

IN THE MATTER OF THE

Resource Management Act 1991

AND IN THE MATTER OF

An application by P&E Limited

(CRC 093148 and CRC 093150)

### DECISION OF HEARING COMMISSIONER

#### 1.0 INTRODUCTION

1.1 These applications were heard between 19th and 21st March 2013, in the Lincoln Events Centre. A site visit was carried out on 22nd of March.

1.2 Resource Consent applications CRC 093148 and CRC 093150, are to take water from the Cass River, and to undertake works in the river to divert water, respectively.

#### 1.3 Abbreviations

The Regional Policy Statement is referred to as 'the RPS'.

The Waimakariri River Regional Plan is referred to as 'the WRRP'.

The Resource Management Act 1991 is referred to as 'the Act' or 'RMA'.

The Proposed Land and Water Regional Plan is referred to as the 'pLWRP'

#### 1.4 Attendances

##### *For the applicant*

Ms Jo Appleyard, Chapman Tripp, legal counsel

Mr Peter Morrison, Director, P&E Ltd

Mr Roland (Les) Bennetts, Farm Advisor

Dr Anthony Davoren, Irrigation and Groundwater Consultant

Ms Nicole Phillips, Farm Environmental Management Consultant, Irricon

Dr Mark Taylor, Ecological Consultant, Aquatic Ecology Ltd

Mr Malcolm Main, Aquatic Biologist and Water Quality Scientist

**Submitters**

Mr Edward Snowdon

Ms Penelope Snowdon - Lait

Ms Margaret Snowdon

Ms Liz Weir (also on behalf of Murray and Maureen Robertson)

Ms Nicola Snoyink

Ms Lesley Shand

Mr S. Hutchings, Andersen Lloyd, legal counsel for the University of Canterbury

Prof Angus McIntosh, professor of Freshwater Ecology, University of Canterbury

Ms Rosalie Snoyink

Mr Philip Deans

Mr Peter Anderson, legal counsel, Royal Forest and Bird Protection Society

Mr Sam Mahon (on behalf of Mr Guy Mannering)

Mr John Hodgson (New Zealand Salmon Anglers)

Mr Scott Pearson (North Canterbury Fish and Game Council)

Ms Sandra McIntyre, Ngai Tahu Tuahuriri Runanga, Te Taumutu Runanga, and Te Runanga o Ngai Tahu

Ms Rachel Dunningham, legal counsel (Buddle Findlay) for Central Plains Water

Mr Peter Callander, Senior Environmental Scientist, Pattle Delamore and Partners

Mr Gerry McSweeney, Wilderness Lodge and Cora Lynn Station

(a submission from Feroze Brailsford was read to the hearing)

***For Canterbury Regional Council (Environment Canterbury or ECAN)***

Mr Geoff Deavoll, Consents Planner

Dr Adrian Meredith, Principal Surface Water Quality Scientist

## 2.0 DESCRIPTION OF THE APPLICATIONS

- 2.1 The officers report described the application as placed in 'The Press' newspaper on 11 August 2012 as follows:

*"The applicant has applied for resource consents to divert, take and use up to 276 litres per second, and up to 166,925 m<sup>3</sup> per week, and up to 3,336, 000 m<sup>3</sup> per year from the Cass River for spray irrigation of up to 554 ha of pasture (Grasmere Station) for grazing sheep and beef cattle, excluding milk and dairy cows, and to disturb the bed of the Cass River at the diversion point. The land proposed to be irrigated is situated on both sides of the West Coast Road, State Highway 73.*

**CRC 093148-** *to divert, take and use water for spray irrigation purposes from the Cass River approximately 3.6 km upstream from the State Highway 73 bridge, at or about map reference Topo 50 BV21:9670-3189 (NZMS 260K34:0668-9352) and;*

