

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

two applications by **Totara Farming Co Limited** for an irrigation scheme at McAughtries Road, Twizel, west of Lake Benmore, including the diversion, take and use water from Scrubby Creek (**CRC020584**) and the discharge or surplus irrigation water into Camp Creek (**CRC031315**).

REPORT AND DECISION OF HEARING COMMISSIONERS PAUL ROGERS,
MICHAEL BOWDEN, DR JAMES COOKE AND EDWARD ELLISON

PART B - SITE SPECIFIC DECISION

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1 INTRODUCTION

- 1.1 This is a decision on two applications by **Totara Farming Co Limited** (the applicant). It is one of many decisions we have made on 104 applications by various applicants for water permits and associated consents in the Upper Waitaki Catchment.
- 1.2 The decision should be read in combination with our Part A decision, which sets out our findings and approach to various catchment wide issues that are common to multiple applications. References to our Part A decision are made throughout this decision as appropriate.

2 THE PROPOSAL

- 2.1 The applicant is seeking resource consent to allow it to irrigate its property at McAughtries Road, Twizel, west of Lake Benmore. It intends to use its existing infrastructure to divert water from Scrubby Creek, take and use that water for irrigation, and discharge surplus water into Camp Creek. The applicant seeks a duration through until 2025 in accordance with the MIC Agreement it has with Meridian Energy Limited (Meridian).
- 2.2 The proposed diversion, take and discharge points and the proposed irrigation areas are illustrated in Figure 1 below.



Figure 1: Indicative Location Plan

- 2.3 Surface water will be diverted from Scrubby Creek at a rate not exceeding 50 L/s and a volume not exceeding 4,320 cubic metres per day, at or about map reference NZMS 260 H39:855-440. The diverted water will be conveyed through an open water race into a small storage pond. This diversion will occur year round, however a minimum flow of 30 L/s in Scrubby Creek will be maintained.
- 2.4 Water will be taken from the pond (or about map reference NZMS 260 H39:856-436) and reticulated to irrigation areas, where it will be used for spray irrigation by K-line of up to 34 hectares of pasture and winter-feed crops. This take will only occur during the irrigation season. Water will be taken at a rate not exceeding 19 litres per second, and a volume not exceeding 1641.6 cubic metres per day, and 75,000 cubic metres per year.

- 2.5 Any excess water that it diverted but not taken for irrigation will be discharged into Camp Creek at or about map reference NZMS 260: H39:855-433. The discharge will occur at a maximum rate not exceeding 50 litres per second, and a volume not exceeding 4,320 cubic metres per day.
- 2.6 A fish pass will remain along the race, through the diversion and discharge between Scrubby Creek and Camp Creek. However, the intake will be audited and certified by a suitably qualified person to ensure it is in general accordance with details set out in Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007 and will as far as practicable exclude fish from entering the fish screen.

The applications

- 2.7 There are two separate applications that make up the proposal:
- (a) CRC020584 – Application to divert water from Scrubby Creek, take water from the irrigation pond and use it for the purpose of irrigation; and
 - (b) CRC031315 – Application to discharge surplus irrigation water to Camp Creek.
- 2.8 CRC020584 is an application for a water permit to take and use surface water pursuant to section 14 of the RMA. CRC031315 is an application to discharge of contaminants into the environment pursuant to 15 of the RMA. Consent is required under the Waitaki Catchment Water Allocation Regional Plan (WCWARP) and the Natural Resources Regional Plan (NRRP) respectively, as discussed below.
- 2.9 CRC020584 was lodged with the Canterbury Regional Council (the Council) on 19 September 2001, with CRC031315 lodged on 3 March 2003. Both applications were publicly notified and there were a number of submissions that are referred to later in this decision.

Modifications

- 2.10 Since the application was initially lodged the applicant amended the area to be irrigated from 25 to 34 hectares. No changes to rates or volumes to be extracted were sought.
- 2.11 The general principle for modifications after notification is that amendments are allowed provided they do not increase the scale or intensity of the activity or significantly alter the character or effects of the proposal. The key consideration is prejudice to other parties by allowing the change. In this case we are satisfied that the change does not significantly alter the intensity or effects of the proposal and that no party would be adversely affected by allowing the change.

Existing consents

- 2.12 The applicant previously held the following resource consents to enable irrigate to occur on its property, which expired on 30 June 2001:
- (a) WTK864511.2 to divert water from Scrubby Creek at a maximum rate of 50 L/s
 - (b) WTK864512.2 to take up to 75 mega litres of water per June-July year from a water race fed from Scrubby Creek at a maximum rate of 19 L/s for the spray irrigation of 25 hectares.
 - (c) WTK864513.2 to continue to discharge water to Camp Creek at a maximum rate of 50 L/s.
- 2.13 All of the above consents expired on 30 June 2001. However the current applications were not lodged until three months after this expiry date. As such, the applicant is not able to continue operating under section 124 of the RMA and we have assessed the proposal as a new activity.
- 2.14 Notwithstanding the above, we note the Council did not pick up this discrepancy until several years after the applications were lodged. The applicant therefore continued to irrigate its property until approximately April 2007 when the Council issued an abatement notice. We have taken this into account in our consideration of the proposal.

3 DESCRIPTION OF THE ENVIRONMENT

- 3.1 Scrubby Creek is spring fed, has a channel width of approximately 1.35 metres and a depth of approximately 0.2 metres at the diversion point. There is an extensive catchment area above the diversion for Scrubby Creek, and above the discharge location for Camp Creek. Channel flows vary throughout the year dependent on rainfall. Average flows estimated at 250-300 L/s. Small fish or bullies are present in the creek
- 3.2 Camp Creek is also spring fed. Instream flows disappear downstream of the diversion and discharge points in both Scrubby and Camp Creeks.
- 3.3 There was little flow hydrological data that exists for Scrubby Creek before Mr Boraman undertook his investigation. The hydrology report provided by Mr Boraman makes the following comments about the environment:
- (a) The lower reaches of Scrubby Creek have gone dry in previous years.
 - (b) A 1.2 metre culvert at Falston Road blocks fish passage from Lake Benmore.
 - (c) Annual rainfall for the area is approximately 900 millimetres.
 - (d) Lower end of catchment is steep.
- 3.4 Keller and Pfluger (2005) provided the following information about the Mid-Catchment tributaries of the Waitaki Catchment:
- (a) 44% of land cover is predominately tall tussock grasslands, with only 16% of cover being low producing grasslands;
 - (b) Threatened bird species recorded include; Black Stilt, New Zealand Falcon, Crested Grebe and Kea;
 - (c) There are no species of fish recorded in Camp Creek.
- 3.5 Further description of the environment is provided in our Part A decision and our summary of the evidence received from the applicants and submitters below.
- 3.6 In relation to a site visit, we carried out a site inspection from the air but did not carry out a ground site visit. Further information on our site visits is contained in Part A and we do not repeat this information here.

4 PLANNING INSTRUMENTS

- 4.1 As discussed in our Part A decision, there is a wide range of planning instruments that are relevant under the RMA. This includes national and regional policy documents, along with regional and district plans. The key planning instruments relevant to these applications are as follows:
- (a) Waitaki Catchment Water Allocation Plan (WCWARP);
 - (b) Natural Resources Regional Plan (NRRP);
 - (c) Proposed and Operative Canterbury Regional Policy Statement (CRPS); and
 - (d) Waitaki District Plan (WDP)
- 4.2 The provisions of these planning instruments critically inform our overall assessment of the applications under s104(1)(b) of the RMA, as discussed in Section 14 of this decision. In addition, the rules within the relevant planning instruments determine the status of the activities, as set out below.

Status of the activity

- 4.3 In our Part A decision we provide a detailed discussion of our approach to determining the status of activities. We now apply that approach to the current applications.

CRC020584 – Divert, take and use water (s14)

- 4.4 This application is listed in Schedule 2 of the Resource Management (Waitaki Catchment) Amendment Act 2004. Section 88A therefore does not apply and the relevant plan for this activity is the operative WCWARP.
- 4.5 The following rules from the WCWARP are applicable to this application:
- (a) Rule 2 clause (1) –The applicant has proposed a minimum flow of the five-year, seven-day low flow for Scrubby Creek to be maintained at the most practical minimum flow location and so is consistent with Table 3, row xxii.
 - (b) Rule 6 – The activity is within the allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam.
 - (c) Rule 15 – classifying rule.
- 4.6 Overall, the proposed diversion, take and use is a **discretionary activity** under Rule 15 of the WCWARP and resource consent is required in accordance with section 14 of the RMA.

CRC031315 – Discharge water (s15)

- 4.7 This application is listed in Schedule 2 of the Resource Management (Waitaki Catchment) Amendment Act 2004. Section 88A of the RMA therefore does not apply and the relevant plan for determining the status of this activity is the operative NRRP.
- 4.8 The relevant provisions of the NRRP are as follows:
- (a) Rule WQL1 – permits the discharge of water into a river, subject to compliance with a range of conditions
 - (b) Rule WQL48 – provides for the status of a discharge to water where it fails to comply with any of the conditions in WQL1. Will be classified as either a discretionary or non complying activity, depending on whether it complies with the listed conditions.
- 4.9 The activity is unlikely to meet Conditions 1 and 3 of Rule WQL1. Therefore the activity falls to be assessed under Rule WQL48. The activity is likely to comply with conditions of Rule WQL48. Therefore, it is classified as a discretionary activity.
- 4.10 In summary, the proposed discharged is a **discretionary** activity under Rule WQL48 and requires consent pursuant to Section 15 RMA.

Overall status of the proposal

- 4.11 Based on the above, we have assessed the entire proposal as a **discretionary activity**.

5 NOTIFICATION AND SUBMISSIONS

- 5.1 Application CRC020584 was publicly notified on 6 December 2003 as part of the MfE call-in of all Waitaki consents, and again on 4 August 2007 at the same time as CRC031315. In the 2007 public notification, 14 submissions in total were received including:
- (a) 1 in support;
 - (b) 11 in opposition; and
 - (c) 2 neither in support nor opposition.
- 5.2 All submissions related to the diversion, take and use and no submissions made reference to the proposed discharge.
- 5.3 Table 1 is based on the relevant s42A reports and summarises those submissions that directly referenced the application. In addition to those listed, there were other submitters that presented evidence at the hearing that was relevant to this application. The relevant evidence from

submitters is discussed in more detail later in this decision. Please note that all submissions hold equal importance, even if not specifically listed below.

Submitter	Reasons	Position
Mr R Metherell	The scheme is important for the success of the farming operation. Farmers in catchment should have priority to water.	Support
Mr J Metherell	Irrigation important for economic viability of farms in the Waitaki. At least 50 L/s be allocated for spray irrigation to enable stock number to be retained.	Support
Ms M Metherell	Irrigation essential with possibility of Tenure Review in the future.	Support
Mr G and Ms K Metherell	Retain the status quo. Irrigation essential to grow enough lucerne and baleage to survive winter.	Support
Ms F Home	Water should be taken from Lake Benmore instead	Oppose
Upper Waitaki Community Irrigation	Increased production from irrigation	Support
Mr S Carswell	Degradation of water quality	Oppose
Fish and Game	Stream doesn't have great fishery value, resident trout likely where flows allow. Concerns could be addressed through consent conditions	Oppose
Meridian Energy Limited	Flow regimes, metering, water quality	Oppose

Table 1: Summary of submissions on application CRC020584 and CRC031315

- 5.4 Overall, the key effects of concern to submitters include effects on: ecosystems, water quality, allocations, minimum flows, natural character and landscape, efficiency and cultural values.

6 THE SECTION 42A REPORTS

- 6.1 Two separate reports on the applications and submissions were prepared by the Regional Council's Investigating Officer, Ms Susannah Vesey (Reports 36A & B).
- 6.2 The primary reports were supported by a number of specialist reports prepared by Messrs Heller, Clothier, Hanson, Schallenberg, Glasson, McNae and Stewart, and Drs Meredith and Freeman. The key issues addressed by these reports were cumulative water quality effects, landscape effects, and environmental flow and level regimes.
- 6.3 All reports were pre-circulated in advance of the hearing. We have read and considered the content of the reports and refer to them as relevant throughout this decision.

Take and use

- 6.4 In relation to the take and use application, at the time the primary report was prepared, there was insufficient information for Ms Vesey to reach firm conclusions on the effects of the proposal. Matters that were identified as outstanding at that time were:
- Distribution efficiency and diversion rates;
 - Landscape within the Waitaki basin;
 - The localised and cumulative impacts on surface water quality;
 - The effects on cultural values in the area.
- 6.5 Mr Chris Glasson (the s42A report writer dealing with landscape) noted that the site was on an alluvial fan flanked by an Outstanding Landscape Area of the Benmore Range and Lake Benmore. He said it is a very contained and defined site with modifications of pastoral farming, campground, road, exotic shelter trees and farm buildings. He described it as having low visibility, low sensitivity to change, moderate naturalness and high absorption capacity.

- 6.6 Mr Glasson was of the opinion that due to the close proximity of Lake Benmore and the lack of buffer zones between the Lake and the proposed irrigated area, then the adverse effects of the site would be moderate. He recommended a 100m buffer between the lake and the irrigation area, consisting of willows, tussock grassland and shrubland.

