenance of the Waipara River’s mauri and mahinga kai values through the inclusion of a mana whenua representative on the TRP and through the proposed baseline and monitoring plans. Overall, we find these are insufficient to ensure adverse effects on cultural values will be avoided.
203. We have considered the proposed restoration of riparian margins and wetlands through the preparation of FEMPs. We find there is a high level of uncertainty as to whether any culturally significant sites will be protected or enhanced. We agree with Dr Meredith that these have been put forward as mitigation of water quality effects in the event adverse effects are detected and not proposed to avoid adverse effects on these sites.
204. We have considered the potential impacts of bringing water into the catchment and the augmentation of low flows. On the basis of the evidence of Dr Meredith and Mr Graham we find that unless water is discharged for this purpose, using near stream augmentation, it is unlikely to assist in diluting nutrients or decreasing water temperatures at critical times.
205. We find that the application will not improve the current degraded state of the receiving waters, nor will it mitigate or remedy the already significant adverse effects on cultural values, such as the loss of mahinga kai. While we accept that it is not the Applicant’s responsibility to mitigate or remedy these existing effects, we agree with the evidence of Ngāi Tahu and the Council that without improvement there is no capacity of the waters of the Waipara River to assimilate any increase in nutrients without risking potentially irreversible effects on cultural values. We find this level or risk and consequences to be unacceptable.
206. On the basis of the evidence presented, we find that the application is likely to have significant adverse effects on cultural relationships and values.

SECTION 104(1)(ab) – POSITIVE EFFECTS TO OFFSET OR COMPENSATE FOR ADVERSE EFFECTS

207. Ms Watson submitted that the scheme has the ability to improve the existing situation by increasing revenue for on farm improvements, and planting and fencing. She noted it provided an alternative source of water for irrigation which may decrease current groundwater and surface water takes. She stated there may also be an ability to augment the flows.
208. Ms Watson noted that HWP will have a Water Supply Agreement with each person who receives water from the scheme and will therefore be able to require irrigators to implement on farm measures to improve their environmental performance.
209. Ms Taylor highlighted positive effects of access to water during water shortage periods and potential mitigation of soil erosion.
210. Mr Winchester submitted that the benefits of the proposal to parts of the community, whether real or asserted, do not act as a trump to overcome difficulties with the planning framework or genuine and insurmountable cultural concerns. In addition, he considered that to carry weight they need to be more than concepts or possibilities. He submitted that, at best, the alleged benefits are possibilities and do not directly relate to the consent sought.
211. Ms Fenemor considered any positive effects from reducing over-allocation of groundwater or augmentation of flows were highly uncertain and therefore could not be taken into account under section 107(1)(ab). She considered the opportunity for environmental enhancements outlined by Mr Lloyd on behalf of the Applicant are to mitigate adverse effects, rather than to improve water quality. She concluded that little weight should be placed on these measures in terms of positive effects.

Findings

212. We find that there is no certainty that there will be any positive effects to offset or compensate for adverse effects.

SECTION 104(1)(b) - RELEVANT PLANNING PROVISIONS

213. An analysis of the relevant provisions of the National Environmental Standard for Sources of Human Drinking Water (NES), National Policy Statement for Freshwater Management (NPS-FM), the Canterbury Regional Policy Statement (RPS), and the Land and Water Regional Plan (LWRP) was provided in the s42A Report and Addendums, the evidence of Mr Horgan on behalf of Ngāi Tahu and on behalf of the Applicant by Ms Taylor.
214. We note that Ms Taylor did not provide any supplementary evidence addressing the proposed staged approach to the development. We accept the submissions of Ms Watson that this does not indicate her assessment had changed and that the amendments to the application have reduced uncertainty in relation to potential effects on water quality.
215. We note there was general agreement that the proposal is consistent with the NES regulations. We agree.
216. We note the relevance of Objectives A1, A4, C1 and D1; and Policies A3, A7, C1 and D1 of the NPS-FW; Objective 5.2.1, 5.2.2, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 9.2.1, 9.2.2, 9.2.3 and Policies 5.3.2, 5.3.9, 5.3.12,

7.3.3, 7.3.6, 7.3.8, 7.3.9, 7.3.12, 7.3.10, 9.3.2, 9.3.4 and 15.3.1 of the RPS; and Objectives 3.1, 3.2, 3.3, 3.4, 3.5, 3.8, 3.8A, 3.11, 3.13, 3.14, 3.15 and 3.24, and Policies 4.1, 4.2, 4.7, 4.3, 4.8, 4.8A, 4.14, 4.23, 4.34, 4.36, 4.40, 4.41B, 4.41C, 4.41D and 4.74 of the LWRP. We record we have considered all of these provisions in making this determination.