**CRC 093150-** *to undertake works in the Cass River to facilitate the diversion of water".*

- 2.2 The application was to provide for a take of up to 276 l/s, with a minimum flow of 400 L per second below the intake point. In other words, if the flow below the intake point was less than 400 l/s, the take would cease, and the full take could only be exercised if the flow below the intake was 676 l/s.
- 2.3 As described below, as there is no provision for a new take in the upper Waimakariri Catchment above Woodstock, the applicant proposes to either surrender or transfer two existing water rights held below Woodstock (CRC101865, CRC 054098.4) which have a combined authorisation of 135 l/s. However the applicant also seeks the ability to take up 276 l/s should access to other existing water rights below Woodstock can be obtained (1). However in practical terms, the initial take would be 135l/s. Another alternative option was a possibility of storage for irrigation based on the take of 135l/s. The applicant indicated that for the purposes of clarification, that the ultimate proposed take of 276l/s would include a stock water component, as provided for under the "reasonable use" provisions of section 14 of the Act.
- 2.4 A consent duration of 35 years is sought. This application is for a new take.

(1) Appleyard 21.)

- 2.5 The application site occupies what could roughly be described as a triangular area of outwash fans and river flats, which is bounded on its western side by the Cass River, on the southern side by a large gravel fan to the south of Lake Grasmere, and on its eastern side by Lake Grasmere and the Grasmere Stream/Craigieburn Road. The property is bisected by the north-south alignment of State Highway 73, with the northern tip of the triangle located where the highway crosses the Cass River.
- 2.6 Grasmere Stream flows under the Craigieburn Road and the railway to enter a swampy area adjacent to Lake Sarah, and then flows from this lake in a north-westerly direction to its confluence with the Cass River, above its confluence with the Waimakariri River. The Cass River has a broad alluvial bed, whereas Grasmere Stream is confined waterway bordered by dense vegetation along much of its length. The general slope of the terrain, and the movement of surface and groundwater, is predominantly from the western (Cass River side) towards Lake Grasmere and the Grasmere Stream.

### **3.0 NOTIFICATION AND SUBMISSIONS**

- 3.1 The application was originally lodged on 12 February 2009. A 'Request for Further Information' (RFI) was issued on 3 March 2009, after which time it is understood that further consultancy support was sought by the applicant. A long period then elapsed before further information was supplied on 12 July 2012.
- 3.2 The application was publicly notified on 11 August 2012. 56 submissions were received, all but one in opposition. 36 submissions expressed a wish to be heard. The officer's report noted that issues "consistently raised" in submissions were the effect on the water quality of surrounding water bodies, the effect of the activity on flows in the Cass River and its ecosystems, the effect on amenity, recreation and landscape, and the effect of the proposed take on the reliability of supply for downstream abstractors.

### **4.0 STATUTORY MATTERS**

#### ***CRC 093148 to divert take and use water:***

- 4.1 It is common ground that the applications require resource consent in terms of section 14 of the RMA.
- 4.2 Rule 5.3 of the WRRP provides that within the area of the Waimakariri Catchment above Woodstock, defined in Figure 4 and Map 1 of the WRRP:

(a) the taking of water from the Waimakariri river or its tributaries, including lakes, or from hydraulically connected groundwater;

(b) the use of any water in tributaries, including lakes and wetlands, of the Waimakariri River;

(c) the diversion of water from or discharge of water into, the Waimakariri River or its tributaries, including lakes and wetlands;

is a **noncomplying activity**.

4.3 The exclusions and exceptions to this rule are not applicable to this application.

4.4 There is qualified provision to enable the take of stockwater under section 14(3) of the Act - the implications of this are described later in this decision.

***CRC 093150 to undertake works in the bed of the river***

4.5 It is also common ground that the applications require resource consent in terms of section 13 of the RMA.

4.6 Rule 7.4 of the WRRP provides that the proposed works in the bed of the river are a **discretionary activity**, as Rules 7.1, 7.2, 7.3, and 7.5 are not applicable in this case.

4.7 Accordingly, the activity overall is to be assessed as a **non complying activity**.

***The Proposed Land and Water Regional Plan (pLWRP)***

4.8 The pLWRP was notified in 2012, and at the time of this hearing had reached a point where submissions have been received, but no hearings had been undertaken. Rules 5.42 to 5.45 of that Plan address changes in land use prior to August 2017, and have relevance to matters such as the effects of increased irrigation and increased nitrate loads on receiving water and groundwater.