Discharge

- 6.7 Ms Vesey also prepared a report on the discharge application. In assessing the effects of this activity she concluded in terms of flood-carrying capacity that Camp Creek was an open channel with no obvious obstructions. She noted that the discharge was historical and she relied upon the applicant's advice that there were no noticeable effects in the past. Therefore, she concluded the effects in this respect would be acceptable.
- 6.8 In terms of erosion of beds of banks, she noted the activity had been occurring since 1972 with no noticeable effects on the environment. She did review photographs that suggested that Camp Creek had a range of substrates, including rocks, boulders, and the like, which would provide bank protection. She noted that there was no change in the rate of discharge sought. She recommended conditions ensuring measures be taken to avoid erosion of beds in banks of Camp Creek. She concluded that these effects would be acceptable.
- 6.9 Turning to water quality and ecosystems, Ms Vesey again noted the age of the activity, occurring since 1972. She noted that the water from the race flows through a settling pond to allow sediment to settle. She did consider that discharge was likely to increase the flow in Camp Creek, which could be beneficial for ecosystems. She noted the irrigation proposal allows for fish passage through the diversion and discharge as there is a fish screen on the intake structure. Ms Vesey recommended conditions stating that the discharge after reasonable mixing does not cause change in the colour or reduction in the clarity of Camp Creek. She considered therefore that the effects would be acceptable.
- 6.10 Ms Vesey considered downstream users and amenity values, again noting the activity had been occurring since 1972 with no noticeable effects. She noted that Camp Creek does not appear to hold any recreational values. Overall, she concluded the effects would be acceptable.
- 6.11 Finally, Ms Vesey considered tangata whenua values. She noted the applicant had not provided an assessment therefore she could not reach a conclusion. She did note that the discharge is into another subcatchment so that that would result in the mixing of waters. She noted that the *terunanga o Ngāi Tahu* had raised concerns in their submission relating to the mixing of water between catchments.
- 6.12 In relation to the statutory assessment under Section 104(1)(b) RMA she was satisfied with conditions a grant of consent would be consistent with the relevant objectives and policies of the CRPS and the PNRRP.

7 THE APPLICANT'S CASE

- 7.1 Legal counsel for the applicant, Mr Ewan Chapman, presented opening submissions and called evidence from Ms Cathy Begley (resource management consultant) and David Boraman (hydrologist).
- 7.2 In addition, general briefs of evidence on behalf of all UWAG applicants were presented by Mr Robert Batty (planner), Mr Andrew McFarlane (farm management consultant), and Mr Andrew Craig (landscape). We have summarised the key points from submissions and evidence below.

Opening legal submissions

- 7.3 The applicant is part of the Upper Waitaki Applicant Group (UWAG), as described in our Part A decision. Mr Ewan Chapman presented comprehensive opening legal submissions on behalf of all UWAG applicants. He said that there may be matters of a specific legal nature relating to certain applications and those issues will be raised when the specifics of the applications were discussed in closing.
- 7.4 Mr Chapman told us that UWAG represents some 72% of all applicants for water takes. This equates to 31% of the total water volume applied for (excluding stockwater and non-consumptive diverts) and 29% of the total irrigable area.

- 7.5 Mr Chapman emphasised that despite the collective approach adopted for these hearings, each application needs to be considered in isolation from others (allowing for priorities). However Mr Chapman noted that UWAG is not producing any other evidence to support its own assessments of cumulative effects and adopts the MWRL evidence to the extent that it defines nodal thresholds.
- 7.6 While raising some challenge to the outcomes of the mitigation measures proposed by MWRL resulting from the WQS study, Mr Chapman told us that the UWAG members were not presenting their case to say that they cannot or will not meet an area-based NDA threshold. To the contrary, he said that we would be shown that they have taken the model and applied it to all properties and will, with mitigation, meet the thresholds.
- 7.7 Mr Chapman then addressed us on the issue of allocation of assimilative capacity. He contended the approach taken by MWRL that essentially resulted in some farming units mitigating for the nutrient loss of other farming units, was inappropriate. He submitted a more appropriate method of allocation is on the basis of productive use of land. The productive use of the land he said represents the level of nutrient discharge of each farming unit and that should be used; and that the method of allocation based on dividing allocation on a per hectare basis should not be utilised.
- 7.8 He submitted that by assessing allocation of assimilative capacity on the basis of productive land use to reflect the NDA for each unit, these methods would be more representative and realistic of the nutrient discharge of each farming unit.
- 7.9 In terms of conditions concerning the nodal approach, he told us the essential issue lies with pinpointing who is exceeding their NDA if exceedances are detected at the nodal point. He told us the UWAG applicants' preference is for on-farm management of total nutrient discharge and annual auditing of individual FEMPs. He then referred us to a draft condition from the Rakaia Selwyn groundwater zone hearing, noting it was a very much site-specific condition.
- 7.10 He submitted that on-farm monitoring should be favoured over monitoring at nodal points. He said this did bring in the practicalities of the purpose of employing the FEMP with the result that if a breach of the FEMP occurs, the consent authority would have control to enforce the conditions of the consent against the individual applicant. It also reflects the reality that each farm will be different depending on the type of activity that is undertaken on that farm with their individual tailored farming management practices.
- 7.11 Mr Chapman also said that UWAG had not tabled a final set of conditions or final farm management plans. These matters would be worked through and provided to all parties as the hearing progressed. UWAG was of the view that one suite of conditions was inappropriate. There were variables between sub-catchments, take points, and the "type" of consent applied for which would mean that individual conditions would need to be worked through.

Mr Boraman - Hydrology of Scrubby Creek

- 7.12 Mr David Boraman, a hydrologist, was engaged by Totara Peak Station to prepare a report on the hydrology of Scrubby Creek and to propose a suitable minimum flow.
- 7.13 Mr Boraman said that Scrubby Creek drains directly into the Haldon Arm of Lake Benmore. The catchment area of Scrubby Creek is 7.05 km² and varies in altitude from 1756 m down to Lake Benmore at 360 m. Fish passage is prevented to the upper catchment by a drop of approximately 1.2 m at the culvert at Falstone Road. The lower reaches of scrubby are known to be dry in some years.
- 7.14 In February 2009 Boraman Consultants commenced a study into the hydrology of Scrubby Creek, between February 2009 and May 2009, 5 flow measurements were carried out and a water level recorder was installed on 24 February 2009. There was no known previous hydrological information on Scrubby Creek.
- 7.15 Mr Boraman attempted to correlate the flow data he collected from Scrubby Creek with flow data from other catchments. Many of these were in the region but not neighbouring catchments. Attempts to correlate with the Twizel River and Maryburn River provided very poor relationships. A correlation with the long-term ECan site Rocky Gully at Rockburn (Site 69621) provided the best results.

- 7.16 Mr Boraman derived a flow record utilising a correlation with the measured instantaneous values of Scrubby Creek and the Daily mean recorded value for the Rocky Gully Stream. The calculated R^2 for the correlation was 0.99 indicating good reliability. The correlation 'best fit' utilised and 'Power' trend line, which is less desirable than the usual linear trend line. However given the limited dataset he accepted the 'power' equation.
- 7.17 Mr Boraman then selected a site to monitor the flows above the abstraction points due to the very steep nature of the catchment. Therefore the flow at Scrubby Creek monitoring site less the abstraction must be greater than the minimum flow.
- 7.18 Mr Boraman's analysis supported the contention that the figure for 5 Year Seven Day Low Flow for Scrubby Creek is 32 Litres per second. In accordance with the WCWARP the proposed interim minimum flow should be 30 L/s.
- 7.19 Mr Boraman recommended the flow figure should be treated as interim and a flow measurement program set up to further extend the dataset.
- 7.20 Mr Boraman reviewed the mitigation relating to minimum flows in the section 42A Officers report by Ms Vesey. In his opinion the minimum flow and restrictions proposed by Ms Vesey were acceptable and complied with the WCWARP as the minimum flow site was above the point of abstraction.

Ms Begley – Overall assessment of effects

Effects on other water users

- 7.21 Ms Cathy Begley said that there are no other surface water abstractors either up- or downstream of the proposed point of diversion or take. This is due to the fact that the applicant controls the land through which Scrubby Creek flows from its source in the Benmore Range to Lake Benmore. Given this, the diversion and take from Scrubby Creek will not impact upon any other water user or person whom relies on this stream for other purposes, such as domestic and stock water.
- 7.22 Further, the applicant had gained derogation approval from Meridian Energy Ltd and as such the granting of the proposed takes would not impact upon its existing consents to take and use water within the catchment for power generation.

Effects on in-stream values

- 7.23 Ms Begley said that Table 3 of the WCWARP did not set a specific minimum flow regime for Scrubby Creek; rather it provides a formula by which a minimum flow is to be determined. This formula requires the minimum flow to be the 5-year, 7-day low flow and should be set at the downstream end of the catchment.
- 7.24 As outlined in Mr Boraman's evidence, it had been calculated that the 5-year, 7-day low flow for Scrubby Creek is 30 L/s. Ms Begley said that she understood that both Mr Stewart (the CRC hydrologist) and Mr Scarf (F & G hydrologist) agreed that 30 L/s was acceptable. Further Mr Boraman had proposed a monitoring point for the minimum flow that is located above the diversion point. While it was acknowledged that Table 3 of the WCWARP specified that minimum flows should be measured at the downstream end of the stream, as outlined in Mr Boraman's evidence, from a hydrological perspective having the minimum flow measured at the downstream end of the stream (i.e. just before it reaches Lake Benmore) is inappropriate and that the proposed measuring point was the "best available" on this stream.
- 7.25 Ms Begley also noted that Ms Penman in Attachment 4 of Report 2A (Environmental flow and level regimes -Overview report) recommended a minimum flow of 30 L/s and a flow sharing regime for Scrubby Creek whenever the flow in the river is between 80 L/s and 30 L/s. Ms Penman states that the reason for the flow sharing was to "...ensure that the minimum flow will be retained at the downstream end of the catchment as far as possible..." (Page 21).
- 7.26 Ms Begley also noted that Ms Vesey in her report stated that she was unsure of the reason why the diversion of 50 L/s was required all year around. Ms Begley explained that the diversion was required for three reasons; firstly, to provide domestic water to the applicant. Secondly, having water moving through the channel all year round was particularly important, especially over the winter months, because if there was insufficient flow within the channel the channel could freeze, thereby "cutting off" the applicant's domestic water. The third reason was that it also provided

stock water, and for the same reasons, water was required to flow through the race. Lastly, it provided irrigation water to enable the applicant to irrigate their 34 ha of land.

- 7.27 Ms Begley said that the existing diversion structure on Scrubby Creek had no fish screen in place, but there was an existing fish screen in place at the point at which water is taken from the irrigation race. The applicant had proposed a mitigation measure which would require them to "as far as is practicable" exclude fish from entering the intake. To this end, prior to the exercising of this consent, the applicant would have their existing fish screen audited and certified to ensure that their fish screen was as far as it is practicable excluding fish and was in general accordance with the report Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007.

Efficient Use of Water

- 7.28 Ms Begley said that the land use for the area to be irrigated was mixed cropping and pasture and the area to be irrigated was 34 ha. The area was to be irrigated by spray and the application rate would 22 mm on a 6-day return period which equated to a daily application rate of 3.8 mm. The soil in the area to be irrigated was Pukaki Soils with 45 mm of soil profile available water. The effective irrigation season rainfall for area was 170 mm and the applicant had proposed an annual volume of 75,000 cubic metres, which was less than the volume, calculated using Schedule WQN9v2.
- 7.29 She said that traditionally two methods have been used to determine whether the use of water for irrigation was efficient. The first method was ensuring that the peak application rate was no more than half the water holding capacity of the soil. The second method was by the implementation of an annual volume using one of the two methods set out in Policy 16(c) of the WCWARP.
- 7.30 Ms Begley said that the applicant would be applying no more than 22 mm per 6 days, which is not more than half of the average water holding capacity of the soil and as such was considered to be an efficient use of water.
- 7.31 She added that this application proposed an annual volume of 75,000 m³/year, which was based upon the annual volume held under previous consents. Using the methodology set out in Policy 16(c)(ii), an annual volume of 219,300 m³/year would be acceptable. As the proposed annual volume was less than the volume determined under Policy 16(c)(ii) the use of water is considered to be efficient.
- 7.32 Ms Begley said that Policy 21 of the WCWARP requires all water takes to be metered. To ensure that this application is consistent with this policy, the applicant proposes to meter their take.

Water Quality

- 7.33 Ms Begley said that cumulative effects on water quality had been addressed by Mackenzie Water Resources Limited (MWRL) study which calculated the following N and P thresholds for the property.

	Nitrogen Threshold (kg/Farm)	Phosphorus Threshold
MWRL Study Property Thresholds	13,451	310
OVERSEER® outputs	11,165	217

- 7.34 Ms Begley said that the table showed that the applicant could meet the property thresholds that are the most restrictive. OVERSEER® outputs for this table system were run by a qualified person to model the N and P outputs from the proposed farming system.
- 7.35 Also the applicant was committed to implementing the "Mandatory Good Agricultural Practices" set out within the Farm Environmental Management Plan (FEMP). Ms Begley's opinion was that implementing these practices ensured that the OVERSEER® results were validated and this, along with ensuring that the property thresholds of the WQS were not exceeded, would ensure

that the cumulative effects of the use of water for irrigation on water quality are no more than minor.