217. Ms Taylor considered the application was not contrary to the relevant provisions of the NPS-FM and the RPS given the limits and controls in place and the positive effects on the social and economic well-being of the community. She acknowledged the provisions aim to improve water quality where it is degraded, but considered the application would ensure significant adverse effects on water quality would be avoided, remedied or mitigated.
218. In relation to the LWRP, Ms Taylor noted that the policy framework did not seek to prohibit the discharge of nutrients when undertaken as part of an irrigation scheme, but rather enables irrigation to occur in a manner where nutrient losses are managed and mitigated as much as possible. She therefore concluded that the application is consistent with this approach and was 'largely consistent' with the overall policy framework of the LWRP.
219. Ms Watson submitted to give full weight to Policy 4.41C(b) of the LWRP would create a significant injustice to the shareholders in the Waipara catchment who have invested heavily in the irrigation scheme. She considered that Mr Horgan had failed to take an overall approach to the assessment of the objectives and policies and had considered each provision in isolation.
220. Ms Watson stated that the proposed adaptive management approach would ensure that any trends or early indicators shown in near farm and groundwater monitoring were addressed through on farm measures and actions taken elsewhere in the catchment. She submitted that the adaptive management approach proposed supported the precautionary principle and would ensure potential effects were avoided and/or mitigated.
221. Mr Winchester submitted that the Applicant had not addressed the fact that the application was contrary to the planning framework and instead sought to rely on minimising effects, claim benefits that are neither genuine or certain, and rely on legal constructs, such as the 'existing environment'. He urged us to look at the important policy directives to improve water quality where it is degraded and submitted this is a clear directive that forms an environmental 'bottom line'. He submitted there was no tension or balancing required, as when the provisions were read as a whole, use is part of maintaining and improving environmental quality. He submitted there was no option available under the planning framework to allow an increase in the nutrient load while ensuring significant adverse effects are avoided, remedied or mitigated. He considered this approach was clearly contrary to the directive to not allow further nutrient discharges in an over-allocated and degraded catchment.
222. Mr Winchester noted that the Applicant appeared to suggest that because no nutrient loads have been established for the catchment through a statutory plan, the policy directive to improve water quality was somehow diminished. In response to the Applicant's claims that the application is 'part of an integrated solution', referred to in Policy 7.3.6 of the RPS, he submitted that the integrated solution is meant to be a multi-partner process driven by the statutory guardian (i.e. the CRC) and not by a consent application. He highlighted the importance of Policy 7.3.9 of the RPS in determining whether this application can be considered to be part of an integrated solution.
223. The evidence of Mr Horgan provided a policy and planning framework within which to consider the cultural evidence of Ms Burgman. He highlighted Policy 7.3.12 of the RPS required that a precautionary approach is adopted where there are significant uncertainties associated with the effects on the scheme on water quality in the Waipara River. He noted that caselaw suggests that the more significant and uncertain the threat posed, the greater the degree of precaution required.

In this case, he considered the effects on water quality were potentially significant and potentially irreversible.

224. Mr Horgan highlighted use of the word ‘safeguard’ in Objective A1 of the NPS-FM and the requirement to protect Ngāi Tahu cultural values; and the requirement to ‘maintain and improve’ water quality where it is degraded under Objective A2. He considered there was little evidence to demonstrate water quality would be maintained, let alone improved in the Waipara River catchment.
225. Mr Horgan highlighted Policy 7.3.6 of the RPS and the clear requirement to ‘avoid’ ‘any additional discharge of contaminants where water quality was below the minimum water quality standard. He noted it was agreed that the Waipara River is classified as ‘Red’ where the water quality outcomes are not met. He considered the policy did not make any provision for any short-term deterioration of water quality.
226. Mr Horgan highlighted Policy 4.3.7 of the LWRP and the clear direction to ‘prevent’ any increase in the loss of nutrients in a red zone. Therefore, he concluded the application must be contrary to this policy.
227. In relation to PC5, Mr Horgan concluded that the proposal would not improve water quality and was therefore contrary to Policy 4.41C.
228. Mr Horgan noted that there was a clear theme running through the policy and planning framework that there was to be no further increase in contaminants in water catchments where water quality outcomes were not presently being met. He considered this amounted to an environmental bottom line to ensure there was no further deterioration where water quality standards were not met. He considered that these provisions should be given preeminent weight. He considered considerable weight should be given to the findings of Dr Meredith in considering the planning framework.
229. The analysis in the s42A Report by Ms Dawson related to the application before it was amended to allow for a staged development. We have therefore focussed on the updated assessment provided by Ms Fenemor appended to the revised second Addendum.
230. Ms Fenemor considered the application may be consistent with Objectives A1, A4, C1 and D1, and Policy A7, C1 and D1 of the NPS-FM, but was likely to be contrary to Objectives A1, A2 and A3.
231. Ms Fenemor considered the application may be consistent with Objective 5.2.2 and 7.2.4, and Policy 7.3.3 and 7.3.12 of the RPS; and was likely to be inconsistent with Objective 7.2.1, 7.2.2 and 7.2.3 and Policy 5.3.12 and 7.3.6 of the RPS. She agreed with Ms Dawson’s assessment that the application was not contrary Objective 9.2.1, 9.2.2 and 9.2.3, and Policy 9.3.1 and 9.3.2 of the RPS.
232. Ms Fenemor agreed with Mr Horgan regarding the need for a precautionary approach under Policy 7.3.12 of the RPS. She agreed that the critical issue was whether an adaptive management approach was suitable for managing the effects of the proposal. She also agreed that this required evidence that the adaptive management approach can achieve the goals of reducing uncertainty and managing the remaining risks, and the requirements that an adaptive management approach must contain. She stated it was important to also consider whether the planning framework allows for such an approach. However, she concluded that the adaptive management regime proposed was consistent with the approach anticipated by Policy 7.3.12.
233. Ms Fenemor considered the application may be consistent with Objective 3.1, 3.2, 3.3 and 3.4, and Policy 4.2, 4.4, 4.14, 4.23, 4.34, 4.36 and 4.40 of the LWRP; was likely to be inconsistent Objective