4.9 No application has been made with respect to this Plan. There was some debate at the hearing as to the correct application of the provisions of the pLWRP and their interpretation. However, for the purposes of this application, I can only note that subsequent resource consent may well be required under that pLWRP **in addition** to any consent that might be granted in terms of the WRRP.

4.10 Section 104D RMA specifies restrictions for assessing noncomplying activities, and the relevant clauses provide (in summary) that a consent authority can grant consent only if it is satisfied that either –

*(a) the adverse effects of the activity on the environment will be minor;*

*(b) the application is for an activity that will not be contrary to the objectives and policies of-*

*(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or.....*

4.11 I note that in this case the WRRP is an operative plan. The pLWRP is at a proposed stage, but consent has not been sought in respect to this Plan. However some weight can be afforded to its objectives and policies, but only under S104(1).

4.12 Even if I am satisfied that the proposed activity meets of both tests of section 104D, I still retain a discretion as to whether or not to grant consent under section 104 (1).

Section 104 (1) provides that-

*"(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to –*

*(a) any actual and potential effects on the environment of allowing the activity; and*

*(b) any relevant provisions of –*

*(i) a national environmental standard:*

*(ii) other regulations:*

*(iii) a national policy statement:*

*(iv) a New Zealand coastal policy statement:*

*(v) a regional policy statement or proposed regional policy statement:*

*(vi) a plan or proposed plan; and*

*(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application".*

## **5.0 SUMMARY OF THE EVIDENCE**

5.1 Extensive evidence was presented to the hearing both in support and opposition to the proposal, some of it of an expert technical nature. Some of this evidence revealed differences in degree and emphasis, but there were also areas of fundamental disagreement. This is made consideration of this proposal particularly challenging, and accordingly more detailed consideration of the background evidence is required, than would often be the case in a decision of this nature.

## Evidence for the applicant

- 5.2 **Ms Jo Appleyard** presented submissions on behalf of the applicant. She explained that a consent from the North Canterbury Catchment Board (NCY 750299) for 280l/s granted in 1973 had expired in 1984. She maintained that since that time until 2008/09 on Grasmere Station, *"extensive irrigation activity has been undertaken"*. (2)
- 5.3 She then discussed a mechanism whereby two resource consents held by the applicant to take B Permit water near Darfield (CRC 101865 and CRC 054098.4) could be transferred or surrendered to enable 135l/s of water to be taken from the Cass River. However she went on to submit that:
- "However P&E Ltd wishes to make it clear at the outset that notwithstanding the present application involves 135 litres per second of water:*
- It still asks the Commissioner to make a determination on the acceptability of localised effects of 276 litres per second being taken with a 400 litre per second Cass River minimum flow at the intake site. That rate of take is clearly within the ambit of what was applied for but is now not, at least at the present point in time, what is proposed to be taken. If in the future (as is intended by P&E Ltd) further water can be transferred to Grasmere Station it wishes to have the ability to reference the decision for resource consent CRC 093148 to support the transfer".....*
- 5.4 She went on to add that an alternative option for the applicant would be to build storage for water taken at 135 l/s, noting that such structures would be subject to their own consenting processes.
- 5.5 She submitted that provisions of the pLWRP could only be given little weight at this stage, and that if consent was required under this Plan, this would be through a separate application. She cautioned against placing weight on objectives and policies which were potentially contradictory in terms of whether they encouraged or restricted irrigation. In terms of considering the scope of effects, she acknowledged that *"the full suite of effects from irrigation are able to be considered by the Commissioner as part of this hearing"*. (3)
- 5.6 A key part of her submissions was that irrigation had been undertaken for nearly 40 years on the property and that having regard to case law (cited) she said *"that in considering the likely effects of the proposed activity regard can and should be had to the known effects of the previous activity"* (4).