- 7.36 Whilst the applicant is able to comply with the thresholds outlined within the MWRL Water Quality Study, Ms Begley said that this study also identified that the applicant still had to consider specific on-farm effects and the impacts these activities could have on the local receiving environment. The proposal to achieve this was a specifically developed Farm Environmental Management Plan (FEMP) to identify and implement appropriate mitigation measures.
- 7.37 At a workshop held in Twizel in August 2009, the applicants met with Dr Melissa Robson of GHD Limited. A "desktop" on-farm risk assessment was undertaken. This was considered to be the "starting point" of the FEMP.
- 7.38 The workshop identified potential on-farm risks specific to each farm along with possible mitigation measures. For Totara Peaks Station, the desktop risk assessment identified the following potential risks:
- (a) The large number of surface water bodies that flow through the property;
 - (b) Extensive tracking; and
 - (c) Use of full cultivation.
- 7.39 Ms Begley said that the applicant was committed to implementing the FEMP, including an on-farm risk assessment and appropriate mitigation, monitoring and auditing before the first exercise of this consent.
- 7.40 It was Ms Begley's opinion that because the N and P thresholds from the MWRL Study could be met, and the applicant was committed to addressing on-farm risks with the implementation of the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects would be minor.
- 7.41 We note that a final FEMP complete with Farm Environmental Risk Assessment (FERA) was submitted to the Council in November 2010 and we comment further on this FEMP in our evaluation of effects.

Effects on Tangata Whenua Values

- 7.42 Runanga O Ngāi Tahu submitted on all applications in the catchment, seeking that all applications be declined. Ms Begley believed that the primary reasons for this were that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.
- 7.43 Ms Begley acknowledged that Te Runanga O Ngāi Tahu have a significant relationship with the Waitaki Catchment, but, appropriate minimum flow conditions and management of water quality effects were proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values, are minor.

Effects on People, Communities and Amenity Values

- 7.44 The applicant has proposed an appropriate minimum flow condition for the water body from which they have applied to take and use water. Ms Begley's opinion was that a minimum flow was adequate to protect people, communities and amenity values within the rivers specific to each applicant.
- 7.45 Ms Begley said that the WCWARP sets an annual allocation "cap" for agricultural and horticultural activities within defined areas (Table 5). The applicant had proposed an annual allocation limit for their own resource consents for the use of water, as well as implementing Farm Management Plans, which require existing irrigation systems to be audited and improved where possible, and new systems to be designed and installed by accredited personnel, and implementing initiatives to ensure that water is used wisely.
- 7.46 Therefore in Ms Begley's opinion, the applicant's commitment to ensuring efficient use of water on their properties, and the take being within allocation limits set to protect in-stream values and other users, she considered that effects on people and communities would be minor.

Discharge Permit

Effects of the discharge on water quality

- 7.47 Ms Begley said that this application sought the ability to discharge the excess irrigation water from the irrigation race into Camp Creek. As the irrigation race is unfenced, it was possible for stock to have access to the race for drinking. Depending upon the composition of the stock on the property and stocking ratio, it was possible that the water quality of the water contained within the race to be degraded.
- 7.48 Ms Begley then said that there was very little information on the aquatic values associated with Camp Creek. However, the discharge from the irrigation race had been occurring for a number of years (since at least the 1970's) and was the main source of flow in the lower reaches of Camp Creek during the summer months. This aspect had been identified as an environmental farm risk and would be addressed as part of the environmental farm management plan, which would require that the effects of the discharge after reasonable mixing were minor.

Effects of the discharge on other water users

- 7.49 Section 107 (1) of the Act requires discharges, after reasonable mixing to meet a number of water quality standards. These standards include, amongst other things do not allow discharges that results in "...conspicuous oil or grease films, sums or foams or floatable or suspended materials..." or "...The rendering of fresh water unsuitable for consumption by farm animals...".
- 7.50 Ms Begley said that there were no other persons downstream of the point of discharge that rely upon the Camp Creek for either their domestic or stockwater supply. Her view was that the discharge of water into Camp Creek would not impact upon any other water user or person whom relied upon this stream for other purpose such as domestic and stock water.

Effects of discharge on erosion of the bed and banks of the receiving waterbody

- 7.51 When water is discharged into a waterway, the flow, and potentially the velocity, of the receiving waterbody is increased, thereby increasing the rate at which the bed of the waterway is eroded.
- 7.52 Ms Begley said that in this particular instance, the discharge from the stockwater race, into the lower reaches of the Camp Creek has been undertaken for a number of years without the bed of the Camp Creek being eroded. She noted that Ms Vesey recommended that the applicant monitors the point of discharge, and should the bed or banks of the stream at this point start to erode, that action be undertaken to remedy the problem. This aspect had been identified as an environmental farm risk and would be addressed as part of the environmental farm management plan, which would require that the applicant actively monitor the point of discharge for an increase in erosion. Should any erosion be detected measures would be undertaken to remedy the problem.

Mr Andrew Craig – landscape architect

- 7.53 Mr Andrew Craig gave his evidence in two parts. The first part dealt with the general landscape and his overview of the Upper Waitaki landscape and its values. The second part of his evidence dealt more directly with the individual applications.
- 7.54 In his part A evidence, Mr Craig discussed in detail Mr Glasson's mitigation approach and tools, and addressed us on statutory matters concerning the effects of landscape. Broadly, for reasons advanced in Part A, we agree with Mr Craig's assessment of the statutory planning documents in terms of landscape.
- 7.55 Unlike other applications by UWAG members, Mr Craig did not present a separate brief of evidence in respect of the current application. The reason for this was that he only prepared a separate brief of evidence where he considered the proposed irrigation was on a sensitive site. Visual sensitivity was determined by the location of publicly accessible vantage points and the views that could be had from them in relation to irrigation areas. In relation to the current application, Mr Craig considered that it was not a sensitive location in terms of landscape and that the proposal would therefore not negatively impact on landscape values.

Mr Robert Batty - planner

- 7.56 Mr Batty addressed us in relation to planning issues. He set out his broad view as being:

- (a) whether or not granting any of the applications before us, including this application, would undermine the operational integrity of the WCWARP, regional plans and district plans;
 - (b) whether cumulative effects would arise from a grant;
 - (c) whether grants would promote reasonable efficiencies and sustainable management of the natural and physical resources concerned; and
 - (d) whether the grant of consent would derogate from any other consent.
- 7.57 He was critical of the section 42A officers' collective approach and suggested each application needs to be considered on its own merits. A move away from the generic approach of the reporting officers was required, he said, to enable a proper analysis of each application to occur.
- 7.58 He supported Mr Kyle's planning analysis on behalf of MWRL and he set out for us relevant policies and objectives in the district and regional plans. In conclusion, he was of the view that granting this consent and all other UWAG consents was appropriate.

Mr Andrew Macfarlane - farm management consultant

- 7.59 Mr Macfarlane is a farm management consultant with 29 years experience. He provided us evidence on behalf of all of the UWAG applicants.
- 7.60 He assessed the viability of the farm management plans and practicality and robustness of the mitigation measures and the ability to monitor progress.
- 7.61 He discussed a range of mitigation measures that had been examined and/or adopted by the UWAG farmers to deal with discharges from their properties consequent upon irrigation.
- 7.62 Mr Macfarlane also discussed with us the costing of various typical irrigation developments.
- 7.63 He considered on-farm monitoring, noting that on-farm monitoring had lifted in its intensity and in detail over the last 10 years, being driven by economic returns and a need to prove environmentally sustainable methods were being utilised. Overall, he held a high degree of confidence in progress concerning the ability to monitor and interpret interfaces between environmental science and management.
- 7.64 He raised with us the advantages of reliable availability of water and pointed out for us the benefits of irrigation, noting that while generally irrigation typically only represents a small part of the total farm area, but it does result in high productivity increases with a resultant favourable impact on economic viability of farming operations. He concluded with the correct planning, management and monitoring any negative environmental impact of intensification of a small area would lead to positive environmental outcomes on the balance of the property. It was his view a net positive balance was certainly possible.

8 SUBMITTERS

- 8.1 Set out below is the summary of the issues raised by submitters who appeared before us. We emphasize that we have read and considered all submissions made, both in support and in opposition to the application, as well as reviewing and carefully considering evidence advanced before us.

Fish and Game

- 8.2 Mr Frank Scarf, a Hydrologist with Fish & Game, supported this application provided a condition was included to the effect that a residual flow of not less than 30 litres per second shall be maintained immediately downstream of the diversion location (paragraph 87).

Mackenzie Guardians – Dr Susan Walker

- 8.3 Dr Susan Walker (Plant Ecologist, Landcare Research) was engaged by the Mackenzie Guardians to provide evidence at the hearing detailing the effects on terrestrial ecology from the proposed irrigation of an additional 25,000 ha. The majority of Dr Walker's evidence related to the proposed irrigation in all of the Upper Waitaki catchment. A summary of this evidence has been included in Part A of this decision.

- 8.4 In relation to individual applications, Dr Walker's Attachment 15 contained her more particularised reviews in respect of each site. Dr Walker assessed Totara Farming as being approximately 90% converted. In terms of her assessment in respect of potential effects on terrestrial biodiversity, she described it as having the "least" effect compared to other proposals she considered.

Meridian Energy Limited – Mr Richard Turner

- 8.5 Mr Richard Turner, Planning Manager – Natural Resources, Meridian Energy Ltd, tabled a list of consent applications which were of a concern to MEL from a cumulative water quality perspective based on the sub-catchments in which the properties were located relevant to Meridian's operations and areas of interest.
- 8.6 The Meridian Energy approach was adopted for two reasons;
- (a) the potential environmental effects and impacts on hydro-energy generation operations from intake blockages from macrophyte and periphyton growths and the associated increases in operating and maintenance costs and generating efficiency.
 - (b) The lack of any cumulative or comprehensive water quality assessment in the resource consent applications that were notified, making it difficult to consider the actual and potential adverse effects of the applications on the operation of the Waitaki Power Scheme.
- 8.7 The current applications were included in the Meridian Energy Ltd list of consent applications of concern. The principle concern in respect of the sub-catchment concern was in quantifying the nutrient thresholds to ensure that a TLI in Lake Benmore did not exceed 2.75, based on a summer average.
- 8.8 Mr Turner also noted that there were discrepancies between the applicant's proposed consent conditions and those common consent conditions agreed with MEL prior to derogation approval being acquired. Mr Turner's evidence acknowledged that a number of applications from this hearing contain these discrepancies.

Te Runanga o Ngāi Tahu – Paul Horgan

- 8.9 Mr Horgan told us that Ngāi Tahu had taken a balanced approach when assessing the applications and resisted the temptation to simply oppose all applications in their entirety. More particularly, Ngāi Tahu has generally placed its emphasis upon the new (rather than replacement) consent applications and those that will result in large scale land use intensification, rather than the taking of water so as to provide security of supply for existing farming operations.
- 8.10 Mr Horgan told us that Ngāi Tahu had adopted two focal points against which they assessed the applications; the Haldon Arm was one of these as it would be one of the most acute receiving environments for the discharge of nutrients from the irrigation proposals. He told us it was also a location where Ngāi Tahu proposes to undertake mahinga kai restoration.
- 8.11 Mr Horgan told us that provided the smaller applicants carry out appropriate riparian planting and fencing and undertake not to significantly increase the intensity of their farming operations, then Ngāi Tahu were not opposed to the granting of consent.

9 UPDATES TO THE SECTION 42A REPORTS

- 9.1 In relation to the discharge application (CRC031315), Ms Vesey said that Ms Begley had removed the requirement for the discharge to be metered from the recommended conditions for the discharge permit as she considered this requirement to be inappropriate – the discharge would be what was "left over" from the diversion less the takes and race losses. Given those comments, Ms Vesey agreed the metering of the discharge might not be required.
- 9.2 Also in relation to the discharge application, Ms Vesey made the point she had yet to have the issue of tangata whenua concerns resolved.
- 9.3 In relation to the divert, take and use application (CRC020584), Ms Vesey reviewed the additional information presented and made the following comments:

Stock, domestic supply and minimum flow

- 9.4 Ms Begley had not advised how much water is needed for stock and domestic use. Policy 24 of the WCWARP addresses taking water during times of restrictions for consent holders to take below the minimum flow provided the amount does not exceed 250 litres per person per day based on the population being supplied at that time, plus actual stock drinking water requirements.
- 9.5 Ms Begley had advised due to for domestic and stock drinking requirements, water needed to be diverted all year around. Ms Vesey recommended the following condition (WP14) requiring the rates and volumes diverted and taken from Scrubby Creek to be restricted in accordance with Policy 24 during times of restriction:
- (a) Whenever the flow in Scrubby Creek at map reference NZMS 260 H39:855-440 as measured in accordance with condition, falls below 30 litres per second, the consent holder shall:
 - (i) Ensure that the volume of water diverted and taken does not exceed 250 litres per person per day based on the number of people being supplied water at the time, and the volume of water needed for actual stockwater needs at that time;
 - (ii) Record the number of people for which water is being provided in a log book kept for that purpose, and provide this to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, annually during the month of June, or as requested.
- 9.6 Ms Vesey said that Ms Begley had advised the full 50 litres per second was needed to be diverted for conveyance. The applicant had not proposed any upgrades to their water race/pond system. Ms Vesey considered 50 litres per second for conveyance rather a high rate.
- 9.7 Ms Vesey said that her understanding of the purpose of the proposed minimum flow for Scrubby Creek of 30 litres per second (which was set in accordance with Row xxii, Table 3 of the WCWARP) was primarily to protect the values of Scrubby Creek. As no proposal had been made to reduce the rate of diversion from the Creek, she could not see how the condition proposed by Ms Begley requiring the applicant to cease taking water for irrigation during times of restriction would protect the values of Scrubby Creek.