- 3.13, 3.14, 3.15 and 3.17, and Policy 4.1, 4.8A and 4.74 of the LWRP; and was contrary to Objective 3.8 and Policies 4.3 and 4.37 of the LWRP.
234. In relation to PC5 to the LWRP, Ms Fenemor considered the application was consistent with Policy 4.36 and 4.41A; was inconsistent with Policy 4.41D; and was in direct conflict with Policy 4.41C. She noted that since the adjournment of the hearing the appeals against PC5 had been resolved and were now beyond challenge. She therefore concluded that the provisions should be accorded almost full weight.
235. Ms Fenemor considered that, on balance, the application was contrary to the most relevant provisions of the LWRP and was generally inconsistent with the provisions of the NPS-FM and RPS because it would not improve water quality and nutrient discharge will increase. She stated that the planning provisions define what the acceptable level of effect on the receiving waters. She considered it was clear there was no room for any further degradation of surface water quality and there was uncertainty that the proposed conditions that require adverse effects to be avoided would be able to be achieved.
236. In reply, Ms Watson submitted that the overall policy direction to improve water quality did not mean that activities which increase the loss of nitrogen cannot or should not be granted. She stated that the Applicant would 'strive to improve water quality', but at the very least no degradation would occur. She clarified that by that she meant biological growths would be no worse, but that this did not mean there would be no increase in nitrogen concentrations. She said that the LWRP provides for a discharge application by an irrigation scheme, as a discretionary activity, and therefore the conclusion that no further nutrients can be discharged is wrong. She submitted Rule 5.62 was a carefully considered planning approach to allow irrigation schemes to obtain discharge consents and to provide farmers with the necessary oversight and assistance going forward. She said HPW acknowledge water needed to be improved, but that it was clear the status quo would not achieve this. She submitted that based on an overall reading of the policies the proposal is not contrary to the policy regime as it seeks to manage land use, avoid and mitigate nutrient loss and improve water quality.

Findings

237. It is agreed that the policy frameworks of the LWRP and PC5 make it clear the goal is to improve water quality where it is degraded.
238. We consider the policy direction is very clear and directive. We have placed significant weight on the directly relevant objectives and policies that address water quality outcomes in catchments where it is degraded. We agree that we have no option but to implement policies that require us to avoid or prevent the discharge of additional contaminants where water quality standards are not met. We agree that these objective and policies form environmental bottom lines preventing further deterioration of the water quality.
239. We agree with Mr Horgan that the policy direction imposes a positive obligation on the CRC to bring about an improvement in water quality in the Waipara catchment and that this application falls short of this positive requirement. We disagree with Ms Watson that to 'strive' for water improvements is sufficient, as improvements need to be likely in order to take into account and to carry any weight. The evidence suggests there is no certainty there will be any improvements and that the environmental enhancement measures outlined are designed to mitigate the effects of this application in the event trigger levels are exceeded.

240. We consider the critical question is whether the adaptive management approach and proposed conditions will achieve the outcomes sought by the statutory plans. We find that it is highly unlikely that the approach and proposed conditions will avoid further degradation of surface water quality and that it will therefore not be maintained. We also find that the discharge will not improve water quality through bringing water into the catchment, unless there is some certainty that over-allocation will be reduced or that water will be discharged for near stream augmentation.

241. It is clear from the Applicants evidence that it is acknowledged the application, at best, would result in a 'small' increase in nutrients in surface water but that this is acceptable so long as there is no change in the periphyton community. We do not consider this is not consistent with the outcome required by the planning framework as it would allow for further deterioration of water quality.