(2) Appleyard para 11.1

(3) Appleyard para 29.2

(4) Appleyard para 36

- 5.7 She also contended that although the WRRP did not provide an allocation regime above Woodstock, this was not a "*conscious decision of past decision-makers to prefer or not prefer irrigation in one area over another*" (5). Instead she contended that the WRRP envisaged irrigation and that the focus of the plan was on protecting levels in water bodies rather than water quality.
- 5.8 Insofar as concerns in submissions about landscape effects were concerned, she noted that the Selwyn District Council was not a submitter on the application, the plan provisions did not directly address landscape matters, and that "*irrigated pasture within the upper Waimakariri landscape has, for a very long time, been embedded in the landscape*". (6)
- 5.9 **Mr Peter Morrison** and his wife are the directors of P&E Limited. Mr Morrison stated that most of the infrastructure from the original Grasmere irrigation scheme was still in place, and functioning to supply stock water. Since acquiring the property in 2009, a moderate amount of fertiliser had been applied (typically 200 kg/ha sulphur super and 80 kg /ha of urea) per year. This followed a period of low or no application under the previous owner.
- 5.10 With some grading out of the border dyke channels, and improvements to pasture, he said stock numbers had been increased to around 2000 mainly dairy heifer replacements and other stock, a total of around 3000 stock altogether (7). He said that with spray irrigation there would be much better pasture and stock food production, and the ability for supplements or grain crops which could be taken off property.
- 5.11 He said that the applicant would be prepared to maintain an irrigation setback distance of 24 m from Lake Grasmere, assist financially towards planting around the lake adjacent to the property, and would consider formalising the buffer zone such as through an appropriate mechanism such as a covenant. He said that other adjoining properties allowed cattle to graze down to, or even within, the edges of the lake.

(5) Appleyard para 40  
(6) Appleyard para 43.1  
(7) Morrison para 18



- 5.12 He said that (my emphasis) the proposed take of 276 l/s ***"was based on what was both consistent with the previous irrigation authorisations on the property and what was considered necessary to irrigate the full property under run-of –the-river peak rate demand irrigation"***. (8). He said that through the transfer of two existing consents CRC 101865 and CRC 054098.4 held by P&E Ltd for B permit water below Woodstock, there was the ability to transfer 135l/s to Grasmere for immediate use, with further ability to transfer further A or B permit water from downstream if this became available, or by construction of on-farm storage.
- 5.13 **Mr Les Bennetts** gave evidence on behalf of P&E Ltd with respect to the existing irrigation infrastructure on the property. Mr Bennetts is a very experienced farm adviser and has had an association with the application site for some years. This evidence was relevant to a contentious issue arising throughout the hearing – that is, the extent to which irrigation has been maintained on this property over the last 40 years, and the quantum of water taken during that time.
- 5.14 He explained that in the 1960s that Grasmere and Cora Lynn were run jointly and about that time the high country portion of these properties was retired from sheep grazing. In 1972 the North Canterbury Catchment Board recommended to the then Soil Conservation and Rivers Control Council a proposal for irrigating the remaining land on the station to assist in maintaining its financial viability. He also noted that the Grasmere flats were subject to wind, gully, and creep erosion. This proposal was approved for subsidy and a water right was granted to take to 226.4 l/s from the Cass River, with 28.3 l/s being taken for stock water.
- 5.15 Mr Bennett stated that the *"stock water take and, other than for very recent years, the irrigation take, have been exercised continuously since that time"* (9).
- 5.16 Subsequently the Cora Lynn run was separated from Grasmere, to enable efforts of pasture improvement to be concentrated on the latter. At the time, border dyke irrigation was the only realistic option available, and is obviously less efficient than current use of spray irrigation.
- 5.17 He said that water right NCY750299 was issued on 1 May 1975 for a period of 10 years, allowing a take of 280l/s. For some reason, it is apparent that this consent was never formally renewed.

5.18 **Dr Anthony Davoren** has extensive experience in soil moisture and irrigation management, having specialised in this role since 1987. He was one of a number of witnesses who agreed that flow information relating to the Cass River is very limited, and much of his evidence was based on flow gaugings arranged by him and undertaken on 12 February 2010. Some of the key results set out in his evidence were as follows :

- flow in the Cass River above the diversion was 688l/s;
- 144 l/s was being diverted into the irrigation and stock water race system;
- the residual flow of 544l/s below the diversion was greater than the proposed minimum flow in the Cass River;
- the Cass River increased in flow between the intake structure and Grasmere Stream;
- there was a significant contribution to flow in the Cass River from the Misery Swamp on the western (Cora Lynn) side of the Cass River downstream from the intake point;
- there was no surface flow from the water race system into Lake Grasmere or Grasmere Stream;
- the discharge from Lake Grasmere into Grasmere stream of 239l/s was greater than the take diverted from the Cass River, and appeared primarily sourced from an upstream gravel fan above the lake (Ribbonwood Stream)
- Grasmere Stream is a confined waterway which increased in flow to 625 l/s above its confluence with the Cass River.

5.19 Mr Davoren was sceptical of comments made in the officers report relating to ECAN's estimated 511 l/s MALF for the Cass River, which he considered was based on unreliable information and assumptions. He estimated that allowing for the minimum flow conditions that would be attached to any consent based on the downstream recorder site in the Waimakariri, the actual minimum flow when the full take could be exercised would be 770l/s rather than 676l/s, and that in reality the residual flow would be in excess of 494l/s.

- 5.20 One point that arose in his evidence (10) was that in discussing effects on the Waimakariri River, it was not the effect of taking 276l/s which was important, but only 132l/s, based on 144l/s being taken for stock water as a permitted activity. This figure was also noted in the officers report (11). He noted that this volume alone amounted to 21% of the flow of the Cass River on 12 February 2010. From downstream gauging he considered the Cass River regained volume, particularly from the Misery Swamp on the western bank.
- 5.21 He considered that using centre pivot irrigators, the application efficiency would be in excess of 85%. This would also assist in reducing nitrogen losses relative to leaching from border dyke irrigation.
- 5.22 He described in detail the location of the various gauging points used to determine the flow of the Cass River, which he said were taken at a time of the year when flow could be expected to be relatively low. Overall, he considered that the effects on Cass River flows and the reliability of supply for downstream users in the Waimakariri would be minor.
- 5.23 He sought to emphasise an important point with respect to the calculation of the naturalised or unmodified flow of the Waimakariri River, with regard to the evidence of the reporting officer and Mr Callander for Central Plains Water. He explained that this was calculated by adding back the volume of consented abstractions from surface water and hydraulically connected groundwater above the Waimakariri recorder site. He said that 8 expired takes varying from 7l/s to 500l/s had been added back into the record, but not the expired take of 280 l/s for Grasmere Station. He added that no account been taken of the diversion for stock water for the property. He was strongly of the view that at the very least, the stock water flow of about 100-150l/s should have been added to 'naturalise' the Waimakariri River flow.
- 5.24 **Ms Nicole Phillips** presented evidence related to be application of the OVERSEER model (Version 6.0) and a draft Farm Environmental Management Plan (FEMP) for Grasmere. She explained that OVERSEER was *"an agricultural management tool which assists farmers and their advisers to assess nutrient use and movements within a farm to identify possible environmental effects (and optimise farming outcomes). The computer model calculates and estimates the nutrient flows in a productive farming system and identifies risk for environmental impacts through nutrient loss, including both run off and leaching"* (12).

(10) Davoren page 33  
(11) Deavoll para 90  
(12) Phillips para 12

- 5.25 She said the model was now in widespread use throughout the country. She explained that the modelling included a comparative assessment of the current dryland farming scenario, the irrigated scenario, and a third variation which entailed 100 ha of grain crop.
- 5.26 The results of her modelling indicated relatively little difference between the irrigated scenarios with or without the grain crop option. Her modelling also indicated that if fertiliser use was reduced on the pasture blocks it also made relatively little difference to the results.
- 5.27 The results she obtained from *OVERSEER* for current dryland and the proposed all grass irrigated scenarios were as follows (13):
- Under current dryland farming, nitrogen loss to water would amount to 41 kg/ha/year, and for an irrigated all grass scenario, 49 kg/ha / year.
- Under current dryland farming, phosphorus loss to water would amount to 0.3 kg/ha/year, and for an irrigated all grass scenario 0.5 kg/ha / year.
- Under current dryland farming, total N lost would amount to 22,301kg/farm, and for an irrigated all grass scenario 27,183 kg / farm.
- Under current dryland farming, total P lost would amount to 152kg/farm, and for an irrigated all grass scenario 272 kg / farm.
- 5.28 She cautioned that the *OVERSEER* model does not include an ability to include setback distances from waterways. She also noted however that although nitrogen loss to water increases under both scenarios, the actual nitrogen concentration in drainage below the root zone would decrease.
- 5.29 **Mr Malcolm Main** is an aquatic biologist with 26 years experience, including time previously employed with ECAN. He addressed potential water quality impacts arising from the proposed spray irrigation of Grasmere station, the effectiveness of a buffer strip, the nature of groundwater flows, and comparative water quality in Lake Grasmere and other Canterbury lakes.
- 5.30 His opinion contrasted with that of Dr Meredith for ECAN with respect to the influence of waterfowl. He referred to attachments which he said established a relationship between waterfowl numbers and levels of concentrations of nitrogen and phosphorus in a small Canterbury lake (later confirmed to be Lake Albert in Hagley Park, Christchurch).(14)

(13) Phillips para 24

(14) Main para 17

- 5.31 In his evidence, he said there were examples where vegetative wetland buffer strips adjacent to Lakes had a significant impact on reducing nitrate levels, citing studies showing reductions of up to 99.8% within 10 m of wetland (15). In his opinion " *a buffer strip 24+ m wide would remove almost all of any nitrogen and phosphorous migrating either overland or through the root zone towards the lake*" (16).
- 5.32 Turning to groundwater flow, he noted that his field investigation revealed that there are aquitards (tightly cemented layers of clay) near the lake, which resulted in perched groundwater flowing near the surface. These aquitards prevented leaching to deeper levels and that the movement of such groundwater was very slow.
- 5.33 He then commented on the water quality of lakes in the area with reference to the Trophic Level Index (TLI). He said there had been a trend towards eutrophic levels in the lakes increasing over some years, but that recently the TLI had been declining. He maintained that increased TLI levels could not be attributed to intensive farming, because other lakes in the area such as Sarah and Hawdon, and Lakes Emma and Clearwater in the upper Ashburton Catchment, were also experiencing increased TLI levels, despite the absence of intensive farming adjacent to them. He was of the opinion that climatic factors, or the presence of waterfowl, may be influencing the TLI in these alpine lakes.
- 5.34 **Dr Mark Taylor** has 29 years experience in aquatic habitat assessment. He explained that the WAIORA computer model developed by NIWA, was used to approximate flow depletion effects on the Cass River. From electric fishing downstream of the proposed intake, he found that the fish community was dominated by native alpine galaxias, with sub-dominant species being juvenile brown trout, and Canterbury galaxias, with a single juvenile rainbow trout captured. He said that none of these species have national conservation status. From an incomplete invertebrate sample from a riffle, he concluded that the Cass River had good to excellent stream health.
- 5.35 Returning to the WAIORA model, he said the results predicted that a reduction in the flow would result in a reduction of water velocity rather than channel width or depth, and that the reduced velocity would still be sufficient to prevent algal accrual and sedimentation. He estimated habitat contraction would be minor at 2% (17).

(15) Main para 26  
(16) Main para 41  
(17) Taylor para 33)

- 5.36 In his opinion a minor reduction in flows would assist native fish dominance over brown trout. He concluded that *"the biota in this river is well adjusted to extreme flow variation, ranging from extreme floods, bed movement, and some dewatering in the lower reaches. I fail to understand how intermittent reduced flows, at worst close to the MALF, can impact on the ecology given the context of this already harsh environment"* (18).
- 5.37 He did not consider that the river had a tendency to be braided in the area between the intake structure and the State Highway bridge. Although some aspects of the flow regime were not well understood, water in the braids would react slowly to flow depletion because of connectivity with groundwater, and that there would be a significant rest periods during the irrigation season, supplemented by periodic rainfall which would limit the effects of abstraction.
- 5.38 In his opinion the initial 135 l/s take proposed would have little effect downstream, but he was cautious about the potential impact of a full take of 276 l/s. He noted that;
- "However, I have less confidence in the degree of dewatering that will occur downstream during times of very low flows and low groundwater levels if this take eventually increased to 276 l/sec and in practice limited by the 400 l/sec minimum flow".*(19)
- 5.39 He said that a fish screen or gallery would be required at the intake, sufficient for screening not only trout, but also the fry of Alpine galaxias and Canterbury galaxias.
- 5.40 **Evidence for submitters**
- 5.41 During the course of the hearing I heard from 17 submitters, of whom three (University of Canterbury, the Royal Forest and Bird Protection Society, and Central Plains Water) were represented by legal counsel, while Ngai Tahu were represented by a planning consultant. The summary below does not include all of the comments raised in submissions, and I have abbreviated submitter names for brevity in some cases.
- 5.42 Description of the activity
- 5.43 Five submissions expressed concern that the application was misleading, or raised questions about the kind of farming activity actually envisaged on the site (**E Snowdon, P Snowdon-Lait, P Deans, G Mannering, and Ngai Tahu**).

(18) Taylor para 85

(19) Taylor para 69

- 5.44 At this point, it is appropriate to identify what the application states with respect to this matter.
- 5.45 The site description forming part of the AEE prepared by GHD Consultants, states in Part 2.1 that:
- "Currently, the property is grazed by sheep and beef, with crops being planted periodically for winter feed. This application does not seek the ability to change the current land use".*
- 5.46 Part 3.2.1 states;
- As has been previously stated, the applicant currently grazes sheep and beef on the property. This application does not seek the ability to change this land use, nor significantly increase the stocking rate."*
- 5.47 The public notice refers to *"..... grazing sheep and beef cattle, excluding milking dairy cows, ....."*
- 5.48 The FEMP prepared by Ms Phillips (her Annexure 1) for the applicant makes reference to the property under a heading of *"Dairy grazing" being 3000 cows and replacements all year round"*.
- 5.49 The submitters expressed concern that the observed pattern of stocking on the property clearly reveals that it is being used for non-milking dairy stock. It was argued that the potential effects arising from the proposal will be different to those notified with the application, and even that other parties might have submitted had they known of the change of use. The very first submitter, Mr Snowdon, was particularly aggrieved with respect to this issue.
- 5.50 Effects on landscape and recreation
- 5.51 At least 10 submissions expressed concerns about effects on the iconic Cass landscape (**P. Snowdon-Lait," and, L Weir/C. Morris, N Snoyink, L Shand, R. Snoyink, F. Brailsford, Forest and Bird, G. Mannering, and Ngai Tahu**). A number of these submissions also alluded to loss of recreational values. The primary concern related to artificial "greening" of the environment, and the visual impact of large centre pivot irrigators.
- 5.52 As an example, the submission of Nicola Snoyink makes reference to the Rita Angus painting of Cass railway station, and the panorama of the Cass Basin as seen from the Grasmere Strait south of the application site.
- 5.53 Mr Peter Anderson, legal counsel for Forest and Bird was adamant that notwithstanding that the application was for the take and use of water, landscape matters could be considered.

- 5.54 He relied on *Aquamarine versus Southland Regional Council* (C 79/96) and *Cayford v Waikato Regional Council* (A127/98) where he submitted that it was held that by the Court that regard could be given to the direct effects of exercising a resource consent which were reasonably foreseeable, and which were not independent of the activity itself. He saw the greening of the landscape and the installation of pivot irrigators as an example of an effect directly resulting from a grant of consent to take water from the Cass River.
- 5.55 He maintained that under Objective 5.1 of the WRRP, which relates to the use of water in the Waimakariri River Catchment, that under subclause (g) consideration had to be given to maintaining and enhancing amenity values.
- 5.56 Adverse effects on flows in the Cass River and its ecology
- 5.57 This was raised an issue by a number of submitters including **L. