BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF	The Resource Management Act 1991
AND	
IN THE MATTER OF	an application by **Falconer, Macassey and Cook Allan Gibson Trustee Co. Limited** for a water permit filed under **CRC060253** to take and use surface-water from Coal Creek and Shepherds Creek for spray irrigation of up to 80 hectares of pasture and winter feed crops at McAughtries Road, Lake Benmore.

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 an application by **Falconer, Macassey and Cook Allan Gibson Trustee 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 Peak Valley Station is located at the end of Falstone Road and consists of 4,230 hectares (ha) on the western shores of the Haldon Arm of Lake Benmore. Within this property, 80 ha of flat land are irrigated for the purposes of growing pasture, and winter feed such as Lucerne and turnips. The property is stocked with up to 2,500 units present at any one time.

2.2 Water has been abstracted from Coal Creek and Shepherds Creek since 1991 for the irrigation of land within Peak Valley Station. In 1991, the consents authorising this water abstraction were held by Mr K A Falconer (CRC916762A, and CRC905195). These consents expired in 2000, and were replaced by consent CRC001119, which authorised the abstraction of a lesser volume of water than was authorised by the original consents. Consent CRC001119 was transferred to Falconer, Macassey and Cook Allan Gibson Trustee Company Limited in 2002 (CRC001119.1).

2.3 This current application for resource consent is to replace the previous consent authorising this activity (CRC001119.1), which expired in December 2005. Application CRC060253 was lodged in July 2005, (prior to the expiry of the previous consent) and the applicant has been continuing to operate since this time in accordance with section 124 of the RMA.

2.4 Water abstracted under the previous consent was diverted into races and applied to the irrigation area via wild flooding. This system is no longer used and has been replaced with a spray irrigation system. As a result, abstraction will occur at a reduced number of intakes from both creeks than what was authorized under CRC001119.1.

2.5 The applicant proposes to take and use water from three separate locations on Shepherds Creek (lower, middle and top intakes) and two locations on Coal Creek (lower and top intake). Water abstracted will be used to irrigate an area of 80 hectares of land at Peak Valley Station. Pasture will be grazed by non-dairy stock, such as sheep and cattle, with low-intensity stocking rates.

2.6 The maximum rate of take shall be 14 L/s from each Creek, with a combined annual volume not exceeding 356,000 m^3/yr. Water will only be taken from Shepherds Creek and Coal Creek, when the flows in Shepherds Creek, immediately downstream of the intake are greater than or equal to 60 L/s.

2.7 Water will be abstracted using a slotted 150 mm pipe placed on the riverbed at each intake location and gravity fed to the irrigation area via a pipe. The slot width of the intake pipe will be no greater than 5 mm in order to prevent fish from entering the pipe. Water meters and data loggers will be installed within the main pipeline for each creek so that the rate and volume of take can be measured and recorded.

2.8 The applicant does not have a reticulated stockwater system, and has not applied to take stockwater as a part of this consent. Stock drink water directly from the lake or from streams within the property. The annual volume requested in this application therefore is solely for irrigation purposes.

2.9 Figure 1 below illustrates the indicative location of the streams, the irrigation areas, and the intake points.

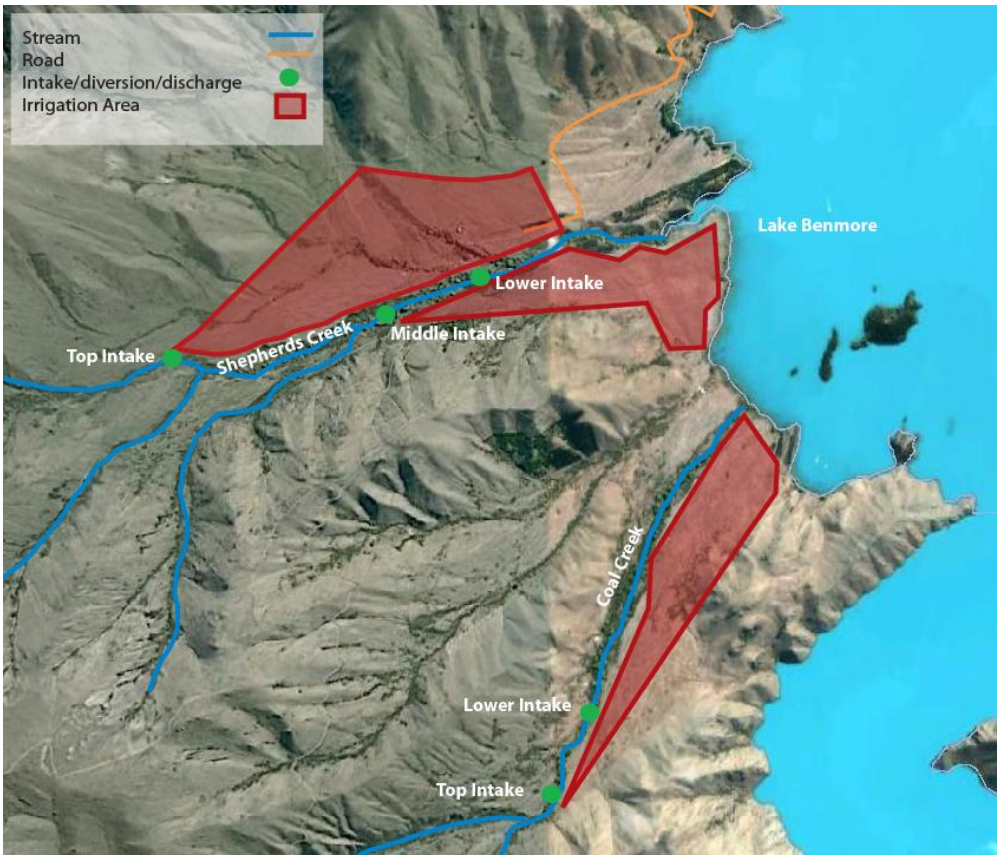


Figure 1: Indicative location plan

The application

2.10 The application is for a water permit to take and use surface water pursuant to section 14 of the RMA. Consent is required under the Waitaki Catchment Water Allocation Regional Plan (WCWARP), as discussed below.

2.11 The application (CRC060253) was lodged with the Canterbury Regional Council (the Council) on 26 July 2005 prior to the WCWARP becoming operative in July 2006. This application was publicly notified and there were a number of submissions that are referred to later in this decision. The application is for a 'replacement consent' and requested a term of 35 years.

2.12 The intakes are to be placed on the creek beds and will not result in any disturbance of the beds or banks of the creeks. On this basis land use consent under s13 of the RMA is not considered necessary. No discharges are associated with this system and therefore no consent under s15 of the RMA is required.

3 DESCRIPTION OF THE ENVIRONMENT

3.1 Shepherds Creek flows into Lake Benmore at a location approximately one kilometre north of Whanau Island.

3.2 The outlet of Coal Creek to Lake Benmore is located approximately 500 metres south of Whanau Island. However, Coal Creek often runs dry in the lower reaches in summer (as was the case during the site visit in February 2009).

3.3 Both Coal Creek and Shepherds Creek drain into the Eastern (or Haldon) Arm of Lake Benmore, therefore they will make a small contribution to the storage and outflow of Benmore dam, which is utilised by Meridian Energy Limited for power generation, and provides flow to the Lower Waitaki River.

3.4 Torrent fish, galaxiids, common and upland bullies are expected to occur in both streams (Hall, 2005). The AEE also states that these streams may provide spawning and rearing habitat for rainbow and brown trout.

3.5 There is a Department of Conservation site located at NZMS 260 H39:8649-3350, labelled 'Threatened Plants, (Carmichaelia kirkii)'. This site is approximately 200 metres north of the proposed lower intake site on Coal Creek. No native plant species were evident during the site visit by the Consent Investigating Officer.

3.6 There are no other consents or public roads within the vicinity of the proposed water take or irrigation area.

3.7 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.

3.8 We detailed our site visits in Part A and we do not repeat this information here. We did not carry out a ground site visit but observed the property during our fly over inspection

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 this application 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 activity, as set out below.

Status of the activity

4.3 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.

4.4 The following rules from the WCWARP are applicable to this application:

(a) Rule 2, clause (1a) provides that no person shall take, use, dam, or divert surface water unless the flow in the relevant river or stream is above the minimum flow in Table 3 of the WCWAARP. The applicant proposes a minimum flow of 60 L/s for Shepherds Creek that will be used as a minimum flow to control the abstraction from both Shepherds and Coal Creek, due to the strong correlation of flows between the two creeks. This flow represents the 5-year, 7-day low flow as assessed by the Canterbury Regional Council (Table 3, row (xxii)).

(b) Rule 6 – The activity is within the annual allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam.

(c) Rule 15 – Classifying rule, discretionary activity.

4.5 Overall, the proposal is a **discretionary activity** under Rule 15 of the WCWARP and resource consent is required in accordance with section 14 of the RMA.

5 NOTIFICATION AND SUBMISSIONS

5.1 The application was publicly notified on 4 August 2007 and sixteen submissions in total were received, including:

(a) 2 in support;

(b) 12 in opposition; and

(c) 2 neither in support nor opposition.

5.2 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.

Table 1. Summary of submissions on application CRC060253

Submitter	Reasons	Position
Fish and Game New Zealand	Appropriate minimum flows need to determined given the lack of existing hydrological for Coal Creek and Shepherds Creek. Abstraction should be within allocation limits.	Oppose
Meridian Energy Ltd	Water quality and metering.	Oppose

5.3 Transpower New Zealand did not submit on the application, however they provided advice to the applicant regarding safe operation practices near Transpower's transmission assets, because of the presence of transmission lines crossing the irrigation area (specifically the Benmore – Twizel A (ROX-TWZ-A_ 220 kV double circuit high voltage transmission line).

6 THE SECTION 42A REPORTS

6.1 The Council's Consent Investigating Officer, Ms Yvette Rodrigo, prepared a section 42A report on the application and submissions (Report 12).

6.2 The primary report was supported by a number of specialist s42A reports prepared by Messrs Heller, Hanson, Glasson, McNae and Stewart, and Drs Clothier, Schallenberg, 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. Specific points noted from the s42A report are summarised below.

6.4 Ms Rodrigo said that the application related to a replacement consent that if granted would authorise an existing activity in relation to the location of abstraction, the amount of water taken and the proposed size and location of the irrigation area. In addition, the applicant also proposed mitigation measures aimed to achieve the outcomes set by the WCWARP. These measures include:

(a) Converting from wild flooding to spray irrigation;

(b) Installing a water meter to monitor the takes from Shepherds Creek and Coal Creek;

(c) Ceasing abstraction when minimum flows in the creeks reach the 5-year, 7 day low flow; and

(d) Maintaining buffer distances between the irrigation area and Lake Benmore.

6.5 These measures were likely to improve the efficiency of the operation, while ensuring that amenity and landscape values are mitigated.

6.6 Ms Rodrigo said that the only outstanding issues relating to this application which would need to be discussed further at the hearing were:

(a) Surface water quality – The applicant has not yet provided information regarding any mitigation measures that will be implemented on the property to address the localised

and cumulative water quality impacts that could arise from irrigation at this site. The impacts on water quality may therefore not be acceptable; and

(b) Cultural impacts – The applicant has not provided a cultural impact assessment relating to the proposed activity. Submissions have been received on these impacts and runanga wish to be heard at the hearing.

6.7 Ms Rodrigo considered that the impacts on landscape values and Transpower assets could be mitigated, if the recommended conditions requiring appropriate separation distances were included. In addition she recommended the use of a fish screen consistent with the recommended guidelines.

6.8 Mr Rodrigo considered the applicant's proposal was generally consistent with relevant provisions of the RPS and WCWARP. However the proposal may, in her view, not be consistent with Policy 13 due to impacts on water quality that could arise as a result of irrigation.

7 THE APPLICANT'S CASE

7.1 Mr David Power, Consultant, appeared for the applicant at the hearing, and called one witness, Mr David Boraman, Hydrologist.

Mr David Power - Farmer/Consultant

7.2 Mr David Power is a farmer/consultant and part owner of the property. He holds a Bachelor of Commerce and a Masters of Applied Science

7.3 Mr Power described Peak Valley as a small hard dry Pastoral Lease of approximately 4230 hectares running about 1600 stock units (80% sheep, 20% cattle). The property was located at the end of Falstone Road approximately 30 kilometres east from the township of Twizel. Access for the last 10 kilometres was often heavy vehicle or 4WD only. He said that the property occupied the eastern end of the Benmore Range and ran from the Ahuriri Arm to the Northern Arm of Lake Benmore. Totara Peak a significant mountain and the eastern end of the mountain range were within the property. The property had 30 kilometres of lake frontage and several creeks.

7.4 Mr Power said that the property ranged from 370-1822m ASL; rainfall was typically less than 450 mm per annum. Less than 5% of the property was flat to easy rolling situated largely on the homestead area between Shepherds creek and Coal creek catchment's. The higher lands and dryer sunny faces were susceptible to wind and sheet erosion particularly once the vegetative cover became depleted. These areas were hieracium-dominant with moderate exposure to increased erosion. There was an element of reversion to tussock and heavy mixed scrub including sweet briar.

7.5 Mr Power said that the applicants sought a renewal of surface water takes from Shepherds Creek and Coal Creek, which were tributaries to the Northern Arm of Lake Benmore. Irrigation had changed from contour flooding and wild flooding to small spray irrigators supplied by a gravity system from the creeks. Minimum flow levels were proposed for the creeks. An area of 80 hectares could be reached by the scheme but variable water supply, topography, visual mitigation and soil type could limit this on an annual basis. Shepherds creek had the larger irrigation area and was localised around homestead and woolshed. Coal Creek irrigation area was more limited in scope.

7.6 The source of the water was within the property. They are steep creeks with large steep hill catchments. This made the creeks volatile in extreme rain events and because of that no permanent structures were being sought in the creeks.

<u>Effects on other water users</u>

7.7 Mr Power said that there were no other water abstractors either above or downstream of the proposed points of take. The applicant owns the land through which the creeks flow therefore these takes would not impact on any other water user or person who relied upon these creeks for other purposes such as stock and domestic water.

7.8 Further Mr Power noted that the applicant had gained derogation approval from Meridian Energy Ltd, 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

7.9 Mr Power proposed a minimum flow of 30 L/s for Coal Creek and 60 L/s for Shepherds Creek as measured below the point of take from Shepherds Creek.

7.10 Mr Power said that although no permanent structures were proposed, a 150 mm / 5 mm slotted PVC pipe and flexi hose were laid in the creek bed.

7.11 The 5 mm slot in the fish screen was acceptable, he said, because of the volatile nature of the creeks combined with organic matter from willow trees, shrubland, briar and gravel that invade the creek. Mr Power said that a smaller slot was more susceptible to blockage. He added that neither Canterbury Regional Council nor Fish and Game had identified Coal and Shepherds Creek as having any specific fishery values or habitat. The pipe would not obstruct fish passage or the natural flow of the creek.

Effects of inefficient water use

7.12 Mr Power said that the change from wild flooding to spray irrigation maximizes irrigation efficiency. The variables of supply and topography and soil type make for a mix of arable and intensive pasture irrigation. Soils were variable within the irrigation area ranging from heavy to medium to light.

7.13 Policy 21 of the WCWARP required all water takes to be metered. To ensure that this application was consistent with this policy, Mr Power proposed to meter their take.

Effects of the use of water on water quality

7.14 Mr Power said that Mackenzie Water Resources Limited had addressed cumulative effects on water quality through their Water Quality Study (WQS). The WQS had identified the Peak Valley surface catchments as the Northern Arm of Lake Benmore with no N and P mitigation required.

7.15 Dr Melissa Robson of Ryder Consulting has used OVERSEER to model outputs from the proposed farming system. The Water Quality Study (WQS) levels of N and P set for Peak Valley were largely organic with the existing farm losses as modelled by OVERSEER within the thresholds. The WQS threshold was 15400 kg/N and 350 kg/P, OVERSEER modelled losses of 9000 kg/N and 230 kg/P

7.16 The applicant was committed to implementing the "Mandatory Good Agricultural Practices" set out within the Farm Environmental Management Plan.

7.17 The FEMP identified several environmental risks at Peak Valley, including:

(a) Runoff from winter-feed crops to creeks or lake;

(b) Laybacks from waterways from fertilizer application;

(c) Fencing off creeks and lake;

(d) Wind erosion; and

(e) Supplement management.

7.18 Run off from winter-feed crops can be controlled by there being a buffer of land between crop and waterway. The topography of Peak Valley irrigation area assists with this, as the areas within 50-100m of the waterways are very rough with large boulders and many willow and matagouri. The creeks are fast flowing with large catchments and the land within the irrigable area falls away from the creeks therefore there is minimal risk if any of irrigation water finding its way to creeks. Of greater risk would be irrigation water migrating to the lake. However mitigation of runoff to the lake is addressed by a large buffer zone of 150 meters and more.

7.19 Mr Power said that layback from waterways from fertilizer application was also achieved by topography and trees and shrub-lands prevent trucks getting near waterways. 60 meters from waterways can be offered as a condition to mitigate any potential of fertilizer runoff and application to waterways.

7.20 Fencing off creeks was identified as a risk, but in the context of the scale of the property with 35 kilometres of lakefront and 15 kilometres of creeks, Mr Power said that fencing was impractical and unnecessary within the whole property. However fencing off waterways and dams within the irrigation areas was an achievable mitigation tool and was offered as a condition to mitigate any contamination of the waterways by stock within the irrigable area.

7.21 Wind erosion with these light soils was of concern. Minimum tillage was practiced through spraying and direct drilling by recognised contractors.

7.22 No supplements were made on the property with sheep nuts being brought in for ewe feeding. The N and P content of the brought in supplements has been factored into the OVERSEER model.

Monitoring and Auditing

7.23 Mr Power said that soil nutrient testing of the 6 paddocks within the irrigation area will be done 1 in 3 years with a standard set of soil nutrients, pH, C, N and organic matter being measured. On going monitoring and auditing of the FEMP were as important as the FEMP itself and will be undertaken by the farmer under the direction of best practice and good science.

7.24 Mr Power told us that the auditing process allows the farm operator to illustrate, and other interested parties to have confidence that the management practices and mitigations planned for the farm were being implemented. An annual audit was proposed and submitted with direction to ECan by end of July each year.

7.25 The FEMP has identified site-specific risks of fertilizer application and irrigation at Peak Valley and mitigation measures for those risks were outlined. Mr Power considered that mitigation of N and P losses were not required as the existing irrigation and faming system leaching of N and P was well below the thresholds set by the Water Quality Study for N and P.

7.26 The monitoring and auditing of this plan allows monitoring of identified on farm risks on an annual basis and allows for further management should non performance arise.

7.27 Given that the N and P thresholds from the MWRL study can be met and the applicant's commitment to best practice with the implementation of the FEMP, Mr Power concluded that the effects of the use of water on water quality for both the local receiving environment and cumulative effects were considered to be minor.

Effects on landscape values

7.28 Mr Power told us that Peak Valley has a long history of irrigation and this proposal was irrigating within those historic areas. It was acknowledged with Ms Rodrigo that the present area of irrigation was not a baseline activity it does however present an existing visual use within an area defined as significant landscape. ECan landscape Architect Chris Glasson suggested a buffer zone between the lake and irrigation area to mitigate any adverse effects of irrigation on landscape values. The applicant proposes a buffer zone of 300m between the lake and irrigation areas, which has been confirmed by Mr Glasson as being an appropriate distance to mitigate landscape effects arising from irrigation.

Effects on Tangata Whenua

7.29 In relation to effects on tangata whenua, Mr Power said that the Cultural Impact Assessment (MWRL) provides clear direction for applicants. This application gives protection to values and resources by fencing waterways and creating buffer zones next to creeks (60m, fertilizer)) and the lake (300m, visual/landscape). Minimum flow conditions and management of water quality (FEMP) ensure effects on the environment were minor. The applicant recognizes the protocols of accidental discovery as a condition of consent and the expectation of Kaitiaki Runanga.

Effects on Community and Amenity Values.

7.30 Mr Power said that the irrigation area and Coal and Shepherds creek were within the property and private. The Public uses the entire lake frontage and the 300m buffer zone allows for continued amenity use and protection of the lakeside amenity. No constraints to recreational access are created by the application. Water quality was enhanced and efficiency of water use from flood to spray protects and monitors (meters, FEMP) local resources. Therefore the effects on people and communities will be minor.

Policy 7 WCWARP

7.31 The commissioners sought clarification of the consideration the applicants had given to Policy 7 of the Waitaki Catchment Water Allocation Regional Plan. The policy provides that when considering whether to grant or refuse to take, dam, divert or use water from streams where the mean annual low flow was less 100 litres per second, the consent authority will have regard to whether there are alternative locations for the activity on larger water bodies.

7.32 Mr Power in reply said that Shepherds Creek and Coal Creek have minimum flow to protect in stream ecology also fish screens to prevent fish from entering intake pipes. No structures would impede fish passage in the creek as a 150 mm screened pipe was on the creek bed

7.33 Mr Power said that neither Shepherds Creek nor Coal Creek were recorded as having any specific fishery values or habitat. Also the only alternative source of water was from Lake Benmore, which would require significant pumping costs and construction by the lake edge. The nearest source of electricity was 15 kilometres away so diesel powered pumps would be required which could pose environmental hazards close to the lake

7.34 Mr Power said that the gravity fed spray irrigation system that used the creeks was efficient and economical to operate.

Mr Boraman - Hydrologist

7.35 Mr Boraman said that Peak Valley Station was located at the end of the Falstone Road on the western shores of the Haldon Arm of Lake Benmore. Boraman Consultants Ltd was engaged to carry out flow measurements in 2007; this was initially to determine what the flows were in both Shepherds Creek and Coal Creek. In 2009 he was engaged to propose a minimum flow for both creeks.

7.36 Both Coal and Shepherd Creeks drain directly into the Eastern or (Haldon) Arm of Lake Benmore. Both Catchments have an eastern aspect from the summit of Totara Peak. The catchment altitude ranges from 1822m down to Lake Benmore at approximately 360 m.

7.37 Coal Creek had a catchment area above the proposed point of take and monitoring point of 7.2 km^2 Shepherd Creek has a catchment area above the monitoring point of 18.4 km^2. There were no noted native species or wetlands within both Coal Creek and Shepherd Creek catchments.

7.38 Flow measurements carried out by Canterbury Regional Council staff in 2005 on Shepherds Creek by ECan were in a location not suitable for on-going monitoring of minimum flows, and could not be used for analysis due to instream losses and gains. Boraman Consultants Limited (BCL) carried out a flow measurement in February 2007 at the same location as the later flow measurements. BCL installed a permanent water level recorder at this location in February 2009.

7.39 In February 2009 BCL commenced a study into the hydrology of Shepherds Creek, between February 2009 and May 2009.

7.40 BCL derived a flow record utilizing a correlation with the measured instantaneous values of Shepherds Creek and the daily mean recorded value for the Rocky Gully Stream. The calculated R^2 for the correlation was 0.94 indicating good reliability. The correlation 'best fit' utilised 'Power' trend line, which is less desirable than the usual linear trend line. However given the limited dataset the 'power' equation was accepted.

7.41 Mr Boraman suggested that the proposed minimum flow be categorised as interim, and that future monitoring requirements would provide more information to improve the dataset.

Shepherds Creek

7.42 Mr Boraman's analyses supported his contention that the appropriate figure for the 5 year seven day low flow of Shepherds Creek at Peak Valley Culvert was 59 litres per second. However this could be a conservative estimate and with more data, it could be lower. He therefore recommended a minimum flow of 55 litres per second to be reviewed as soon as possible once a season had reached or surpassed the minimum flow.

Coal Creek

7.43 Mr Boraman's analyses also supported his estimate that the appropriate figure for the 5 year seven day low flow of Coal Creek at Peak Valley Top Intake was 29 litres per second. He said that again this was a conservative estimate and with more data could be lower. He recommended the use Shepherds Creek as a trigger minimum flow site for Coal Creek, as the two sites correlated exceptionally well.

8 SUBMITTERS

8.1 Set out below is the summary of the issues raised by submitters who appeared before us. We emphasise 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.

Meridian Energy Ltd

8.2 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.

8.3 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.

8.4 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.

Mr Frank Scarf (Fish & Game)

8.5 Mr Scarf said that subject to inclusion of a minimum flow condition requiring the grantee to cease taking water when flow immediately downstream of the intake reduces below 29 L/s on Coal Creek and 60 L/s on Shepherds Creek, then granting this application is supported.

8.6 Mr Scarf noted that Policy 8 of the WCWARP directs Council to consider alternative sources of water where applications seek to access water from streams having a MALF less than 100 L/s. This applies in this case however he concluded that taking into account the location and elevation of the irrigation areas and the likely costs of pumping water up from Lake Benmore, he was satisfied that the Lake Benmore solution was not a viable alternative.

Mr Paul Horgan (Ngāi Tahu)

8.7 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.

8.8 Mr Horgan told us that Ngāi Tahu had adopted two focal points against which they assessed the applications; the upper 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 in the catchment. He also told us it was an area where Ngāi Tahu propose to undertake mahinga kai restoration.

8.9 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.

8.10 We note that included in the "Visual Evidence" provided by Ngāi Tahu to the hearing was a map showing the approximate site of Māori Archaeological Sites recorded by the New Zealand Archaeological Association in the Upper Waitaki (Te Manahuna). Several recorded archaeological sites in proximity to Peak Station are likely to relate to the pre-Lake Benmore era and are now submerged many metres below the surface of the lake.

Dr Susan Walker (Mackenzie Guardians)

8.11 Dr Walker in Appendix 15 of her submission ranks the potential effects of this proposal on terrestrial biodiversity as high, but commented there was little current information on the terrestrial biodiversity of the property.

9 UPDATES TO THE SECTION 42A REPORTS

9.1 The original s42A report (report 12) identified surface water quality and cultural impacts as outstanding issues. The addendum s42A report did not identify additional maters raised during the hearing.

9.2 The addendum s42A report concluded that the potential effects on surface water quality resulting from the activity may be acceptable and that the application could be granted subject to confirmation of the reliability of the modelling and the implementation of appropriate conditions.

9.3 The addendum report also noted that provided the 300 metre buffer distance from the lake was included in conditions then there would be no landscape or amenity issues arising from the grant of consent.

10 APPLICANT'S RIGHT OF REPLY

10.1 Mr David Power in his right of reply agreed with the recommendations from Council officers in their reports in s42A addendums especially the recommendations of Yvette Rodrigo, Mike Freeman and Dave Stewart.

10.2 Mr Power referred to the submissions of Forest & Bird, Mackenzie Guardians, Aoraki Conservation Board and the Department of Conservation noting that these submitters had not submitted specifically against this application. He pointed out that this was a renewal and there had been many improvements over time particularly from the original contour flooding irrigation that had existed for many years. Although he made the point that the original contour flooding irrigation system could be considered a base line activity with some 30 – 40 years of irrigation history at this particular site.

10.3 He then turned his attention to the submission of Fish & Game. He referred to his request for a fish screen slot diameter of 5 mm as a consent condition. However he went on to note that the applicant would accept their recommendation of a 2 and 3 metre slot diameter depending on the fish screen design.

10.4 He then referred to the submission of Te Runanga O Ngāi Tahu acknowledging their history and association to the area and customary rights to Lake Benmore. He expressed the view that the application in the form proposed provides protection and enhancement of cultural values.

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 are:

(a) Water Quality

(b) Flows and ecosystems

(c) Effects on other water users

(d) Landscape

(e) Inefficient use

(f) Tangata Whenua values

(g) Positive effects

Water Quality

12.2 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 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 cumulative 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 trophic state of the Haldon Arm of Lake Benmore,

(b) groundwater chemistry and in particular the MWRL-proposed threshold of 1 mg/L NO3-N, and

(c) periphyton growth in Shepherds and Coal Creeks.

12.3 The applicants have proposed various mitigation measures to lessen the risk of their activities contributing to cumulative water quality effects. We need to consider whether the proposed mitigations, are sufficient to avoid a significant water quality problem occurring, and/or whether refinements to the measures proposed are required.

12.4 The ultimate receiving water (as far as this application is concerned) is the Haldon Arm of Lake Benmore. In Part A we determined that the Haldon Arm of Lake Benmore could assimilate an increased nutrient load from the granting of consents (with mitigation) and remain within an oligotrophic state. While we did not accept the MWRL proposition as a whole (that all consents could be granted) we did accept that the proposed (MWRL) increased nutrient load from irrigation would not cause a more than a minor effect to the Haldon Arm of Lake Benmore; mainly because of the high inflows from the Ōhau B canal and the concomitant relatively short residence time.

12.5 We have also accepted the proposition that effects of irrigation on groundwater may be considered minor where the NO_3-N concentration remains < 1 mg/L. This appears to be a reasonable interpretation of the PNRRP objectives for groundwater in the Mackenzie Basin, and there have been no challenges to it. We received no specific evidence on groundwater movement or depth on Peak Valley Station but from the topography (see Figure 1) we conclude that leachate from the irrigation area will migrate towards the Haldon Arm with a strong likelihood on entering the lower reaches of Shepherds and Coal Creeks, respectively.

12.6 As noted by Mr McIndoe, the purpose of the NO_3-N groundwater provisions in the NRRP is to protect surface waters. In this regard the main issue is the development of nuisance periphyton growths in Shepherds and Coal Creeks.

12.7 In Part A we rejected the MWRL proposition that we should allow a 25% increase in periphyton above that calculated as the current biomass in the WQS. Apart from its arbitrary development, we are of the view that to accept the 25% increase guideline is contrary to the NRRP; both the version at the time of this application, and the operative version, which has objectives to maintain or improve effects related to water quality, and not permit degradation. As noted in Part A we are of the view that the MfE periphyton guidelines are applicable in the Mackenzie Basin environment and should be used. We are, therefore, unable to accept the MWRL calculations with respect to limiting ecosystem.

12.8 We note that the applicant has not presented any evidence relating to existing periphyton biomass in either of these creeks.

12.9 We note that the FEMP (23/10/2009) describes the soils within the irrigation area as "Grampian and Dalgety soils a sandy silt loam of low water holding capacity and can be described as light." We therefore infer that OVERSEER modelling using the developed setting would likely underestimate true losses evidence of Dr's Snow and Monaghan, MWRL). This does not change our conclusions with respect to effects of the Haldon Arm, but we do think there should be monitoring conditions with respect to periphyton in the Shepherds and Coal Creeks, especially as Policy 8 of the WCWARP directs the alternative take sites should be considered for creeks with a MALF < 100 L/s.

12.10 We note that the applicant has agreed to setback distances, fencing and riparian planting as mitigation. We accept these measures as appropriate to the scale and nature of the proposal. We consider that with the additional safeguard of monitoring to ensure that maximum periphyton biomass threshold are not exceeded, the effects of the proposal on water quality will be minor.

Flows and ecosystems

12.11 A fish screen is proposed, however we aware that because of water velocities fine mesh screens are difficult to maintain. We consider that subject to the fish screening being consistent with the recommended conditions by the s42A reporter, the effects of the proposed take on ecosystems will be minor. We note from Mr Power's reply he accepts the recommendation of Fish & Game particularly in terms of slot sizing on the fish screens.

12.12 In terms of effects on aquatic ecology, we have referred to the various maps and plans provided by DoC, which provide an overview of threatened native fish values and species, none of which are located in proximity to the streams and rivers and/or adjacent to the application site. We consider that the proposed minimum flow for Shephards Creek (which applies to all takes) will protect instream values, flow variability and fish spawning.

Effects on other water users

12.13 The applicant sought to take water only when flows are in excess of the minimum flow. There are no other abstractors on these streams as they are contained within the applicant's property. Our opinion is that the effects on other users would be minor.

Landscape

12.14 The irrigation area is not visible from the State Highway but is visible from Lake Benmore, albeit to a limited degree. Mr Chris Glasson (investigating officer on landscape effects) concluded that because of the close proximity of the proposed irrigated areas to Lake Benmore and the lack of a buffer zone, and then the adverse effects of both sites would be moderate.

12.15 While the Peak Valley irrigation sites are located in an OLA, under the Waitaki District Plan there is an existing level of modification with farming activities and usage. We refer to the applicant's evidence that irrigation has been occurring on the command areas for some 30 – 40 years. In addition with the mitigation measures now proposed by the applicant, such as an extent of 300metre buffer back from the lake edge, we consider that the adverse landscape effects will be less than minor. We note that the location and size of the buffer accords with Mr Chris Glasson's landscape assessment and his recommendations in terms of conditions.

12.16 We will return to this the OLA issue when we discuss the relevant planning instruments.

Inefficient use

12.17 Mr Power said that the change from wild flooding to spray irrigation would maximize irrigation efficiency. He also said that the variables of supply, topography and soil type make for a mix of arable and intensive pasture irrigation. Soils were variable within the irrigation area ranging from heavy to medium to light. We concur that the annual volume proposed and the method of irrigation is an efficient use of water.

Tangata Whenua values

12.18 There were no property specific issues raised in the evidence of Ngāi Tahu relating to this proposal. Lake Benmore is a Statutory Acknowledgement area, which provides for the recognition of Ngāi Tahu mana to be reflected in the management of statutory areas. However the proposed irrigation area is not within a silent file area nor are there any (land based) "recorded" archaeological sites on the property or nearby.

12.19 The irrigation area is in a remote location with difficult physical access issues. Shepherd and Coal Creek have limited fishery values and appear not to support any active mahinga kai activity.

12.20 The nutrient loading from this proposed activity will drain to lower area of Haldon Arm of Lake Benmore some distance from the general area proposed for mahinga kai restoration by Ngāi Tahu. The potential for cumulative effects to arise from irrigation activities on the receiving waters of the Haldon Arm and those areas identified for mahinga kai restoration was a matter of concern to Ngāi Tahu.

12.21 This application is for a small scale existing activity that will use spray irrigation on a small proportion of the total property (2%). We are guided by our findings on the water quality effects section of this decision to the view that with the proposed mitigation measures and conditions that the effects on tangata whenua values will be minor.

Positive effects

12.22 The granting of these consents would result in significant economic benefits as well as positive environmental effects in terms of reducing/halting wind-borne soil erosion, and controlling invasive species over a significant area of land.

Key conclusions on effects

12.23 In relation to the actual and potential effects of the proposal, our key conclusions are as follows.

12.24 With the implementation of the mitigation measures proposed in the FEMP, which will be included within the conditions of consent, we consider the effects on water quality will be minor.

12.25 In relation to potential effects on ecosystems including in particular fish and terrestrial ecology we are satisfied any adverse effects of the proposal will not be significant.

12.26 We have given careful consideration to landscape values and we conclude with the low visibility of the site, its modified nature, the fact that irrigation has been occurring on site for some considerable distance, taking into account the 300metre buffer distance from the Lake, we conclude that landscape effects will be no more than minor.

12.27 On the issue of efficiency we are satisfied that the annual volume proposed and the method of irrigation is an efficient use of water.

12.28 In relation to potential effects on other water users we note two points. Firstly the applicant will only take water when flows are in excess of the minimum flow. Secondly there are no other abstractors on these streams they are contained within the applicant's property.

12.29 With the mitigation measures agreed by the applicant, and suitable monitoring conditions, we consider that the effects on the environment will be minor.

13 EVALUATION OF RELEVANT PLANNING INSTRUMENTS

13.1 Under s 104(1)(b) 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, which are which are water quality, environmental flow and level regimes, efficient use of water, landscape, and tangata whenua

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.

13.5 In relation to the WCWARP we considered that Objective 1 is the critical objective. In particular, Objective 1(b) seeks to safeguard life-supporting capacity of rivers and lakes and Objective (d) seeks to safeguard the integrity, form, function, and resilience of the braided 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 Shepherds Creek or Coal Creek provided there is a monitoring conditions requiring further mitigation in the event of thresholds being exceed.

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 maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy. Given our finding in terms of the likely results in the Haldon Arm of Lake Benmore then in our view granting consent would be consistent with Objective 1(c) and 1(b).

13.10 We note that Objectives 2, 3, 4 and 5 'in the round' deal with and provide for the allocation of water. However, the critical qualification is that water can be allocated provided that to do so it is consistent with Objective 1. Given the findings we have made about Objective 1, we must conclude that allocating water in terms of the balance objectives would be consistent with the overall scheme of the WCWARP. We have reached 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.

13.12 Under the NRRP, Coal Creek in the vicinity of the irrigation area is classified as Hill-fed upland. Shepherd's Creek is classified as partly Hill-fed upland and partly Alpine upland. 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 should be less than 50 mg /m^2. For alpine upland the accompanying performance standards with respect to DRP and DIN are 0.005 mg/L and 0.08 mg/L, respectively, whereas for hill-fed upland the equivalent performance standards are 0.006 mg/L and 0.21 mg/L, respectively.

13.13 We note that there has been no conditions relating to stream periphyton monitoring agreed between the Council and the applicant. However for reasons outlined in our evaluation of effects our view is that there should be. We must have regard to the current provisions of the NRRP, which are unequivocal with respect to water quality outcomes expected for Shepherds Creek and Coal Creek.

13.14 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/m^2 chlorophyll *a* as a guideline for oligotrophic streams with diverse "clean-water" benthic invertebrate communities. This would appear to Shepherds and Coal Creeks and the plan seeks to ensure this mains the case.

13.15 We consider that a standard maximum periphyton biomass trigger for Shepherds and Coal Creeks should be 50 mg/m^2 chlorophyll a together with water quality performance standards for DRP and DIN of 0.006 and 0.21 mg/l respectively, Because 50 mg/m^2 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.

13.16 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) caused the TLI maximum to be breached.

13.17 Overall then, having regard to the scheme of the WCWARP and the NRRP, we reach a conclusion that granting consent with appropriate conditions would be consistent with the key objectives and policies of those plans in relation to water quality.

Environmental flow and level regimes

13.18 Policies 2 – 8 deal with minimum flows for the East Branch Ahuriri. In particular, Policies 3 and 4 outline the values that must be maintained in the water bodies, and a number of matters that must be considered when setting an environmental flow and level regime, and are particularly relevant to this application. As the applicant is proposing to adopt the minimum flow required by the WCWARP Table 3 Row xxii, we are satisfied that the proposal is consistent with these policies.

13.19 Policy 7 of the WCWARP states that when considering whether to grant or refuse to take dam divert or use water from streams where the mean annual low flow was less 100 litres per second, the consent authority will have regard to whether there are alternative locations for the activity on larger water bodies. WE have considered the evidence provided in respect of taking water directly from Lake Benmore and agree that this is not a practical or viable option in the circumstances.

Efficient use of water

13.20 Policies 15 – 20 provide for an efficient use of water so that net benefits are derived from its use and are maximised and waste minimised. In particular, 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. As discussed in our evaluation of effects, we are satisfied that the rates and annual volumes reflect an efficient and effective use of water and that the reasonable use test can be met.

13.21 Objective 4 of the WCWARP requires us to promote the achievement of a high level of technical efficiency in the use of allocated water. Application by spray within the constraints of an annual volume will require a high degree of efficiency to ensure that crops and pasture are not stressed in extreme conditions and water is not wasted.

13.22 Relevant in this circumstance because we are here considering a replacement application, is Policy 28. Under this policy we need to consider whether the applicant has made all reasonable attempts to meet the efficiency expectations of this plan. We must recognise the value of investment that the existing consent holder has made and we must maintain the inclusion of the consent if granted in any allocation limits and priority plans on the waterbody concerned. Based

on the proposal presented to us including application by spray and metering, we conclude that the applicant has taken all reasonable attempts to meet the efficiency expectations of the Plan.

Landscape

13.23 We discuss 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 the NRRP. In broad terms, these provisions seek the protection of outstanding natural landscapes from inappropriate use and development.

13.24 In considering these provisions, we are informed by the provisions of the Waitaki District Plan, which identifies the applicant's property as being within both a Rural zoning and also affected by an Outstanding Natural Landscape overlay over part of the application site.

13.25 Referring to Figure 1 the northern most irrigation area is included within the rural zone. However the southern most irrigation area while it has an underlining zoning of rural it has an overlay of outstanding natural landscape.

13.26 We have gained this information from planning map 7 in the Waitaki District Plan. That causes some level of concern in that part of the activity is affected by this outstanding natural landscape overlay. Rule 4.3.4 provides that forestry and irrigation within outstanding natural landscape areas are non-complying activities.

13.27 The landscape objective 16.8.2 provides relevantly that use and development is managed so that the values identified for the outstanding or significant natural features, outstanding landscapes are protected from inappropriate use and development in other words s6(b). We also note policy 16.8.3(j), which provides that farming activities involving irrigation of land for partial or cropping production are to be avoided within the outstanding natural landscapes. We have already mentioned the point that the applicant has told us that irrigation in one form or another has been occurring at Peak Valley for some 30 – 40 years, He was not precise in confirming that irrigation was occurring on the command irrigation areas now before us but that is what we have presumed.

13.28 In any event we are here granting consent to take and use water. If a non-complying activity status consent is required for the irrigation activity under the Waitaki Plan then that is a matter for the applicant and the Waitaki District Council to resolve.

13.29 In terms of our assessment in respect of the impacts on landscape values and amenity issued for the reasons already advanced, we agree with Mr Glasson that a buffer zone between the lake and irrigation area would mitigate any adverse effects of irrigation on landscape values. The applicant proposed a buffer zone of 300m between the lake and irrigation areas, which has been confirmed by Mr Glasson as being an appropriate distance to mitigate landscape effects arising from irrigation.

Tangata Whenua

13.30 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 mauri is being safeguarded also.

13.31 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.

13.32 Objective WTL1(a) and (d) from Chapter 7 of the NRRP seeks to achieve no overall reduction in the contribution wetlands to the relationship of Ngāi Tahu and their culture and traditions with their ancestral lands, water, mahinga kai sites, wāhi tapu and wāhi taonga. No localised wetlands of significance to Ngāi Tahu have been identified as likely to be adversely affected by this application; as such we find that this proposal is consistent with this Objective.

Key conclusions on planning instruments

13.33 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 EVALUATION OF OTHER RELEVANT S104 MATTERS

14.1 Under s104(1)(c), we are required to have regard to any other matter that we consider to be relevant and reasonably necessary to determine the application. After hearing all the relevant evidence, we consider that no such matters exist in relation to this application.

15 PART 2 RMA

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

Section 6 – Matters of National Importance

15.2 Sections 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)).

15.3 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.

15.4 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. This is especially so having regard to the 300metre buffer back from the lake and the fact that irrigation activity has been occurring on the site for a considerable period of time.

15.5 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.

15.6 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.

15.7 For the above reasons, we consider that granting consent to the proposal would recognise and provide for s6 maters, as we are required to do under the RMA.

Section 7 – Other Matters

15.8 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:

15.9 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.

15.10 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.

15.11 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. The buffer back from the Lake of some 300meteres will also help maintain and enhance amenity values particularly of the lake and the immediate lake shore area. .

15.12 In terms of sub-section (d), we have had particular regard to the intrinsic values of ecosystems and consider that through the grant of consent with the conditions imposed such values will be safeguarded.

15.13 No specific sites or values of cultural significance were identified by Ngāi Tahu or the applicant relating to this proposal. However, the potential for adverse impacts on Shepherd and Coal Creeks and the receiving waters of the Haldon Arm are relevant issues. Our view is that the activity with the proposed mitigation and conditions will be consistent with s6(e).

15.14 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.

15.15 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

15.16 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

15.17 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.

15.18 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

15.19 Turning now to the overall purpose of the RMA, that is, "to promote the sustainable management of natural and physical resources".

15.20 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 at the same time proposed measures to *"avoid, remedy or mitigate"* the potential impacts on the ecosystems, water quality, amenity and landscape values as required in terms of s5(2)(c).

16 OVERALL EVALUATION

16.1 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.

16.2 Following 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 water body, there are no other water quality impediments to the grant of consent.

16.3 Other factors in our consideration were the positive economic effects of the proposal in providing for a more efficient, stable and reliable farming operation. We have also given careful consideration to the potential effects on landscape values both in isolation and combination with nearby proposed developments. We have concluded that the effects of the activity are acceptable given the existing state of the land, its relative low visibility and in particular the provision of the mitigation by a buffer from the Lake.

16.4 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.

17 CONDITIONS

17.1 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.

17.2 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.

17.3 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.

17.4 In addition, we make the following comments on conditions relating to nutrients and thresholds. These comments are written in a general style that applies to all applications before us. However they are directly relevant to this application. We have incorporated the intent of these comments into the conditions attached to this decision.

Nutrients and thresholds

17.5 In Part A we rejected the MWRL proposition that we could grant all the applications before us with conditions.

17.6 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.

17.7 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.

17.8 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 monitoring lake TLI. For replacement consents where effects are minor or very small areas of new irrigation, we consider that such a monitoring requirement would be excessive. However for applicants seeking sizeable areas of new irrigation (particularly those that have proposed monitoring conditions), we consider that monitoring should take place. As this is a replacement consent, we carefully considered whether lake monitoring would serve a useful purpose.

17.9 We note that the applicant and ECan agreed on lake monitoring conditions but not on stream monitoring conditions. We prefer the reverse approach whereby the applicant monitors water quality in the streams adjacent to their irrigation area, thereby providing a more local context to the effects of their activities. Our view is that if the applicant meets the stream monitoring

conditions, then any effects on the lake will be less than minor. In addition, we think that as the stream concerned are now classified under the operative NRRP it is sensible to ensure that the water quality thresholds specified under that classification are being met. We have therefore decided to include stream monitoring conditions, but exclude lake monitoring.

17.10 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 corrective mitigation actions, provide a tool to prevent excess nutrients reaching the lakes.

18 DURATION

18.1 As a replacement consent, this applicant has sought a consent duration of 35 years. However Meridian, through Mr Turner, suggests that there are benefits in having a common expiry date for all consents to take water within the catchment to do with assessing cumulative effects.

18.2 To determine this issue we have referred to and applied the approach set out within the NRRP, Chapter 1, Section 1.3.5, which sets out some considerations that impact on duration. In particular we have placed weight on the following matters there referred to:

(a) the nature and sensitivity of the affected environment, including:

(i) the degree to which the sensitivity of the affected environment may become more sensitive over time; and

(ii) the probability of future adverse effects arising from the consented activity; and

(iii) the level of knowledge about the affected environment;

18.3 Section 1.3.5 contains a range of other guidance criteria, which includes the consent holder's capital investment in a pre-existing activity. However, we think that the nature and sensitivity of the affected environment plus the three criteria we have listed above are the most significant.

18.4 In relation to those applications affecting the Ahuriri Arm of Lake Benmore, we imposed a common duration of April 2025 due to the sensitivity of the affected environment, namely the Ahuriri Arm, and the level of knowledge about the affected environment. However, for the reasons given in our evaluation of water quality effects, we do not think that this same consideration applies to application such as this draining to the Haldon Arm. We have therefore granted the consent with a duration of 35 years as sought by the applicant.

19 DECISION

19.1 Pursuant to the powers delegated to us by the Canterbury Regional Council:

19.2 For all of the above reasons and pursuant to sections 104 and 104B of the Resource Management Act 1991, we **GRANT** application CRC060253 by **Falconer, McCassey & Cook Allan Gibson Trustee Co Limited** for the following activity:

to take and use water from Coal Creek and Shepherds Creek for the spray irrigation of 80 hectares on Peak Valley Station

19.3 Pursuant to section 108 RMA, the grant of consent is subject to the conditions specified at **Appendix A**, which conditions form part of this decision and consent

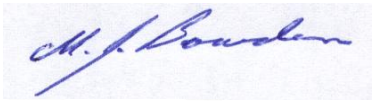
19.4 The duration of this consent shall be 35 years from the commencement of consent.

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 taken from

   (a) Shepherds Creek, at or about map reference NZMS 260 H39:848-350, H39:858-353 and H39:861-355; and

   (b) Coal Creek at or about map reference NZMS 260 H9:864-328 and H39:869-342

   at a rate not exceeding 14 litres per second from each creek and with a combined volume not exceeding 356,000 cubic metres per year between 1 July and the following 30 June.

2. Whenever the flow in Shepherd's Creek , as estimated by the Canterbury Regional Council calculated as the mean flow for the previous 24 hour period (midnight to midnight) at map reference NZMS 260 H39:866-356 is equal to or less than 60 litres per second the taking of water from both Shepherds Creek and Coal Creek for irrigation purposes shall cease.

Use of water

3. Water shall only be used for spray irrigation of winter feed and crops and pasture for grazing sheep and cattle within a command area of 80 hectares as shown on attached **Plan CRC060253-A** which forms part of this consent.

4. 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.

5. 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.

6. 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 CRC060253-A** and any other evidence of registration as the Canterbury Regional Council may require (if any).

Site Specific Conditions

7. Within or immediately adjacent to the irrigation areas shown on attached **Plan CRC060253-A** area there shall be no grazing riparian margin of at least 10 metres width maintained adjacent to all rivers or streams.

8. There shall be a landscape buffer margin of at least 300 metres width maintained adjacent to Lake Benmore within which there shall be no irrigation.

9. Within or immediately adjacent to the irrigation areas stock shall be excluded from entering any service water bodies on the property by fencing or other effective means.

10. The consent holder shall ensure that the 10 metre riparian margins adjacent to irrigation areas are planted and maintained with appropriate plant species. The planting shall consist of, but not limited to:

(a) Trees and shrubs along the outer zone of the riparian area; and

(b) Sedges, flaxes, indigenous grasses along the stream margins.

11. Within or immediately adjacent to the irrigation areas there shall be no application of water or fertiliser to land within 60 metres of any river, stream or lake.

12. Applications of nitrogen fertiliser shall not exceed 50 kg nitrogen per hectare per application.

13. Any silage made from the irrigation areas shall be managed to avoid any unauthorised discharges of silage liquor.

Transpower Infrastructure

14. The consent holder shall, in relation to any Transpower structures or Transpower transmission lines:

(a) Prevent the spray of water onto conductors by adjusting nozzles, turning jets off when the irrigator boom passes by the towers and keeping the irrigator boom away from conductors.

(b) Ensure the placement of structures, buildings, planting of trees or encroaching vegetation comply with the set back distances described in the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).

Water metering – Minimum flows

15. The consent holder shall, prior to exercising this consent, install:

(a) a water level measuring device in a stable reach of Shepherds Creek at map reference NZMS 260 H39:866356 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.

16. 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.

17. 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.

18. The measuring and recording devices described in Condition 15 shall be available for inspection at all times by the Canterbury Regional Council.

Water metering – Take of water

19. The consent holder shall, prior to exercising this consent, install:

(a) water meters that have 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 both Shepherd Creek and Coal Creek is measured; and

(b) tamper-proof electronic recording devices such as data loggers that shall record (or log) the flow totals every 15 minutes.

20. If the water meters specified in Condition 19(a) 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.

21. The measuring and recording device(s) specified in Condition 19 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) 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.

22. No data in the recording device(s) shall be deliberately changed or deleted.

23. All practicable measures shall be taken to ensure that the water meter and recording device(s) specified in Condition 19 are at all times fully functional and meet the accuracy standard stated in that condition.

Water metering – Compliance Checks

24. Within one month of the installation of the measuring or recording device(s) specified in Conditions 15 and 19 (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.

25. 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

26. 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.

27. 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.

28. 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.

29. The fish screen shall be designed or supplied by a suitably qualified person who shall ensure that the design criteria specified in Conditions 26 to 28 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.

30. 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 26 to 28 inclusive of this consent.

31. 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

32. For the purposes of interpretation of the conditions of this consent Peak Valley Station shall be defined as the areas in certificates of title and Pastoral Lease numbers Run 746, SO13930, which total 4,228 hectares.

33. 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 Peak Valley Station using the model Overseer® (AgResearch model version number 5.4.3 or later).

34. When undertaking the modelling outlined in Condition 33, the consent holder shall use either weather records collected on-farm or from constructed data from the nearest weather station.

35. A copy of the reports prepared in accordance with Condition 33 shall be given to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within one month of their completion.

36. 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 33 from Peak Valley Station does not exceed 9056 kg of Nitrogen and 231 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.

37. The NDAs, incorporating any reductions required by receiving water quality nutrient trigger conditions, shall be complied with from the commencement of consent.

38. 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

39. The consent holder shall at all times comply with the Farm Environmental Management Plan (FEMP) for Peak Valley Station, a copy of which is attached to these conditions and marked **CRC060253-B** and forms part of these conditions.

40. Subject to Condition 39, the consent holder shall implement, and update annually the FEMP for Peak Valley 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 Peak Valley 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.

41. 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.

42. 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 38 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.

43. Changes may be made to the Peak Valley 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

44. 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 4228 hectares. The recalculated NDAs shall be undertaken to accurately redistribute the NDA between the resultant properties and shall replace the NDAs specified in Condition 36. 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 36. 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

45. 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.

46. 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.

47. 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.

48. Nitrogen fertiliser shall not be applied to land between 31st May and 1st September.

49. 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.

50. Applications of nitrogen fertiliser shall not exceed 50 kg nitrogen / hectare per application.

51. 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.

52. Fertiliser filling areas shall not occur within 50 metres from a water course, spring or bore.

53. For land based spreading, fertiliser should not be applied within 20 metres of a watercourse.

54. 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

55. 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.

56. Within two months of the testing referred to in Condition 55(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.

57. 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

58. 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.

59. 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.

60. 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.

61. 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.

62. 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.

63. 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

64. The water quality of the Shepherd Creek and Coal Creek shall be monitored from the commencement of the consent as follows:

(a) The location for monitoring 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. Shepherd Creek:

1. Map reference at or about NZMS 260 H39;848-350 upstream of the intake.

2. Map reference at or about NZMS 260 H39;864-356 downstream of the irrigation on Totara Peaks Station before Lake Benmore.

ii. Coal Creek

1. Map reference at or about NZMS 260 H39;864-328 upstream of the intake.

2. Map reference at or about NZMS 260 H39;871-346 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.

65. If the monitoring undertaken in accordance with Condition 64 shows that the average sample result for either of the downstream monitoring sites specified in Condition 64 over the period December to April is greater than 0.21 mg/L of DIN; or 0.006 mg/L DRP; or 50 mg chl *a*/ m^2 (environmental standard trigger), then the consent holder shall commission a report into the cause of the breach of the environmental standard trigger.

66. The report referred to in Condition 65 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.

67. 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.

68. 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 36, 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. 80 irrigated hectares divided by the total farm area of 4228 hectares); and

    (b) the consent holder shall prepare and implement a Remedial Action Plan in accordance with Condition 70.

69. If a required reduction in nutrient load is in effect under 68(a)(a) and monitoring for that period shows that the average sample results for:

    (a) either of the downstream monitoring sites over the period December to April is greater than 0.21 mg/L of DIN; or 0.006 mg/L DRP; or 50 mg chl *a*/ m^2 (environmental standard trigger), then there shall be a further NDA reduction of 10% x IPF for the subsequent irrigation season.

    (b) both of the downstream monitoring sites over the period December to April is greater than less than or equal to 0.21 mg/L of DIN; or 0.006 mg/l of DRP; or 50 mg chl *a*/ m^2 (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 36 shall be restored.

70. In relation to the Remedial Action Plan referred to in Condition 68(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 0.006 mg/L of DRP; or 50 mg chl a/ m^2 (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.

Administrative conditions

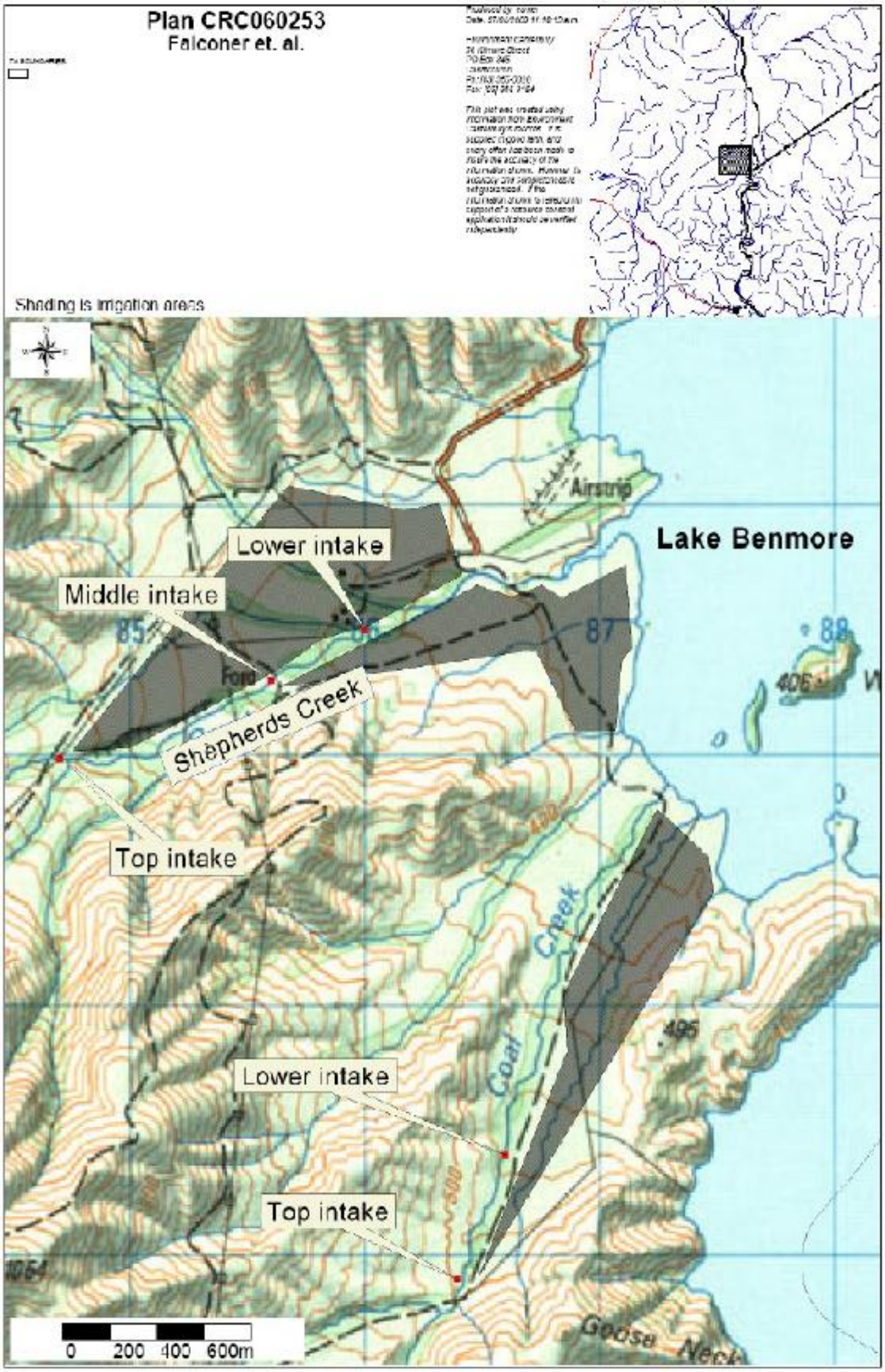
71. The Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) shall be informed immediately on first exercise of this consent by the consent holder.

72. 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 Shepherd Creek at which abstraction is required to be reduced or discontinued

73. 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:

- *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.*


Plan CRC060253
Falconer et. al.
Shading is irrigation areas
Airstrip
Lake Benmore
Lower intake
Middle intake
Shepherds Creek
Top intake
Coal Creek
Lower intake
Top intake
Goose Neck
0 200 400 600m