242. Policy 7.3.6(3) states that –

*'where water quality is below the minimum water quality standard set for that water body, to avoid any additional allocation of water for abstraction from that water body and any additional discharge 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:
(a) until the water quality standards for that water body are met; or
(b) unless the activities are undertaken as part of an integrated solution to water management in the catchment in accordance with Policy 7.3.9, which provides for the redress of water quality within that water body within a specified timeframe.'*

243. The 'Principal reasons and explanations' to Policy 7.3.6 state:

'Policy 7.3.6(2) [sic] provides for managing activities in catchments where water bodies do not meet the minimum water quality standard set. Two alternatives are offered. There is no further abstraction from or discharges of contaminants into that water body, if these activities may make the water quality worse. Alternatively, further abstraction or discharge can occur if it is part of an integrated solution to water management in the catchment which is addressing the degraded water quality. This latter approach recognises that new development can be a catalyst for improvements in the status quo, whereas preventing new activities does not, in itself, provide an incentive to address issues resulting from the effects of existing activities. What is an appropriate timeframe for improving water quality will vary in each catchment, depending on the extent of water quality degradation and its effects, and the costs of remedial options. Therefore this matter needs to be addressed as part of a regional plan for that catchment.'

244. To allow for the discharge of additional contaminants, the Applicant is relying on acceptance that the application is part of an integrated solution that will redress poor water quality in the Waipara River in a specified timeframe. We have no evidence to suggest this application will improve water quality in the Waipara River and certainly not over a specified timeframe. The application would allow for a deterioration in the status quo, so long as there is no identified change in the abundance and composition of the periphyton community.

245. Policy 7.3.9 states –

'To require integrated solutions to the management of fresh water by developing and implementing comprehensive management plans which address the policies of this Statement including addressing all the relevant matters set out in Appendix 2.'

246. The 'Principal reasons and explanation' states –

'Policy 7.3.9 implements all the fresh water objectives in the CRPS, but in particular Objective 7.2.2. Objective 7.2.2 introduces the concept of parallel processes as a way to manage water resources in

the region. That is, the abstraction of any additional water for irrigation, hydro-electricity generation or other economic activities must proceed in tandem or parallel with measures to improve efficiency in water use, and to protect, restore or enhance the natural character and values of fresh water environments. Policy 7.3.9 uses the concept of integrated solutions, based on developing comprehensive water management plans for catchments, to implement parallel processes within catchments. Integrated solutions manage the whole catchment and possibly across catchments; using the development of additional irrigation or hydro-generation, or improvements in reliability of supply of water, as catalysts to address other water management issues in the catchment. The explanation of Objective 7.2.2 records how this approach may provide more impetus for addressing current issues than simply locking down catchments that have water management issues. The use of integrated solutions also facilitates an integrated approach to water management which achieves aspects of Objective 7.2.3. Integrated solutions are delivered largely through regional plans prepared under the RMA. There is also an opportunity for the Regional and Zone Water Management committees to develop integrated solutions to water management in the region or in a particular zone through the RIP or ZIPs; but the integrated solution can only be enforced if it is included in a regional plan prepared under the RMA. A RIP or ZIP is expected to include the action needed to give effect to the integrated solution and an appropriate timetable for doing so, recognising that some actions may take time. The matters which must be included in the comprehensive development plans that facilitate integrated solutions are set out in Appendix 2. Not all matters will be relevant in all catchments, but there are some fundamental matters relating to natural character values, water quality, quantity, and land uses and which must be covered in every catchment. These fundamental matters are listed in the methods above. A proposed activity may not have to implement every aspect of the integrated solution across the entire catchment or catchments covered. However, the proposed activity must achieve part of the integrated solution within a specific area of the catchment and, in doing so, must not preclude options to implement the integrated solution over the rest of the catchment or catchments covered. [our emphasis]

247. It is clear that an integrated solution is intended to be achieved through a water management plan approach through regional plans developed and implemented by the regulatory authority. However, for a proposed activity to be part of the integrated solution it must achieve part of the solution. There is no evidence that this application will reduce over-allocation of groundwater or that it will improve water quality. The evidence suggests that any incremental change or cumulative impact on water quality is likely to result in a change to periphyton communities that could be irreversible, which would preclude future options for an integrated solution. This is not acceptable.
248. We find the conclusions of Ms Dawson in relation to Objectives 9.2.1, 9.2.2 and 9.2.3, and Policies 9.3.1 and 9.3.2 of the RPS and the acceptance of these conclusions by Ms Fenemor to be at odds with the evidence before us. On the basis of Dr Meredith's evidence, we conclude that any additional nitrogen concentrations in the Waipara River and its tributaries poses a moderate to high risk of a further decline in ecosystem health and indigenous biodiversity and may result in an irreversible shift to a cyanobacteria mat growth. We consider the environmental enhancements proposed by the Applicant are to mitigate adverse effects and are not likely to restore or enhance ecosystem health or indigenous biodiversity. There is no certainty any environmental enhancements will be implemented and no augmentation of flows is proposed to improve water quality in the receiving waters. The Waipara River is recognised as a significant habitat for birds and the application poses a significant risk to further degradation of this habitat. We find the application is likely to be contrary to these objectives and policies.
249. Rule 5.62 provides a pathway for an irrigation scheme to apply for a discharge consent as a discretionary activity, provided the nitrogen loads are limited by the conditions of an existing consent. We disagree with Ms Watson that this allows for a small increase in total nitrogen loss for the catchment.
250. Overall, we find that application is contrary to the most directly relevant objectives and policies of the NPS-FW, the RPS and the LWRP given the high level of uncertainty as to whether existing surface

water quality will be maintained and will certainly not be improved. We disagree that the application is finely balanced. We find the application is contrary to the clear directive to improve water where it is degraded. We do not consider the adaptive management approach is appropriate where adverse effects on the receiving waters are likely to be irreversible.