Landscape

- 9.8 In terms of landscape, Ms Vesey was of the view this matter had still not been resolved. She had reconsidered Mr Craig's evidence, which she found to be generalised for all UWAG witnesses. She considered that the concerns raised by Mr Chris Glasson had not yet been fully addressed.

Water quality

- 9.9 The draft FEMP provided by Ms Begley has been audited by Environment Canterbury's technical experts. For CRC020584 they consider that there was a high level of certainty that the actual or potential adverse effects would be less than minor, and given the scale of development and/or receiving environment, suggest that on the basis of cumulative water quality effects, this application could be granted.
- 9.10 In regards to localised effects on water quality, Ms Begley advised the desk top FERA identified streams flowing through the property, tracking and the use of full cultivation as potential risks for this application. The on-farm FERA should identify potential actions needed to reduce effects on water quality. Ms Vesey recommended that any findings from this assessment such as any need for fencing, irrigation lay backs or restrictions on cultivation be included as conditions of consent to ensure effects on a localised scale are mitigated.

10 APPLICANT'S RIGHT OF REPLY

- 10.1 As for his opening, Mr Chapman's right of reply was presented on behalf of all UWAG members. He provided some specific comment on individual proposals, but not in relation to these applications
- 10.4 Turning to more general comments, Mr Chapman challenged Dr Freeman's Table 5, contained within his first addendum report dated 12 January 2010. Mr Chapman considered the correct

approach for the ranking of the applications was to determine where they sit in relation to the existing environment.

- 10.5 He noted there had been much emphasis on nutrient management but he contended we should also be considering sustainability of the erosion-prone fragile soils within the catchment. He also submitted we should take note that district plans encourage farming, including irrigation, within these environments; and the tenure review undertaken by the Crown encourages intensification of land use retained in freeholding ownership in order to release more vulnerable pastures to be set aside under Crown ownership.
- 10.6 He also contended we should consider economic implications on the survival of these farms given their investment in infrastructure as a factor. He also noted we should take into account managing the land in light of weed and pest problems and how irrigation assists in that regard.
- 10.7 In terms of staging of implementation, Mr Chapman told us that undoubtedly those UWAG applicants may choose to stage the introduction of a new system of irrigation.
- 10.8 We did subsequently receive from Mr Chapman generic conditions and revised FEMPs applicable to all the UWAG applicants.

11 STATUTORY CONTEXT

- 11.1 The relevant statutory context for a **discretionary** activity is set out in detail in our Part A decision. In accordance with those requirements, we have structured this evaluation section of our report as follows:
- (a) Evaluation of effects
 - (b) Evaluation of relevant planning instruments
 - (c) Evaluation of other relevant s104 matters
 - (d) Part 2 RMA
 - (e) Overall evaluation

12 EVALUATION OF EFFECTS

- 12.1 Drawing on our review of the application documents, the submissions, the Officers' Reports, the evidence presented at the hearing and our site inspection, we have concluded that the effects we should have regard to in respect of the diversion, take, and use application are:
- (a) Flows and ecosystems
 - (b) Irrigation efficiency
 - (c) Landscape
 - (d) Water quality
 - (e) Tangata Whenua values
 - (f) Discharge effects

Flows and ecosystems

- 12.2 As Ms Vesey said, the purpose of the proposed minimum flow for Scrubby Creek of 30 litres per second (which was set in accordance with Row xxii, Table 3 of the WCWARP) was primarily to protect the values of Scrubby Creek. No proposal had been made to reduce the rate of diversion from the Creek, and she could not see how the condition proposed by Ms Begley requiring the applicant to cease taking water for irrigation during times of restriction would protect the values of Scrubby Creek.
- 12.3 We concur with Ms Vesey that it would be unreasonable for the diversion to continue to supply other than essential domestic and stock drinking water if the flow in Scrubby Creek is at or below

30 L/s, and a condition limiting the diversion during times of low flow in Scrubby Creek will be included.

- 12.4 The proposed minimum flow of 30 L/s for Scrubby Creek is consistent with Rule 2, table 3, row xxii of the WCWARP. A condition will be required on the consent to ensure that no more water than is available above the minimum flow is abstracted for irrigation. In combination with the proposed fish screening condition, we consider that potential adverse effects on flows and ecosystems are minor and acceptable.

Irrigation efficiency

Annual volume

- 12.5 We agree that the proposed annual volume for irrigation of the subject area calculated using methods in Policy 16(c)(ii) of the WCWARP is reasonable. The proposed annual volume is 144,300 cubic metres less than irrigation demand for subject area. As such the applicant will need to ensure the water is used very efficiently and not left to go to waste and is unlikely to apply more water than is needed at any one time. An efficiency condition is also proposed ensuring that the depth of application does not exceed the water holding capacity of the soils

Distribution system

- 12.6 The applicant proposes to divert water down the same water race used by their previous consents. We were provided information to the effect that there is some greening of vegetation next to the race and pond, but no other obvious losses of water.
- 12.7 The applicants propose to be divert an additional 31 L/s more than what will be taken (i.e. divert 50 L/s, take 19 L/s for irrigation). Additionally a constant diversion of 15 L/s will be maintained during the off season, with excess water discharged into Camp Creek year round. We note that excess diversion and discharge could be avoided if the entire system was piped, which does raise concerns for us in relation to the efficiency of the water race used for conveyance.
- 12.8 In respect of the reasons for this excess diversion, we accept Ms Begley's evidence that having water moving through the channel all year round is important, especially over the winter months, because if there was insufficient flow within the channel the channel could freeze. This would effectively "cut off" the applicant's stock and domestic supply.
- 12.9 In terms of effects on the environment of the existing canal system, we are satisfied that there will be not effects on Gibson and Sutton Streams provided the minimum flows are maintained. There are also no downstream users of the water that would be adversely affected by the higher diversion of water. The issue is therefore more a policy consideration than one based on effects and we return to the issue in our evaluation of the relevant planning instruments.

Landscape

- 12.10 In relation to potential effects on the landscape, Ms Begley noted that temporary seasonal effects such as the greening of irrigated areas already occur in the basin and may occur as a result of this application. Any changes to the landscape will be of a working farm environment and within the framework of permitted agricultural activities. Ms Begley did consider cumulative landscape effects as she considered it was too difficult to assess such matters.
- 12.11 Mr Chris Glasson discussed the potential landscape effects of this proposal along with others. He concluded that the absence of a buffer between the proposed irrigation area and the lakeshore road would create moderate landscape effects that require mitigation.
- 12.12 The proposal site is highly modified. As we earlier noted, it had been irrigated for some considerable period of time at an earlier point in time. It is however located immediately alongside the Felston Road, which is a shingle road. According to Mr Glasson the proposal site is easily visible from Felston Road. Felston Road serves the campground and boat launching ramp. It seems to be a 'no exit' road.
- 12.13 Felston Road is located immediately on the foreshore of Lake Benmore. It seemed to us that the principal view would be over Lake. Mr Glasson's photographic supplement confirmed that Felston Road "hugged" the shores of Lake Benmore, opposite the application site. The site itself is flat with a backdrop of hill country, with the Benmore Range evident in the further distance.

- 12.14 The fence of the application site is in close proximity to the road edge. There is no screening other than some exotic vegetation that has grown up alongside the fence of the subject site adjacent the roadway. Overall, we consider the location to be modified in terms of farming activity, with farm buildings, shelter belts, fences, and the highly modified paddock to support that evaluation. It seemed to us to be quite a remote site. The site had natural characteristics and qualities, primarily being its location adjacent to Lake Benmore and the backdrop of hills and in the further distance, Benmore Range.
- 12.15 Mr Glasson recommended a buffer from Lake Benmore. Of course, the application site is not immediately alongside Lake Benmore. Rather, there is the lake, then lakeshore, then Felston Road, and then the irrigation site. We also note that in the final condition set the applicant has proposed a buffer of 20m from the lake. We consider that no additional buffer from the lake is required.
- 12.16 The other issue to consider is whether any buffer is required between the irrigation area and Felston Road. While we acknowledge the site is highly visible from Felston Road, we are not convinced that a buffer setback is appropriate. Given the size of the irrigation area being only 34 hectares and the method of spray irrigation being k-line, we do not think that this form of spray irrigation will be intrusive on views from Felston Road. Clearly views to the lake from Felston Road will not be interfered with. Also, we think that k-line irrigation will not prevent further distant views to the backdrop of the irrigation command area, where the hills and (in the further distance) the Benmore Range is visible.
- 12.17 The other point we have borne in mind is that the site was previously irrigated by k-line. But for omission, this applicant would have been able to continue with k-line irrigation while seeking a renewal of an earlier granted consent. We infer from this circumstance that persons who had previously used Felston Road going to the boat launching ramp and the camping ground would be well used to seeing k-line irrigation within this area. The granting of this consent would simply return to what some might describe as the status quo. That is another reason why we think that no mitigation measures directed at landscape and amenity type issues are warranted in this circumstance.
- 12.18 The above conclusions are reached on the basis that k-line irrigation will be used. However we note that in the addendum report of Mr Glasson, reference is made to the use of pivots, which we consider to be more visually obtrusive than k-lines and a change from what previously occurred. If pivots are to be used, we consider that a buffer of 50m from Felston Road should be provided and have imposed this as a condition of consent.

Effects on water quality

- 12.19 The initial conclusion of Dr Freeman and other experts (as outlined in Reports 4A-F) was that given the significant level of uncertainties involved in, and technical concerns with, critical aspects of the MWRL/GHD assessment of the level of adverse effects, together with the lack of mitigation measures yet proposed by resource consent applicants means that it is premature to make adequate conclusions about the potential adverse cumulative effects.
- 12.20 However Environment Canterbury's technical experts audited a draft FEMP provided by Ms Begley at the hearing and considered that there was now a high level of certainty that the actual or potential adverse effects would be less than minor. Given the scale of development and the receiving environment, they suggested that on the basis of cumulative water quality effects, this application could be granted.
- 12.21 In regards to localised effects on water quality, Ms Begley advised the desk top FERA identified streams flowing through the property, tracking and the use of full cultivation as potential risks for this application. The final FEMP (November 2010) included the FERA and proposed the following Stage 3 mitigation measures designed to ameliorate site specific environmental risks:
- (a) Fence off the Streams that stock have access too for large periods of time, if the stock are not in these areas for large periods of time then a temporary fence may be erected to restrict access
 - (b) Culvert the diversion stream from the Scrubby Creek on the way up to the take point where it is crossed. Also the runoff from Camp Creek down the drive where it is crossed will also be culverted

- (c) Temporarily fencing the two small ponds located along the diversion creek while there is stock in the area,
- (d) Install riparian planting as detailed on a map attached to the FEMP
- (e) Apply a 20 m layback from any waterway when applying fertilizer using land-based spreaders,
- (f) Maintain a 5-11 m irrigation buffer from waterways,
- (g) Upgrade the take point from Scrubby Creek,
- (h) Upgrade the diversion point from the stream.

12.22 We are satisfied that with these measures in place, local effects on water quality will be minor.

12.23 In Part A of this decision we rejected the MWRL proposition that all consents sought in this hearing could be granted (with conditions) and without causing cumulative water quality effects. It is incumbent upon us, therefore, to consider (as far as is possible) whether granting this application, in combination with other water permits we grant, will lead to unacceptable water quality effects. In this case it means considering the potential effects of granting this application (in combination with others we grant) on:

- (a) The Haldon Arm of Lake Benmore;
- (b) Groundwater chemistry and in particular the proposed threshold of 1 mg/L NO₃-N; and
- (c) Periphyton and other ecological effects in Scrubby and Camp Creeks, and the foreshore of Lake Benmore adjacent to the irrigation area.

12.24 In Part A of this decision we concluded that the Haldon Arm of Lake Benmore would remain oligotrophic or better even if all applications within the Haldon Arm catchment were granted.

12.25 The depth to groundwater is unknown; however we accept Dr Bright's evidence (Part A) that any environmental effects due to elevated nitrate levels in groundwater would only be manifest by the interaction of groundwater with surface water. While there will be interaction of groundwater with surface streams crossing the irrigation area, this will be so close to the lake that effects should be minor; particularly as the application proposes irrigation laybacks, buffers, and riparian planting.

12.26 Neither the applicant nor MWRL presented periphyton data specific to this application. We think that given the close proximity of the irrigation area to the lake, that nuisance growths of periphyton are unlikely. However there may be opportunity for periphyton growth at the lake boundary. We are satisfied however that monitoring and conditions can manage this possibility.

12.27 We note that the irrigation area of this application comprises < 0.75% of the total farmed area on Totara Farm. We also note the majority of the farmed area is steep with the 38 ha irrigation area comprising more than half the flat land on the property. Put another way, nutrient losses arising from more than 99% of the farm do so from legally permitted activities. While the nutrient load from the irrigated area will be very much greater than that arising from dryland farming activities, its very small area means that the nutrient load relative to that arising from permitted activities is small. Even if we used a nitrogen leaching loss figure of 20 kg/ha (upper end of Dr Ryan's estimates for irrigated sheep and beef properties, the N load arising from the irrigated area would be < 760 kg/y, compared with the OVERSEER estimates of 11,306 kg/y for the whole property.

12.28 Given our conclusions (Part A) that the Haldon Arm will stay in an oligotrophic state even if all applications in the catchment were granted, and the small area of irrigation proposed in this application, we conclude that on the cumulative water quality effect contributed through the granting of this consent will be no more than minor.