SECTION 104(1)(c) - OTHER MATTERS

251. There was agreement that the Mahaanui Iwi Management Plan 2013 (**MIMP**) is a relevant consideration under section 104(1)(c) of the Act.
252. Ms Taylor set out the relevant objectives and policies of the MIMP, but did not assess the proposal against these provisions in light of the specific cultural matter of concern to Ngāi Tahu.
253. The s42A Report included an assessment of the application against the MIMP by Mahaanui Kurataio Limited. The assessment concluded that the application could be partly consistent with a number of policies if adverse effects on water quality are avoided and degraded water quality is improved. It noted the application was inconsistent with Policy P2.1 as the environmental health of the Waipara River could be jeopardised and this would have adverse effects on cultural values.
254. Ms Fenemor noted that while the application was supported by some of the policies in the MIMP, it was not consistent with the policies relating to water quality.
255. Mr Horgan noted Policy WM6.1 of the MIMP and considered that it was 'at odds' with this policy because it would not improve water quality. He also noted Policy WM6.2 and concluded that the application was inconsistent with this given the increased risk of cyanobacterial algal blooms. He noted Policy MW6.8 was also relevant to the strong stand that Ngāi Tahu takes against discharges of contaminants to water.
256. We note that the MIWP confirms the value that Ngāi Tahu place on water in that –

'Water is a significant cultural resource that connects Ngāi Tahu to the landscape and the culture and traditions of the tupuna'

And that –

'For tangata whenua, the current state of cultural health of the waterways and groundwater is evidence that that water management and governance in the takiwā has failed to protect freshwater resources.' (pg.189)

257. We have had regard to the intent of the MIWP in relation to mana whenua's aspirations for water quality. We find that the application will not avoid the discharge of contaminants to the Waipara River and that water quality is likely to deteriorate. We find the application will not improve water quality in the receiving waters.
258. There was agreement that the Canterbury Water Management Strategy (**CWMS**) and the Hurunui Waiau Zone Implementation Programme (**ZIP**) are relevant considerations.
259. Ms Watson submitted it is clear from the CWMS, Hurunui Waiau ZIP, RPS and LWRP that an integrated solution to water was needed. She noted this was a region wide issue requiring actions and approaches for collaboration and integrated water management to achieve the CWMS vision –

*'To enable present and future generations to gain the greatest economic, recreational, and cultural benefits from our water resources within an environmentally sustainable framework.'*⁸

260. Ms Watson quoted the last paragraph of the ZIP's Executive Summary and submitted it is clear that an integrated solution was not going to be found by doing nothing and that the HPW was the catalyst that was needed.
261. Ms Dawson concluded that provided the Applicant implemented a robust SEMP, the application supported the recommendation of the Hurunui Waiau ZIP.
262. We consider the concepts and outcomes sought by the CWMS are incorporated into the objectives and policies of the RPS and the LWRP. We note that the transfer of water from the Hurunui catchment to the Waipara catchment is supported in the ZIP and that it supports increasing Waipara River flows, including via augmentation and setting limits for the river. We note that part of the quote referenced by Ms Watson from the ZIP's Executive Summary states that –

'The Committee's vision is that this can be achieved while maintaining, but striving to enhance environmental outcomes in order to achieve a "net gain" for the water resources and associated ecosystems as well as preserving cultural and recreational values.'

263. We find that the additional nutrient discharges into the Waipara River and its tributaries is highly unlikely to achieve a net gain and will not preserve cultural and recreational values. We note that the environment, customary use, community supply and stock water are first order priorities under the CWMS; and that irrigation and recreational and amenity are second order priorities.
264. Mr Winchester submitted that the existing consents are relevant matters to consider under section 104(1)(c) and not as part of the existing environment. We agree. We have considered the Phase 1 consents and the significant investment in time and money the Applicant has made to implement the irrigation scheme. However, we consider this does not outweigh the assessment of effects of the discharge required under the Act.
265. The s42A Report outlined a number of consents that had been lodged under Rule 5.62 of the LWRP. Ms Fenemor provided further information on other consents issued to irrigation schemes under Rule 5.62 and the consent durations.
266. We have had regard to these other previous Council decisions, but have not given these any weight given each application for resource consent must be considered on its merits. We acknowledge these previous consents were primarily relevant to determining an appropriate consent duration.

SECTION 104(3)(d)

267. Ms Watson submitted that there was no jurisdictional barrier to the grant of consent under section 104(3)(d). She noted that the CRC had concluded that the application met clause (1) of Rule 5.62 of the LWRP. She stated that a specific condition that authorises nutrient loss is not required provided the conditions as a whole point to an authorised nutrient loss. She submitted that the conditions of Water Permit CRC120675 point to an authorised nutrient loss on the basis of a defined irrigation area and that irrigation cannot occur without the associated discharge of nutrients. She noted this was clearly outlined, explained and accounted for in the evidence of Mr Callander⁹ when consent

⁸ Reply on behalf of HWP, pg. 4

⁹ 'Assessment of Environmental Effects: Groundwater Quantity and Groundwater Quality Assessment for the Hurunui Water Project' by Pattle Delamore Partners Limited dated October 2011

CRC120675 was determined. She submitted that the effects on water quality of an additional 146.3 tonnes per year for irrigation within the Waipara catchment was fully considered by the Commissioners when CRC120675 was granted. She noted that at that time, the use of land that may result in the discharge of nitrate-nitrogen into groundwater, was permitted under Rule WQL20 of the Natural Resources Regional Plan (**NRRP**). She noted that the proposed LWRP had also been notified at that time and it was understood and accepted that additional consents could be required by HWP in relation to land use and the discharge of nutrients, although it was not clear what final form the rule would take.

268. Ms Watson submitted that the purpose of the notification clause in Rule 5.62 was to avoid both public and limited notification where the effects had previously been authorised. She considered CRC was correct in only notifying Ngāi Tahu as the holder of the Statutory Acknowledgement Area in accordance with section 95B of the RMA.
269. Mr Winchester submitted that the CRC decision¹⁰ that Rule 5.62 precludes both public and limited notification was incorrect. He considered the conditions as a whole must point to a clear figure of nutrient loss authorised and not a nutrient loss implicitly authorised by the consent itself. He noted the rule is directed at 'conditions' and does not allow the decision maker the discretion to look beyond the conditions. He said it was unclear how the 146.3 tonnes had been derived and that the existing consent does not authorise nutrient loss either inherently through the consent itself or through conditions.
270. Mr Winchester referred to paragraphs 74-79 of the CRC notification decision which states that when the current consent was granted the Hearing Commissioners did not have definitive information on the final proposal or its potential effects, and that this is the very reason for this application. He submitted, in other words, there was insufficient information about the effects of any discharge of nutrients to impose conditions authorising nutrient loss. Furthermore, if the nutrient discharge is not part of the existing environment and is not authorised by consent CRC120675 then there cannot be any conditions that authorise the nutrient loss. He concluded that clause (1) of Rule 5.62 was not met and the application should have been fully notified at step 3 of section 95A of the Act.
271. Mr Horgan considered the application did not meet the first clause or second clause of Rule 5.62 and therefore public or limited notification of the application was not precluded. He noted there were no conditions on consent CRC120675 which limit the nutrient loss in the Waipara catchment and that the clause specifically states 'through conditions', not the application documents or consent decision. He was of the view that the intensity and scale of the proposal and the potential for far reaching environmental effects meant that many people would have been likely to have taken an interest in the application.
272. Ms Fenemor agreed with Ms Watson that a water permit cannot authorise the discharge of nutrients and does not therefore require a nutrient limit as a condition of consent. She referred to the CRC notification decision report and the reasoning given.
273. In his supplementary submissions, Mr Winchester noted that we must consider the facts and circumstances that applied at the time of notification and not as it has been modified during the consent process. He suggested Ms Fenemor's interpretation of Rule 5.62 places a strain on the ordinary language used and that reliance of previous Council practice is wrong as a matter of law.

¹⁰ CRC Notification Decision and Report for CRC182166 dated 20 February 2018

274. In reply, Ms Watson submitted that consent CRC120675 could not authorise the nutrient loss as suggested by Mr Winchester because water permit cannot authorise a discharge under the Act. She noted that Ngāi Tahu had lodged a neutral submission on the Phase 1 consents.

Findings

275. We have considered the submissions made, the CRC notification decision, the Hearing Commissioners' decision and report¹¹ for the Phase 1 consents. It is clear that nutrient loss in the Waipara catchment was contemplated as part of the wider consideration of the HWP Phase 1 consents. However, the Hearing Commissioners' decision and report makes it clear that further resource consents may be required to implement the HWP scheme in the Waipara catchment and that the effects of these activities had not been considered. We note that there is no specific reference to surface water quality effects in the Waipara catchment in the decision report and that the focus was very much on the Hurunui Waiau catchment. However, the decision states at paragraph 11.36 -

'There was uncertainty as to whether the Applicant intends to discharge water into the Waipara River with some or all of that water pumped out for irrigation downstream. However, if this occurs and with sufficient water discharged to dilute existing high nitrate water, this would help address the red zoning issue. Such a discharge will require Phase 2 discharge and take consents, at which time those issues can be assessed.'

276. We therefore disagree with Ms Watson that the effects of the discharge of additional nutrients was 'fully considered' by the Hearing Commissioners in the grant of consent CRC120675.
277. On the basis of the evidence presented, we consider we do not have sufficient information to come to a firm view that the application should have been publicly notified under Rule 5.62 of the LWRP without legal submissions from the Council. However, we do have genuine reservations given consent CRC120675 does not limit nutrient loss in the Waipara catchment either expressly or implicitly through the conditions of consent as required by the wording of clause (1) of Rule 5.62. Furthermore, we note that the nutrient loss has been calculated by reference back to the Applicant's PDP report on the assessment of water quality effects and that it not addressed in the Hearing Commissioners' decision report. To us, this seems quite far removed from the plain wording of Rule 5.62.
278. Given our decision to refuse the application on its merits, we find that it is not necessary to make a definitive decision on section 104(3)(d).

SECTION 105 AND 107

279. Ms Watson acknowledged that the sensitivity of the receiving environment was a key issue given the Waipara catchment was 'red', which means that water quality outcomes set out in the LWRP are not met. She noted the principal reason the catchment was classified as 'red' is because of the presence of excessive or nuisance biological growths, predominantly within the mainstem of the Waipara River. She highlighted agreement between the experts that biological growths are caused by the combined effects of the river's flow regime, water temperatures and sunlight, and nutrient enrichment. However, she considered it was not appropriate to classify the whole catchment or

¹¹ Report and Decision of the Hearing Commissioners for resource consents CRC120687, CRC120695, CRC120691, CRC120696, CRC120692, CRC120694, CRC122547, CRC120675 and CRC130467 by the Hurunui Water Project Limited dated 1 August 2013

system as sensitive. She submitted that with increased irrigation overall catchment land use is not expected to change significantly, rather existing production levels would be secured through being less prone to drought.

280. Ms Watson highlighted the evidence of Mr Lloyd that:
- a. Drainage would be low and would mainly occur in autumn and winter when the risk of biological growths was lower;
 - b. Increased drainage was not expected to increase shallow groundwater levels, particularly in spring and summer;
 - c. Only a portion of nitrogen would reach the watercourse due to denitrification;
 - d. The ephemeral and intermittent nature of the watercourses means increased nitrogen would predominantly discharge to the mainstem of the Waipara River during periods of high flow when there would be considerable dilution;
 - e. Biological growths were influenced by a number of factors and nitrogen was only part of the picture; and
 - f. The proposed adaptive management and monitoring regime would ensure any risk is minimised.
281. Ms Watson submitted that because the discharge was diffuse none of the effects specified in section 107(1) were likely to occur; and that the receiving environment can be managed by the proposed monitoring regime, the feedback loops, the TRP and the staged approach to the discharge of nutrients.
282. Mr Graham considered groundwater quality was generally high, except for a few localised sites. However, he cautioned that little is known about shallow groundwater quality. Given the relatively low levels of nitrate-nitrogen in groundwater monitoring wells he concluded it had a relatively low sensitivity to the discharge of nitrogen. However, he reiterated his view that all water discharged to groundwater in the upper Waipara catchment and a large proportion discharge in the Omihi Valley would discharge to surface water.
283. Dr Meredith considered the surface waters of the Waipara River and its tributaries were highly sensitive to the discharge of nitrogen, particularly during periods of low flow when irrigation demand was high. He considered that even a 'modest' increase in nitrogen could have a significant impact on periphyton growth abundance and changes in community composition. He considered that a change to a cyanobacteria mat growth community in the Waipara River would have a high probability of having significant adverse effects on aquatic life and render the water unsuitable for stock drinking water.
284. Ms Fenemor considered surface waters were highly sensitive to any additional inputs of nitrogen. She noted the evidence of Mr Graham showed that deep groundwater generally had low sensitivity with the exception of a couple of sensitive sites within the command area. However, she highlighted that little is known about the sensitivity of shallow groundwater to additional nutrients. On the basis of the evidence of Dr Meredith, Ms Fenemor concluded there is a moderate to high probability that the discharge would have a detrimental effect on the composition of the periphyton community and that such a change could render freshwater unsuitable for consumption by farm animals and may have adverse effects on aquatic life.

Findings

285. We have had regard to the nature of the discharge and the sensitivity of the receiving environment to adverse effects. On the basis of the evidence presented, we find that it is highly likely that most of the water discharged will enter surface water at some point and ultimately discharge to the Waipara River. We find that surface water in the Waipara River is highly sensitive to any additional

inputs of nitrogen given the existing poor water quality and the existence of nuisance periphyton growths. We find that there is a moderate to high potential risk that even a small increase in nitrogen concentrations during flow conditions could exacerbate the abundance (biomass) of periphyton growth and could trigger a switch to a periphyton community dominated by cyanobacteria that this is likely to be irreversible based on region wide experience.

286. On the basis of the evidence of Dr Meredith, we find that if such a change were to occur it would be likely to have significant adverse effects on the aquatic life, would render the water unsuitable for farm animals, and would result in the emission of objectionable odours. We consider this would breach the restrictions of section 107(1)(d), (e) and (f). We do not consider any of the exceptions in section 107(2) apply. We therefore find we are prevented from granting the consent under section 107(1).

PART 2 OF THE ACT

287. Ms Watson submitted that based on the recent Court of Appeal’s decision in *RJ Davidson v Marlborough District Council*¹² recourse to Part 2 may be of assistance in trying to assess the objectives and policies of the planning regime. She stated it is noted that the planning documents cannot be rendered ineffective by recourse to Part 2 but that Part 2 is likely to be useful when trying to grapple with the fact that the policies pull in different directions.
288. Ms Watson submitted that the proposal is consistent with Part 2 and would start to move the catchment in the correct direction. She considered that without the scheme the status quo will remain and outcomes may worsen due to climate change. She submitted that the scheme would make on farm improvements, explore and implement where possible wider improvements, and would likely be the impetus for an integrated solution.
289. The s42A Report concluded that there were no reasons to deem the relevant statutory documents invalid, uncertain or incomplete.
290. Ms Fenemor said that any assessment under Part 2 of the Act would not change the outcome of the position reached under section 104 because the planning documents provide clear guidance on what level of effect on water quality is acceptable and that any further deterioration in water quality is unacceptable.
291. Mr Horgan agreed with Ms Fenemor that the Court of Appeal’s decision held that an ‘overall broad judgement approach’ under Part 2 of the Act is only required in circumstances where a plan has not been prepared in a manner that appropriately reflects the provisions of Part 2. In this case, he agreed there was no need for recourse to Part 2.
292. Ms Fenemor concluded that the proposed discharge would be unlikely to achieve the purpose of the Act given the risk of further degradation of surface water in the Waipara catchment and the policy direction to improve water quality.
293. All the considerations we have described are subject to Part 2 of the Act. In accordance with Part 2, we consider that the application will not sustain the potential of natural and physical resources to meet the needs of future generations, safeguard the life-supporting capacity of water and ecosystems, protect the significant habitat of indigenous fauna, or avoid, remedy or mitigate adverse effects to an acceptable level.

¹² [2018] NZCA 316

294. The Treaty of Waitangi (1840) was signed between Maori and the Crown and guaranteed to Māori the protection of their taonga, including waters, lands, fisheries and mahinga kai. These rights are affirmed in Article 2 ‘...full, exclusive and undisturbed possession of their lands, estates, forests and fisheries’.
295. The Treaty of Waitangi recognises and guarantees the protection of tino rangatiratanga and so empowers kaitiakitanga as customary trusteeship to be exercised by tangata whenua over their taonga, such as sacred and traditional places, built heritage, traditional practices, and cultural heritage resources. Council/Crown responsibilities in relation to the Treaty are defined in statute, in particular, within iwi settlement legislation, such as Te Rūnanga o Ngāi Tahu Act 1996 and Ngāi Tahu Claims Settlement Act 1998. This includes Crown recognition of the Waipara River as a Statutory Acknowledgement Area.
296. The Waipara River is a Statutory Acknowledgement Area in recognition of Ngāi Tahu’s relationship with the river and its significant cultural value. We consider any further discharges of nitrogen to the river pose a significant risk to the mauri and life supporting capacity of the river and that any shift to a cyanobacteria mat community would significantly impact on cultural values and could be irreversible.

Overall Conclusion

297. On the basis of the evidence before us, we conclude that the application is likely to cause a further deterioration of surface water quantity on the Waipara River and its tributaries. This would result in unacceptable adverse effects on cultural, ecological and recreational values. The Waipara River is of immense significance to Ngāi Tau and has significant ecological values and must be protected as matters of national importance. We find that the application is unlikely to maintain or improve degraded water quality.
298. We consider the application is contrary to the clear policy direction that water quality must be maintained and where it is degraded it must be improved.
299. We do not accept that an adaptive management approach to managing uncertainty is appropriate given the potentially long lag times for effects to be observed, the highly sensitive nature of the receiving surface waters, the limited ability to mitigate and remedy adverse effects, and the high risk of irreversible adverse effects which would cause a range of significant adverse environmental effects.
300. We do not accept that the positive benefits of the irrigation scheme outweigh the adverse effects on water quality, ecological values, cultural values and recreational values given the significance of the Waipara River and its tributaries.
301. We conclude that the application is contrary to the promotion of sustainable management of natural and physical resource, as define on section 5 of the RMA.

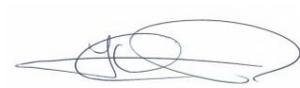
DECISION

- 302.** It is the decision of the Canterbury Regional Council, pursuant to sections 104 104B, 105 and 107 and subject to Part 2 of the Resource Management Act 1991, to REFUSE the application by the Hurunui Water Project Limited for Discharge Permit CRC1832166 to discharge nutrients onto and into land, in circumstance where it may enter water.

Dated at Christchurch this 11th day of December 2018



Sharon McGarry
Hearing Commissioner (Chair)



Yvette Couch-Lewis
Hearing Commissioner