Effect on Tangata Whenua Values

12.29 An assessment of potential adverse effects on Tangata Whenua Values has not been provided as the applicant provided a copy of a letter from the Waihao Runanga stating they did not consider themselves to be adversely affected. This position was conditional on similar approval of other

notified Runanga. Te Runanga o Arowhenua provided a letter stating they did not oppose the application, but sought a 10-year duration of consent.

- 12.30 Te Runanga o Ngāi Tahu in particular has submitted in opposition on all applications notified in 2007. It has concerns about the impacts of the applications on the cultural beliefs, values and practises of Ngāi Tahu.
- 12.31 Additionally, Lake Benmore is a Statutory Acknowledgement area, which provides for the recognition of Ngāi Tahu mana to be reflected in the management of resources that may impact on Lake Benmore. However the proposed irrigation area is not within a silent file area nor are there any archaeological sites nearby.
- 12.32 We consider that the effect of the proposed activity on cultural values, including the mahinga kai aspirations of Ngāi Tahu for the upper Haldon Arm, will be minor.

Effects of discharge

- 12.33 Ms Vesey and Ms Begley agreed that all the actual and potential effects of the discharge were minor and we concur with their assessments, provided that appropriate conditions are imposed addressing matters such as potential erosion and discolouration of Camp Creek.

Key conclusions on effects

- 12.34 In relation to the actual and potential effects of the proposal, our key conclusions are as follows.
- 12.35 With the proposed minimum flow and fish screen device, we are satisfied that effects on flows and ecosystems will be no more than minor.
- 12.36 We accept that the proposed annual volume is reasonable and efficient, but return to the efficiency of the distribution system in our discussion of the relevant planning framework.
- 12.37 If the method of spray irrigation is k-line, we think that mitigation measures, in terms of a buffer setback from Felston Road, are not required. If pivots are to be utilised, then we think that a 50 m setback is appropriate.
- 12.38 We conclude that with the mitigation measures proposed, particularly those in the FEMP, the effects of the proposed irrigation on water quality will be no more than minor.
- 12.39 We agree with the assessment of Ms Begley and Ms Vesey that the effects of the discharge to Camp Creek will be no more than minor. This being the case we are satisfied that cultural effects and impacts on tangata whenua will be no more than minor.
- 12.40 Overall, for this consent, we confirm that under s104(1)(a), the actual and potential effects of the proposed activity are acceptable when taking account the proposed mitigation.

13 EVALUATION OF RELEVANT PLANNING INSTRUMENTS

- 13.1 Under s 104(1)(b) of the RMA, we are required to have regard to the relevant provisions of a range of different planning instruments. Our Part A decision provides a broad assessment of those planning instruments and sets out the approach we have applied to identification and consideration of the relevant provisions. The following part of our decision should be read in combination with that Part A discussion.
- 13.2 In relation to the current applications, we consider that the most relevant and helpful provisions are found in the regional plans, including in particular the WCWARP and the NRRP. In addition, the Proposed and Operative CRPS and the relevant District Plans are of assistance in relation to landscape issues that arise.
- 13.3 The following sections of this decision provide our evaluation of the key objectives and policies from these planning instruments. We have organised our discussion in accordance with the key issues arising for this application.

Water quality

- 13.4 In relation to water quality the key documents we have considered are the WCWARP (incorporating the objectives of the PNRRP) and the operative NRRP provisions.

WCWARP

- 13.5 In relation to the WCWARP we consider that Objective 1 is the critical objective. In particular, Objective 1(b) seeks to safeguard life supporting capacity of rivers and lakes and Objective 1(d) seeks to safeguard the integrity, form, functioning and resilience of the braided river system.
- 13.6 We have determined that granting these consents with conditions (incorporating mitigations set out in the FEMP) will help to minimise nutrient loss from the irrigated area. The load arising from this activity will not cause (in combination with other consents we grant in the Haldon Arm catchment) more than minor effects of the trophic status of the Haldon Arm of Lake Benmore.
- 13.7 We are also satisfied that the activity, with mitigations, should not result in nuisance growths of periphyton in Scrubby Creek or Camp Creek.
- 13.8 Overall, we conclude that a grant of consent, with conditions, would be consistent with Objective 1(b) and 1(d) WCWARP.
- 13.9 Objective 1(c) requires us to manage waterbodies in a way that that maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy. Given our findings in terms of effects on water quality and periphyton growths, our view is that granting consent would be consistent with Objective 1(c).
- 13.10 We note that Objectives 2, 3, 4, and 5 are “in the round” deal with and provide for the allocation of water. The critical qualification is that water can be allocated provided that to do so is consistent with Objective 1. Given the findings we have made about Objective 1 we conclude that allocating water in terms of the balance objectives would be consistent with the overall scheme of the WCWARP. We reach this view taking into account the national and local costs and benefits (environmental, social, cultural and economic) of the proposal, as required by Objective 3.
- 13.11 Policy 13 links the WCWARP to the PNRRP (as it existed at the time) by requiring us to have regard to how the exercise of the consent could result in water quality objectives in the PNRRP not being achieved. As explained in our Part A decision, we have considered the objectives of the PNRRP and the now operative NRRP in relation to the current proposal. However we have generally given greater weight to the NRRP provisions on the basis that they represent the current approach for achieving the common goal of protecting water quality.

NRRP

- 13.12 Under the NRRP, Lake Benmore (including the Haldon Arm) is classified as an “Artificial On-River Lake” under the NRRP. Objective WQL1.2 of the NRRP seeks to ensure that the water quality of the lake is managed to at least achieve the outcomes specified in Table 6, including a maximum Trophic Level Index (“TLI”) of 3 (i.e. oligotrophic-mesotrophic boundary). For the reasons discussed above, we consider that granting consent to the proposal would be consistent with this objective and would not (in combination with others we grant) cause the TLI maximum to be breached.
- 13.13 Scrubby Creek is classified as “Alpine upland” and Camp Creek as “Hill-fed upland” under the NRRP. Objective WQL1.1 of the NRRP seeks to ensure that the water quality of such rivers is managed to at least achieve the outcomes specified in Table 5. A key indicator for these applications is that maximum chlorophyll-a in both alpine upland and hill-fed upland should be less than 50 mg /m². These water quality management units also have associated water quality standards for DRP and DIN (Table WQL16) 0.005 and 0.08 mg/L for alpine upland, and 0.006 and 0.21 for Hill-fed upland, respectively.
- 13.14 The agreed condition set contained a clause requiring the applicant to undertake one year of pre-irrigation monitoring to determine values for early warning and standard triggers. However since this condition was agreed the NRRP has become operative. The water quality classification for Scrubby and Camp Creeks defined by the plan make, in our view, the need to invoke the pre-

monitoring clause redundant. The classifications are what they are, and no amount of monitoring will change them.

- 13.15 We must have regard to the current provisions of the NRRP and therefore we have given considerable thought to the situation that applies to the Camp Creek. We note the following:
- (a) The lack of information on water quality and periphyton in Scrubby and Camp Creeks.
 - (b) The absence of other irrigation development in the catchment.
 - (c) The New Zealand Periphyton Guidelines, that we were provided with at the hearing and heard were a critical source for the NRRP specified outcome, provide for 50 mg/m² chlorophyll *a* as a guideline for oligotrophic streams with diverse "clean-water" benthic invertebrate communities.
- 13.16 After considering all the above factors we consider that the standard trigger for Camp Creek should be 50 mg/m² chlorophyll *a* together with water quality standards for DRP and DIN of 0.007 and 0.21 mg/L respectively, Because 50 mg/m² chlorophyll *a* is indicative of oligotrophic water quality, and also because the methodology for periphyton biomass estimation below this threshold is subject to significant error our view is that there is no case for having an early warning trigger. Thus we have modified the condition set to reflect this standard trigger and the provisions for reducing irrigated area in the event these conditions are breached.

Conclusions on water quality provisions

- 13.17 Overall then having regard to the scheme of the WCWARP and the NRRP we reach a conclusion that granting consent in this case would be consistent with the key objectives and policies of both of these plans relating to water quality.

Environmental flows and levels

- 13.18 Policies 2 – 8 and 41 deal with environmental flow and level regimes for the tributaries of Lake Benmore and link directly to Rule 2 and the environmental flow and level regimes outlined in Table 3. Policy 3 is incorporated in Policy 41(ii) and is therefore discussed under that policy. Policy 41 is a key policy in relation to the proposed application, as it outlines the values of the tributaries of Lake Benmore that the plan seeks to maintain when setting an environmental flow regime. The proposed minimum flow is consistent with that specified in row (xxii), Table 3 of the WCWARP. We consider the minimum flow will protect and give effect to the values discussed in the above policies.
- 13.19 Policy 7 requires when considering whether to grant or refuse consent to take, dam, divert or use water from streams where the mean annual low flow is less than 100 litres per second, that we must have regard to whether there are alternative locations for the activity on larger water bodies. In this case, the applicant seeks to divert and take water from Scrubby Creek. While no alternative supply has been considered in the AEE, the applicant is seeking to continue the irrigation practices as they have been previously operating. Lake Benmore is located directly adjacent to the irrigation area, however as mentioned before, the applicant has existing infrastructure they wish to utilise. We are satisfied that this is appropriate, notwithstanding the close proximity to Lake Benmore.
- 13.20 Policy 24 enables water to be taken for stock and domestic supply at times of low flow, provided certain limits are met. Conditions have been proposed to ensure consistency with this policy.

Efficient use and monitoring

- 13.21 Objective (4) of the WCWARP seeks to promote "*the achievement of a high level of technical efficiency in the use of allocated water*". In addition, Policy 16 requires us to consider whether the exercise of these consents would meet a reasonable use test in relation to both the instantaneous rate of abstraction and the annual volume for take, use, dam or divert. We are satisfied that the rates and annual volumes sought by the applicant reflect an efficient and effective use of water and that the reasonable use test can be met.
- 13.22 Policy 19 encourages the piping or sealing of water distribution systems to minimise water losses and maintain water quality, and where appropriate, requiring their progressive upgrade and piping "*where there is an environmental and/or economic net benefit for so doing*". As mentioned above, the applicant proposes to use the existing canal system to convey the water. Although

this is not as efficient as a piped system, we do not consider that there is sufficient environmental or economic benefit in this case to justify imposing a requirement for piping. Provided that a condition is included to ensure that the water races are well maintained to minimise losses, we are satisfied that the proposal would not be contrary to this policy

- 13.23 Policy 21 requires the installation and used of water-measuring and recording devices. In the final condition set we note that metering has been proposed. Provided that this metering and recording relates to minimum flows and the amount of water being diverted and taken, we accept that the proposal is consistent with this policy.

Landscape

- 13.24 We discussed the relevant objectives and policies for landscape in our Part A decision. In summary, these are primarily found in the proposed and operative CRPS and NRRP. In broad terms, these provisions seek the protection of outstanding natural landscape from inappropriate use and development.
- 13.25 In considering these provisions, we are informed by the provisions of the Waitaki District Plan, which identifies the applicant's property as being located within the Rural Scenic Zone provided for in the Plan. The relevant objectives and policies for that zone are supportive of farming and agricultural activity, including irrigation, provided that the amenity of the zone is maintained.
- 13.26 We note that after considering Planning Map 5 of the Waitaki District Plan entitled "Falstone-Ahuriri" that the site is surrounded by outstanding natural landscape areas. The Plan appears to provide that part of Lake Benmore is an outstanding natural landscape. We note in terms of Policy 16.8.3 that farming activities involving irrigation of land for pastoral or crop production are to be avoided within the outstanding natural landscape areas. However these same controls do not apply in the Rural Scenic Zone.
- 13.27 For the reasons already advanced, we think the landscape and amenity effects of this proposal are such that they are consistent with the relevant objectives and policies within both the District and Regional Plans in relation to landscape.

Tangata whenua

- 13.28 Objective 1(a) of the WCWARP relates to the integrity of mauri and is closely linked to Objective 1(b). If we are satisfied that the health of a particular water body is being safeguarded then the mauri is being safeguarded also.
- 13.29 Objective WQN1 from Chapter 5 of the NRRP seeks to enable present and future generations to access the regions surface water and groundwater resources to gain cultural, social, recreational, economic and other benefits, while (c) safeguarding their value for providing mahinga kai for Ngāi Tahu and (d) protecting wāhi tapu and other wāhi taonga of value to Ngāi Tahu. This objective aligns with the Ngāi Tahu philosophy "Ki Uta, Ki Tai", or recognising the interconnected nature of the Waitaki catchment and safeguarding the associated cultural values. In our assessment of effects for this application we consider that it is consistent with this objective.

Discharge

- 13.30 In relation to the discharge application, the key provisions of relevance can be found in the water quality chapter of the NRRP (Chapter 4). This includes Objective WQL1.1 discussed above, along with Policy WQL1, which relates specifically to point source discharges that may enter surface water. Based on our conclusions on the effects of the proposed discharge, we are satisfied that the proposal is consistent with these provisions.
- 13.31 We are also satisfied because of our finding in terms of effects and our view that the proposed discharge will be consistent with the above described provisions, that tangata whenua values will also be provided for and safeguarded by the grant of consent.

Key conclusions on planning instruments

- 13.32 For all of the above reasons we consider that, with the imposition of appropriate conditions granting consent would be consistent with the objectives and policies of the relevant plans. We have reached this conclusion taking into account the relevant planning provisions in respect of water quality, efficiency, environmental flows, landscape, and tangata whenua values.

- 14.1 Section 104(1) states that the matters which we have discussed above are subject to Part 2, which covers section 5 through section 8 inclusive. These sections are set out in full in our Part A decision and are discussed below in the context of the current applications.

Section 6 – Matters of National Importance

- 14.2 Section 6 identifies matters of national importance that we must “recognise and provide for” when making our decision, including in particular preserving the natural character of lakes and rivers (s6(a)), protecting outstanding natural features and landscapes (s6(b)) and the relationship of Māori with the environment (s6(e)).
- 14.3 In respect of s6 (a) we recognise that preservation of the natural character of lakes and rivers is the imperative. We think that because of our finding in terms of the water quality issues, which takes into account mitigation measures, the grant of consent recognises and provides for the preservation of the natural character of lakes and rivers.
- 14.4 In terms of s6(b), we have evaluated the natural features and landscape, primarily by reference to the relevant planning instruments. We reach the view that the grant of consent in this case is not inappropriate because it will not, in our view, diminish the natural features and landscapes such as they are in any significant way.
- 14.5 In terms of section 6(c), it is our view, taking into account the evidence received, that there are not areas of significant indigenous vegetation and significant habitats of indigenous fauna that are at risk thus requiring protection as a consequence of the grant of consent.
- 14.6 In relation to section 6(e) we are cognisant of the relationship that Ngāi Tahu hold with the natural resources of this area, and while no specific values were specified by Ngāi Tahu in relation to this application, we believe that the mitigation measures and conditions provide for the cultural relationship to this catchment that is of importance to Ngāi Tahu.
- 14.7 For the above reasons, we consider that granting consent to the proposal would recognise and provide for s6 matters, as we are required to do under the RMA.

Section 7 – Other Matters

- 14.8 Section 7 lists “*other*” matters that we shall “*have particular regard to*”. We make the following observations in relation to each of those matters as they are relevant to this application, referring to the sub paragraph numbers of s7:
- 14.9 Sub-section (a) refers to kaitiakitangā. We consider that the proposed activity with mitigation measures and conditions sits within the acceptable environmental parameters outlined by Ngāi Tahu such that that it will not cause distress to the function of kaitiakitangā.
- 14.10 Sub-sections (b), (c), and (f) are specifically relevant to this application. Sub-section (b) relates to the efficient use and development of natural and physical resources. Relevantly in this case is water. We have determined that the volumes of water we are prepared to grant and the methodology of its conveyance and distribution, results in the efficient use and development of the water resource.
- 14.11 Sub-section (c) refers to the maintenance and enhancement of amenity values. Maintenance and enhancement of amenity values will be achieved in this instance through utilising mitigation measures such as those provided in the FEMP. These steps will ensure the maintenance and enhancement of amenity values.
- 14.12 In terms of sub-section (d), because of the assessments we have made in relation to ecosystems, we have had particular regard to the intrinsic values of ecosystems and we consider that through the grant of consent with the conditions imposed such values will be safeguarded.
- 14.13 Sub-section (f) refers to the maintenance and enhancement of the quality of the environment. The applicant has proposed mitigation measures to ensure that this objective is achieved.
- 14.14 Having particular regard to the above matters in the context of section 7, we conclude that the grant of consent could be supported.

Section 8 – Treaty of Waitangi

- 14.15 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- 14.16 The cultural values of tangata whenua are appropriately recognised in the relevant planning documents applicable to the Mackenzie Basin sufficient to alert applicants to the need to address such values. We are satisfied that the notification of the appropriate Runangā and tribal authority has been followed and that the applicant was a contributor to the general assessment of the impact of irrigation activities on cultural values.
- 14.17 We are satisfied that the consultation procedures provided Ngāi Tahu with the opportunity to understand and respond to the proposed activity, albeit in conjunction with a large number of applications in the Mackenzie Basin.

Section 5 – Purpose of the RMA

- 14.18 Turning now to the overall purpose of the RMA, that is, “to promote the sustainable management of natural and physical resources”.
- 14.19 The proposal will allow the development of land to occur, which may provide for the economic and social well-being of the community. The applicant has proposed measures to “avoid, remedy or mitigate” the potential impacts on surface water quality as required in Section 5(2)(c).

15 OVERALL EVALUATION

- 15.1 Under s104B of the RMA, we have discretion as to whether or not to grant consent. This requires an overall judgment to achieve the purpose of the Act and is arrived at by:
- (a) Taking into account all the relevant matters identified under s 104;
 - (b) Avoiding consideration of any irrelevant matters;
 - (c) Giving different weight to the matters identified under s 104 — depending on our opinion as to how they are affected by the application of s 5(2)(a), (b), and (c) and ss 6-8 — to the particular facts of the case; and then in light of the above; and
 - (d) Allowing for comparison of conflicting considerations, the scale or degree of conflict, and their relative significance or proportion in the final outcome.
- 15.2 For the water permit application, the key issues relate to water quality. The applicant, though the mitigation measures proposed, does address the site specific environmental risks from the application of water to the site. The mitigation measures are, we think, site specific and well thought out. We have concluded that because of the applicant’s proposed comprehensive mitigation measures, including those contained in the FEMP for Totara Farming along with those we have chosen to impose, these measures will ensure that the adverse effects of the activity are not significant and the proposal is compatible and appropriate for the environment in which it is located.
- 15.3 Following on from our finding in Part A that all consents in the Haldon Arm could be granted without causing a more than minor effect on the trophic status of that waterbody, there are no other waterbody impediments to the granting of this consent.
- 15.4 Other factors in our consideration are the positive economic effects of the proposal in providing a more stable and reliable farming operation on this land. We have also given careful consideration to the potential effects on landscape values, both in isolation and in combination with other nearby proposed developments. We have concluded the effects of this activity are acceptable given the existing state of the land and its relatively low accessibility.
- 15.5 Having reviewed the application documents, all the submissions, taking into account the evidence to the hearing and taking into account all relevant provisions of the RMA and other relevant statutory instruments we have concluded that the outcome which best achieves the purpose of the Act is to grant consent.

16 CONDITIONS

- 16.1 Given our decision to grant consent, we have given careful consideration to the conditions that are necessary to avoid, remedy and mitigate the potential adverse effects of the proposal. The starting point we have used for this exercise is the final condition set provided by the applicant. This was the result of a collaborative process that occurred after the conclusion of the hearing, as described in our Part A decision.
- 16.2 The condition set provided to us includes comments on discrete issues from Council officers and several submitters. Where any such comments have been made, we have taken this into account when arriving at the final condition set. We are proceeding on the basis that the condition set provided to us incorporates all relevant conditions required by Meridian Energy as part of its derogation approval, which has been confirmed by legal counsel for Meridian.
- 16.3 We have made some modifications and additions to the condition set provided to us. However all modifications respect the conditions attaching to derogation approvals provided by Meridian. Several of these changes relate to matters discussed in the preceding sections of this decision to ensure that any concerns we have about potential effects are adequately addressed.
- 16.4 In addition, we make the following comments on conditions relating to nutrients and thresholds. We have incorporated the intent of these comments into the conditions attached to this decision.

Nutrients and thresholds

- 16.5 In Part A we rejected the MWRL proposition that we could grant all the applications before us with conditions.
- 16.6 Much of the evidence on conditions presented by all parties to this hearing centred on the issue of determining whether grantees in a particular subcatchment had breached the nutrient allowance at a particular node, and if they had, how ECan could determine either which consent holder had caused the breach and whether one or all consent holders needed to take corrective action.
- 16.7 In rejecting the MWRL case, which relied upon existing irrigators lessening their nutrient load so that there would be assimilative capacity for new irrigators, we need to record our approach to ensuring that consents we grant do not cumulatively result in the trophic level index (TLI) of Lake Benmore exceeding 2.75. As we recorded in Part A our view is that in the case of applications before us draining to the Haldon Arm we are confident that the TLI threshold will not be breached even if all applications for consent before us are granted.
- 16.8 In light of this conclusion, we considered whether or not any useful resource management purpose would be served by requiring those applicants draining into the Haldon Arm to monitor lake TLI. For replacement consents we consider that such a monitoring requirement would be excessive. However for applicants seeking new irrigation (particularly those that have proposed monitoring conditions), we consider that monitoring should take place.
- 16.9 Whilst the evidence strongly suggests that irrigation will not cause the TLI threshold to be breached, we consider it prudent for these applicants to monitor the principal resource potentially affected by their activities, to ensure this does not occur. If TLI were to increase above the agreed trigger points, then the lake monitoring conditions would serve a resource management purpose; particularly in conjunction with the condition to ratchet back existing irrigation.
- 16.10 In relation to streams and rivers, we recognise that streams and rivers in the catchment are nutrient limited by nitrogen and/or phosphorus. We consider that the NZ (MfE) Periphyton Guidelines provide appropriate thresholds for managing nuisance periphyton growths and provides another monitoring tool for not only ensuring that streams and rivers are suitable for recreation and provide suitable habitat for invertebrates and fish, but also provide another defence to downstream lake ecosystems. The reporting of breaches in periphyton guidelines together with correction mitigation actions, provide a tool to prevent excess nutrients reaching the lakes.
- 16.11 We recognise that that where leachate enters groundwater that does not discharge to streams or rivers prior to entering Lake Benmore, periphyton monitoring is not appropriate. However for the majority of the applications before us, there is a stream or river downstream that provides a logical focus for offsite monitoring efforts. The advantage of stream water quality

and periphyton monitoring is that it puts more emphasis on local monitoring and less emphasis on uncertain (given our findings on the WQS) modelling. We are of the view that as far as possible, consent monitoring should be related directly to the applicant's activities. We therefore support the downstream monitoring of Camp Creek and have imposed conditions to this effect.

17 DECISION

- 17.1 Pursuant to the powers delegated to us by the Canterbury Regional Council; and
- 17.2 For all of the above reasons and pursuant to sections 104 and 104B of the Resource Management Act 1991, we **GRANT** applications **CRC020584** and **CRC031315** by Totara Farming Co Limited for the following activities:
- CRC020584 - To divert surface water from Scrubby Creek into an irrigation race and to take and use water from the race for spray irrigation of up to 34 hectares of pasture and winter feed crops at McAughtries Road, Twizel, west of Lake Benmore.
- CRC031315 - To discharge unused water/surplus irrigation water into Camp Creek at McAughtries Road, Twizel, west of Lake Benmore
- 17.3 Pursuant to section 108 RMA, the grant of consent is subject to the conditions specified at **Appendices A and B**, which conditions form part of this decision and consent.
- 17.4 The duration of these consents shall be until the 30th April 2025.

DECISION DATED AT CHRISTCHURCH THIS 29TH DAY OF MARCH 2012

Signed by:

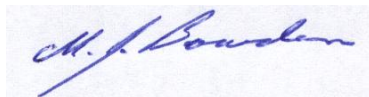
Paul Rogers



Dr James Cooke



Michael Bowden

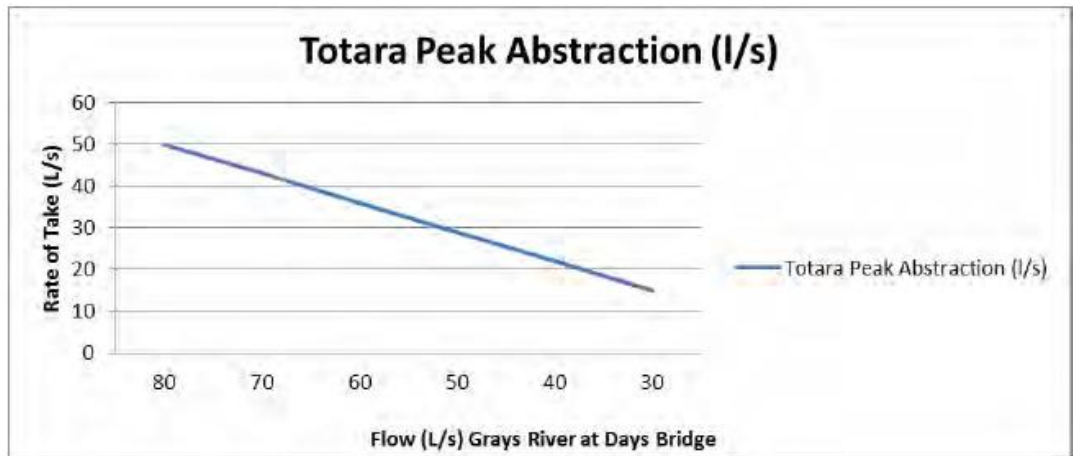


Edward Ellison



Diversion and take of water

1. Water shall only be diverted from Scrubby Creek at water abstraction point H39/0121 at or about map reference NZMS 260 H39:855-440 at a rate not exceeding 50 litres per second, with a volume not exceeding 4,320 cubic metres per day.
2. Water for irrigation shall only be taken from the water race between 1 September and the following 30 April at a rate not exceeding 19 litres per second, with a volume not exceeding 1,641.6 cubic metres per day (between 12am and 12am the following day) and an annual volume of 75,000 cubic metres (measured between 1 September and the following 30 April).
3. Whenever the flow in Scrubby Creek, as measured by the Canterbury Regional Council calculated as the mean flow for the previous 24 hour period (midnight to midnight) at map reference NZMS 260 H39:855-440:
 - (a) is equal or greater than 80 litres per second, the maximum rate of the diversion from Scrubby Creek must not exceed 50 litres per second;
 - (b) falls below the flow shown for irrigation on the horizontal axis of the Minimum Flow Graph attached to these conditions, then the rate of diversion permitted in terms of this permit shall not exceed those shown as corresponding flows on the vertical axis;



- (c) is equal to or less than 30 litres per second:
 - i. the maximum rate of diversion shall not exceed 15 litres per second and the taking of water for irrigation purposes shall cease;
 - ii. the consent holder shall ensure that the volume of water diverted and taken does not exceed 250 litres per person/per day based on the number of people being supplied at the time, the volume of water needed for actual stockwater needs at the time; and
 - iii. the consent holder shall record the number of people for which water is being provided in a log book kept for that purpose, and provide this to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, annually during the month of June or as requested.

Use of water

4. Water shall only be used for the spray irrigation of 34 hectares of crops and pasture for grazing stock excluding milking dairy cows within the area of land shown on attached **Plan CRC020584/CRC031315**, which forms part of this consent.

5. There shall be a minimum 5 metre setback, where there is no irrigation, from any permanently flowing waterways within the irrigation area marked on **Plan CRC020584/CRC031315**.
6. There shall be not less than a 20m setback where there is no irrigation from Lake Benmore.
7. There shall be no pivot irrigators located within 50m of Felston Road.
8. Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled "Agreement in Relation to the Allocation of Water for Irrigation" between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31st of October 2006.
9. The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the consent holder's solicitor certifying that the memorandum of encumbrance is registered on the computer registers for the land shown on **Plan CRC020584/CRC031315** and any other evidence of registration as the Canterbury Regional Council may require (if any).
10. The consent holder shall take all practicable steps to:
 - (a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and
 - (b) Avoid leakage from pipes and structures; and
 - (c) Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.
11. The consent holder shall ensure water races used to convey water diverted in terms of this permit are well maintained to minimise losses.

Water metering – Minimum flows

12. The consent holder shall, prior to exercising this consent, install:
 - (a) a water level measuring device in a stable reach of Scrubby Creek at map reference NZMS 260 H39:855-440 that will enable the determination of the continuous rate of flow in the reach of the water body to within accuracy of ten percent.
 - (b) a tamper-proof electronic recording device such as a data logger(s) that shall time stamp a pulse from the flow meter at least once every 15 minutes.
13. The measuring device shall be installed at a site that will retain a stable relationship between flow and water level. The measuring device shall be installed in accordance with the manufacturer's instructions.
14. The recording device(s) shall:
 - (a) be set to wrap the data from the measuring device such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and
 - (b) store the entire season's data in each 12-month period from 1 July to 30 June in the following year, which the consent holder shall then download and store and provide to the Canterbury Regional Council in a format and standard specified in the Canterbury Regional Council's form for Water Metering Data Collection; and be readily accessible to be downloaded by the Canterbury Regional Council or by a person authorised by the Canterbury Regional Council: RMA Compliance and Enforcement Manager; and
 - (c) shall be connected to a telemetry system that collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder.
15. The measuring and recording devices described in Condition 12 shall be available for inspection at all times by the Canterbury Regional Council.

16. Data from the recording device and the corresponding relationship between the water level and flow, and any changes in that relationship shall be provided to the Canterbury Regional Council annually in the month of June, and shall be accessible and available for downloading at all times by the Canterbury Regional Council.

Water metering – Diversion of water

17. The consent holder shall, prior to exercising this consent, install:
- (a) a water level measuring device in a location that will enable the determination of the continuous rate of flow and volume of water being diverted from Scrubby Stream to within an accuracy of ten percent; and
 - (b) a tamper-proof electronic recording device such as a data logger(s) that shall time stamp a pulse from the flow meter at least once every 15 minutes.
18. The measuring device shall, as far as is practicable, be installed at a site likely to retain a stable relationship between flow and water level. The measuring device shall be installed in accordance with the manufacturer's instructions.
19. All data from the recording device and the corresponding relationship between the water level and flow, shall be provided to the Canterbury Regional Council annually in the month of June, and shall be accessible and available for downloading at all times by the Canterbury Regional Council.

Water metering – Take of water

20. The consent holder shall, prior to exercising this consent, install at the point of take:
- (a) a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water from the irrigation race is measured; and
 - (b) a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes.
21. If the water meter specified in Condition 20 is not an electromagnetic or ultrasonic meter, the consent holder shall, prior to the first exercise of this consent install or make available an easily accessible straight pipe(s) at a location where the total water take is passing through, with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system, to allow the Canterbury Regional Council to conduct independent measurements.

Water metering - General

22. The measuring and recording device(s) specified in Conditions 17 and 20 shall:
- (a) be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording);
 - (b) store the entire season's data in each 12-month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council;
 - (c) unless certified by a suitably qualified person that telemetry is not feasible, be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder;
 - (d) be installed by a suitably qualified person in accordance with ISO 1100/1-1981 (or equivalent) and the manufacturer's instructions;

- (a) be maintained throughout the duration of the consent in accordance with the manufacturer's instructions; and
 - (b) be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.
23. No data in the recording device(s) shall be deliberately changed or deleted.
24. All practicable measures shall be taken to ensure that the water meter and recording device(s) specified in Conditions 17 and 20 are at all times fully functional and meet the accuracy standard stated in that condition.
25. Within one month of the installation of the measuring or recording device(s) specified in Conditions 12, 17 and 20 (or any subsequent replacement devices), the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
- (a) the measuring and recording device(s) is installed in accordance with the manufacturer's specifications; and
 - (b) data from the recording device(s) can be readily accessed and/or retrieved in accordance with these conditions.
26. At five yearly intervals or at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying that:
- (a) the water meter(s) is measuring the rate of water taken as specified in these conditions; and
 - (b) the tamper-proof electronic recording device is operating as specified in these conditions.

Fish Screen

27. Water shall only be taken when a fish screen with a maximum mesh width and height size of 3 millimetres or slot width and height of 2 millimetres is operated and maintained across the intake to ensure that fish and fish fry are prevented from passing through the intake screen.
28. The fish screen shall be positioned to ensure that there is unimpeded fish passage to and from the waterway and to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the screen face.
29. The fish screen shall be designed and installed to ensure that:
- (a) the majority of the screen surface is oriented parallel to the direction of water flow; and
 - (b) where practicable, the screen is positioned in the water column a minimum of 300 millimetres above the bed of the waterway and a minimum of one screen radius from the surface of the water; and
 - (c) the approach velocity perpendicular to the face of the screen shall not exceed 0.06 metres per second if no self-cleaning mechanism exists or 0.12 metres per second if a self-cleaning mechanism is operational; and
 - (d) the sweep velocity parallel to the face of the screen shall exceed the design approach velocity.
30. The fish screen shall be designed or supplied by a suitably qualified person with experience in freshwater ecology and fish screening techniques, who shall ensure that the design criteria specified in Conditions 27 to 29 inclusive of this consent is achieved. Prior to the installation of the fish screen, a report containing final design plans and illustrating how the fish screen will meet the required design criteria and an operation and maintenance plan for the fish screen shall be provided to Environment Canterbury, Attention: RMA Compliance and Enforcement Manager.

31. A certificate shall be provided to Environment Canterbury by the designer or supplier of the fish screen to certify that the fish screen has been installed in accordance with the details provided to Environment Canterbury in accordance with Conditions 27 to 29 inclusive of this consent.
32. The fish screen shall be maintained in good working order. Records shall be kept of all inspections and maintenance, and those records shall be provided to Environment Canterbury upon request.

Nutrient Loading

33. For the purposes of interpretation of the conditions of this consent Totara Peaks Station shall be defined as the areas in certificates of title and Pastoral Lease numbers OT13D/1087 (being all the land contained and described in Section 3 Block XIII Benmore Survey District) and OT2D/328 (Run 747), which total approximately 4,938 hectares.
34. The consent holder shall prepare once per year:
 - (a) an Overseer[®] nutrient budgeting model report not less than one month prior to the commencement of the irrigation season; and
 - (b) a report of the annual farm nutrient loading for Totara Peaks Station using the model Overseer[®] (AgResearch model version number 5.4.3 or later).
35. When undertaking the modelling outlined in Condition 34, the consent holder shall use either weather records collected on-farm or from constructed data from the nearest weather station.
36. A copy of the reports prepared in accordance with Condition 34 shall be given to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within one month of their completion.
37. The consent holder shall not commence annually irrigation under this consent unless the annual (1 July to 30 June) nutrient loading (the nutrient discharge allowances (NDAs)) as estimated in accordance with Condition 34 from Totara Peaks Station does not exceed 1341 kg of Nitrogen and 310 kg of Phosphorus. Where the NDAs have been reduced by the application of a receiving water quality nutrient trigger condition, the reduced NDA shall apply.
38. The NDAs, incorporating any reductions required by receiving water quality nutrient trigger conditions, shall be complied with from the commencement of consent.
39. Where Overseer, or Overseer modelling, is referred for the purposes of calculating or determining compliance with the NDA limits associated with activities on the property, it shall be undertaken by an independent person with an Advanced Sustainable Nutrient Management Certificate issued by Massey University or an equivalent qualification
40. The consent holder shall at all times comply with the Farm Environmental Management Plan (FEMP), in particular, the mitigation measures set out in section 5 of the FEMP for Totara Farming Station. A copy of the FEMP is attached to these conditions and marked **CRC020584-B** and forms part of these conditions.
41. Subject to Condition 40, the consent holder shall implement, and update annually the FEMP for Totara Peaks Station. The FEMP shall include:
 - (a) Verification of compliance with NDAs (incorporating any reductions required by receiving water quality nutrient trigger conditions) by farm nutrient modelling using the model Overseer (AgResearch model version number 5.4.3 or later).
 - (b) Implementation of Mandatory Good Agricultural Practices ("MGAPS") and requirements to manage in accordance with the Totara Peaks Station Overseer model inputs.
 - (c) The Overseer parameter inputs report, which shall be supplied to the Canterbury Regional Council.
 - (d) A property specific environmental risk assessment (including a description of the risks to water quality arising from the physical layout of the property and its operation which are not factored in as an Overseer parameter) prepared by a suitably qualified person which

identifies any farm specific environmental risks along with measures to mitigate the farm specific environmental risks.

- (e) A requirement to review the risk assessment if there are any significant changes in land use practice.
- 42. Detailed records shall be maintained of fertilizer application rates, types of crops (including winter feed/forage crops), cultivation methods, stock units by reference to type, breed and age, prediction of realistic crop yields that are used to determine crop requirements and all other inputs to the Overseer nutrient budgeting model.
- 43. A report on Overseer modelling shall be provided within one month of completion of the Overseer modelling by the person with the qualifications described in Condition 39 and no later than two months prior to the start of the next irrigation season to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager. The consent holder shall supply to the Canterbury Regional Council all model inputs relied upon for the annual Overseer® modelling.
- 44. Changes may be made to the Totara Peaks Station Overseer model inputs, provided that written certification is provided that the change is modelled using Overseer, and that the result of that modelling demonstrates that the NDAs are not exceeded. A copy of that certification plus a copy of the resultant Overseer parameter report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, prior to the implementation of that change.

Subdivision

- 45. The NDAs shall be recalculated if there is a sale or transfer of any part, but not the whole, of the total farm area of 4,938 hectares. The recalculated NDAs shall be undertaken to accurately redistribute the NDA between the resultant properties and shall replace the NDAs specified in Condition 37. The new NDAs may be recalculated on any proportion as long as the total of all the NDAs does not exceed the NDAs of the parent title as set out in Condition 37. The recalculation of the NDAs shall be undertaken and certified using Overseer, completed and provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager together with a copy of the full Parameter report, within one month of the sale or transfer.

Fertiliser and soil management

- 46. Fertiliser shall be managed and applied in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07' or any subsequent updates.
- 47. The consent holder shall keep a record of all fertiliser applications applied to the property, including fertiliser type, concentration, date and location of application, climatic conditions, mode of application and any report of the fertiliser contractor regarding the calibration of the spreader.
- 48. For land based spreading of fertiliser:
 - (a) where an independent fertiliser spreading contractor is used the consent holder shall keep a record of the contractor used, which can be supplied to the Canterbury Regional Council upon request; or
 - (b) where the applicant's own fertiliser spreaders are used, the consent holder shall test and calibrate the fertiliser spreaders at least annually, and every five years the fertiliser spreader will be certified by a suitably qualified person in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07' or any subsequent updates and the results of testing shall be provided to the Canterbury Regional Council upon request.
- 49. Nitrogen fertiliser shall not be applied to land between 31st May and 1st September.
- 50. All fertiliser brought onto the property which is not immediately applied to the land shall be stored in a covered area that incorporates all practicable measures to prevent the fertiliser entering waterways.

51. Applications of nitrogen fertiliser shall not exceed 50 kg nitrogen / hectare per application.
52. If liquid fertilisers, excluding liquid effluent, are stored on-site for more than three working days, the consent holder shall ensure that the fertiliser is stored in a bunded tank, at least 110% of the volume of the tank to avoid any discharge to surface or groundwater and such that it is also protected from vehicle movements.
53. Fertiliser filling areas shall not occur within 50 metres from a water course, spring or bore.
54. For land based spreading, fertiliser should not be applied within 20 metres of a watercourse.
55. Where practicable, the consent holder shall:
 - (a) use direct drilling as the principal method for establishing pastures; and
 - (b) sow and irrigate all cultivated areas within the irrigation area as soon as possible following ground disturbance.

Irrigation Infrastructure

56. The consent holder shall ensure that all new irrigation infrastructure (not on the property at the time of commencement of this consent) is:
 - (a) designed and certified by a suitably qualified independent expert holding a National Certificate in Irrigation Evaluation Level 4, and installed in accordance with the certified design. Copies of certified design documents shall be provided to the Canterbury Regional Council upon request; and
 - (b) tested within 12 months of the first installation of the new irrigation infrastructure and afterwards every five years in accordance with the 'Irrigation Code of Practice and Irrigation Design Standards, Irrigation NZ, March 2007' (code of practice) by a suitably qualified independent expert.
57. Within two months of the testing referred to in Condition 56(b) the expert shall prepare a report outlining their findings and shall identify any changes needed to comply with the code of practice. Any such changes shall be implemented within five years from the date of the report. A copy of the report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, within three months of the report being completed.
58. If existing irrigation infrastructure is being used, the consent holder shall obtain an evaluation report prepared by a suitably qualified person, on the following terms:
 - (a) The evaluation shall determine the system's current performance in accordance with the Code of Practice for Irrigation Evaluation.
 - (b) This report shall be obtained within three months of the first exercise of the consent.
 - (c) Any recommendations identified in the report shall be implemented within five years from the date of receipt of the report.
 - (d) A copy of the report shall be forwarded to the Canterbury Regional Council within three months of the report being completed.

Fertigation

59. If the irrigation system used in association with taking water in terms of this permit is to be used to distribute effluent, fertiliser or any other added contaminant, then one of the following shall be installed upstream of the point of addition of the effluent, fertiliser or other added contaminant:
 - (a) a reduced pressure zone device (RPZD), or
 - (b) a pressure vacuum breaker (PVB), or

- (c) an air gap backflow prevention system.
60. Installation of a RPZD or a PVB shall be in accordance with section 9 (PVB) or section 12 (RPZD) of Australian/New Zealand Standard AS/NZS 2845.1 Water supply - Backflow prevention devices, Part 1: Materials, design and performance requirements, or an equivalent standard.
61. An air gap backflow prevention system shall have an unobstructed vertical air gap separation of at least twice the diameter of the inlet pipe, from the lowest point of the inlet pipe to the flood level rim of the receptacle into which it discharges.
62. Field testing and maintenance shall be carried out of an RPZD or a PVB at commissioning of the use of the system for application of effluent or fertiliser and annually afterwards, in accordance with AS 2845.3 Water supply—Backflow prevention devices, Part 3: Field testing and maintenance, or an equivalent standard.
63. An air gap backflow prevention system shall be tested at commissioning and annually afterwards. Maintenance shall be undertaken as necessary to ensure that backflow prevention is effective.
64. Installation, testing and maintenance shall be undertaken by a certified irrigation evaluator. A report on the annual testing shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of initial commissioning and within two weeks of each annual testing. Each report shall be accompanied with the name, qualifications and experience of the person who undertook the installation, testing or maintenance

River water quality monitoring and response

65. The water quality of the Camp Creek shall be monitored from the commencement of the consent as follows:
- (a) The location for monitoring of Camp Creek shall be as follows unless minor changes are required to ensure that monitoring occurs upstream of all intakes and downstream of the irrigation area to appropriately monitor the localised river effects arising from the exercise of this consent:
- i. Map reference at or about NZMS 260 H39:855-433 upstream of the intake.
 - ii. Map reference at or about NZMS 260 H30:863-433 downstream of the irrigation on Totara Peaks Station before Lake Benmore.
- (b) Water quality variables monitored shall include:
- i. dissolved inorganic nitrogen (DIN);
 - ii. dissolved reactive phosphorus (DRP);
 - iii. dissolved oxygen;
 - iv. conductivity;
 - v. turbidity;
 - vi. periphyton biomass as chlorophyll *a* per square metre (chl *a*); and
 - vii. *E. Coli*.
- (c) This monitoring may be carried out on an individual basis, or may be prepared in collaboration with other consent holders, or on a collective basis by a suitable independent body appointed by all relevant consent holders in the sub catchment.
- (d) Frequency of monitoring: Once per month from 01 December to 30 April each year, with a minimum of three weeks between sampling.

- (e) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring river water quality and periphyton biomass. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.
 - (f) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person who demonstrates that they understand the appropriate methods to use for surface water quality sampling, including preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.
 - (g) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ.
 - (h) The results of all sampling shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.
66. If the monitoring undertaken in accordance with Condition 65 shows that the average sample result for the downstream monitoring site specified in Condition 65 over the period December to April is greater than 0.21 mg/L of DIN; or 0.007 mg/L DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then the consent holder shall commission a report into the cause of the breach of the environmental standard trigger.
67. The reports referred to in Condition 66 shall:
- (a) be prepared by an expert review panel consisting of two qualified and experienced independent scientists. One of the scientists shall be nominated by the Canterbury Regional Council, and the other shall be appointed by the consent holder; and
 - (b) include the experts' conclusion on whether the exceedance(s) were as a result of natural influences, one off events, or in whole or part by nutrient loss associated with the irrigation authorised by this consent; and
 - (c) include an assessment as to whether the exceedance measured by the monitoring is likely to continue; and
 - (d) be completed by 30 July following the sampling; and
 - (e) be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
68. If both the authors of the report prepared in accordance with Condition 66 conclude, after considering all the relevant available information, including on-site monitoring, sub-catchment monitoring, and catchment resource consent compliance and audit reports made available by the Canterbury Regional Council, that the cause of the breach of the environmental standard trigger was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent, then no further action needs to be undertaken by the consent holder.
69. If the report prepared in accordance with Condition 66 concludes that the environmental standard trigger has been exceeded because of farm land use practices, then:
- (a) the NDA, as specified in Condition 37, shall be reduced by 5% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (at the time of the exceedance) under this resource consent divided by the total farm area (i.e. 34 irrigated hectares divided by the total farm area of 4,938 hectares); and
 - (b) the consent holder shall prepare and implement a Remedial Action Plan in accordance with Condition 71(b).

70. If a required reduction in nutrient load is in effect under 69(a) and monitoring for that period shows that the average sample results for the downstream monitoring site over the period December to April is:
- (a) greater than 0.21 mg/L of DIN; or 0.007 mg/L DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then there shall be a further NDA reduction of 10% x IPF for the subsequent irrigation season.
 - (b) less than or equal to 0.21 mg/L of DIN; or 0.007 mg/l of DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then for the subsequent season no NDA reduction shall be required under this condition, and the full NDA for the property, as specified in Condition 37 shall be restored.
71. In relation to the Remedial Action Plan referred to in Condition 69(b):
- (a) It shall set out the methods and timeframes for altering and/or adapting farm land use practices to ensure that the exceedance in the environmental standard trigger, is returned as soon as practicable to and maintained below the average sample results of 0.21 mg/L of DIN; or 0.007 mg/L of DRP; or 50 mg chl *a*/ m² (environmental standard trigger) for the downstream monitoring site, over the period December to April.
 - (b) It shall be prepared by a suitably qualified and experienced person using Overseer or an equivalent method to demonstrate that the actions to be undertaken will achieve the necessary nutrient reductions as soon as practicable.
 - (c) If the Remedial Action Plan is prepared in collaboration with other consent holders who are required to prepare a Remedial Action Plan for this sub catchment a common Remedial Action Plan shall be deemed to comply with this condition.
 - (d) Any actions required by the Remedial Action Plan shall be incorporated into the consent holder's FEMP. The amended FEMP shall be implemented as soon as physically possible.
 - (e) The consent holder shall provide the Canterbury Regional Council with the Remedial Action Plan and an amended FEMP upon request.

Lake water quality monitoring and response

72. The water quality of the Haldon (Northern Arm of Lake Benmore and Lower Lake Benmore shall be monitored in accordance with this condition from the commencement of consent as follows:
- (a) Locations:
 - i. Haldon (Northern) Arm, Map reference: NZMS 260 H39:8823-3531 (NZTopo50 CA16:7828-7366)
 - ii. Lower Lake Benmore, Map reference: NZMS 260 H39:8802-2371 (NZTopo50 CA16:7808-6205)
 - (b) Depths: depth integrated 0-10m, 25m, 50m
 - (c) Water quality variables:
 - i. total nitrogen;
 - ii. ammonia;
 - iii. nitrate;
 - iv. nitrite;
 - v. total Kjeldahl nitrogen;
 - vi. total phosphorus;

- vii. dissolved reactive phosphorus;
 - viii. Secchi disc depth; and
 - ix. chlorophyll *a*.
- (d) Calculated key water quality variable: Trophic Lake Index (TLI), using the following equations:
- i. $TLc = 2.22 + 2.54 \log(\text{chlorophyll } a)$
 - ii. $TLp = 0.218 + 2.92 \log(\text{total phosphorus})$
 - iii. $TLn = -3.61 + 3.01 \log(\text{total nitrogen})$
 - iv. $TLI = \Sigma (TLc + TLp + TLn)/3$
- (e) Frequency of monitoring: Once per month from 01 December to 30 April each year, with a minimum of three weeks between sampling.
- (f) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring lake water quality. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.
- (g) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person that demonstrates that they understand the appropriate methods to use for lake water quality sampling, including depth integrated sampling, and preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.
- (h) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ and shall be capable of analysing the variables listed in subparagraph c above with detection limits generally recognised by the scientific community as appropriate for oligotrophic lakes.
- (i) The results of all sampling including the calculated average summer TLI, shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.
73. If the monitoring undertaken in accordance with Condition 72 shows that the average TLI for the 1 - 10 m depth integrated samples for either the Ahuriri Arm monitoring site or the Lower Benmore monitoring site over the period December to April is greater than 2.75 (early warning trigger) but does not exceed 3.0 (environmental standard trigger), then:
- (a) the NDA, as specified in Condition 37, shall be reduced by 5% x the Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (i.e. 34 irrigated hectares divided by the total farm area of 4937 hectares); and
 - (b) a report into the cause of the breach of the early warning trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
74. If a reduction in nutrient loading is required under Condition 73(a) and monitoring in the period that that reduction applies shows that the average TLI for the 1 - 10 m depth integrated samples for the monitoring site over the period December to April:
- (a) continues to be greater than 2.75 but does not exceed 3.0 then there shall be a further NDA reduction of 5% x IPF for the subsequent irrigation season.

- (b) is less than 2.75, then for the subsequent season the full NDA for the property, as specified in Condition 37 shall be restored.
75. If the monitoring undertaken in accordance with Condition 72 shows that the average TLI for the 1 - 10 m depth integrated samples for either the Ahuriri Arm monitoring site or the Lower Benmore monitoring site over the period December to April is greater than 3.0 (environmental standard trigger), then
- (a) the NDA, as specified in Condition 37, shall be reduced by 10% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (i.e. 34 irrigated hectares divided by the total farm area of 4937 hectares); and
- (b) a report into the cause of the breach of the environmental standard trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
76. If a reduction in nutrient loading is required under Condition 75(a) and monitoring in the period that that reduction applies shows that the average TLI for the 1 – 10 m depth integrated samples for either the Ahuriri Arm monitoring site or the Lower Benmore monitoring site over the period December to April:
- (a) continues to be greater than 3.0 then there shall be a further NDA reduction of 15% x IPF for the subsequent irrigation season and rising to 20% compounding reductions for any further irrigation season.
- (b) continues to be greater than 2.75 but does not exceed 3.0 then there shall be a further NDA reduction of 5% x IPF for the subsequent irrigation season.
- (c) is less than 2.75, then for the subsequent season the full NDA for the property, as specified in Condition 37 shall be restored.
77. The nutrient load reductions and investigation referred to in Conditions 73 to 76 inclusive shall not be required if a two person expert scientist panel (with one expert nominated by the Canterbury Regional Council) both conclude after considering all the relevant available information (including catchment resource consent compliance, FEMP compliance monitoring pertaining to this consent and audit reports made available by the Canterbury Regional Council) that the cause of the breach of the early warning trigger or environmental standard (as applicable) was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent.

Review of conditions

78. The Canterbury Regional Council may, once per year, on any of the last five working days of March or July serve notice of its intention to review the conditions of this resource consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is appropriate to deal with at a later stage, including (but not limited to) amending the flow in the Scrubby Creek at which abstraction is required to be reduced or discontinued.

Lapse

79. The lapsing date for the purposes of section 125 of the Resource Management Act shall be five years from the commencement of this consent.

Advice notes:

- *In relation to the lake monitoring required under Condition 72, it is anticipated that all consent holders subject to this condition would coordinate and cooperate together to ensure that the lake water quality monitoring is undertaken and the costs of that monitoring is shared between those consent holders. The Canterbury Regional Council may provide resources to facilitate that coordination and recover the costs of that facilitation from the relevant resource consent holders*

as a cost of supervising and administering the resource consents. Any non-compliance with water quality monitoring requirements would be a matter for all relevant consent holders and may be the subject of enforcement proceedings.

- *If any additional land use consents are required to carry out the proposed activity, those consents must be obtained before giving effect to this consent.*

Discharge of water

1. Water shall only be discharged from a man-made race into Camp Creek at map reference NZMS 260 H30:855-433, as shown on attached **Plan CRC020584/CRC031315**.
2. Water shall only be discharged at a rate not exceeding 50 litres per second.
3. Discharged water shall be unused conveyance water and shall contain no contaminants.

Operation and maintenance

4. All practicable measures shall be undertaken to avoid erosion of the bed or banks of the Camp Stream occurring as a result of the discharge.
5. In the event of any erosion occurring on the bed or banks of Camp Creek, as a result of the discharge, the consent holder shall be responsible for rectifying the situation as soon as practicable.
6. The discharge, after reasonable mixing, shall not cause a change in the colour or a reduction of the clarity of the receiving waterbody.

Administrative conditions

7. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.
8. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purpose of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
9. The lapsing date for the purposes of Section 125 of the Resource Management Act shall be 5 years from the commencement of this consent

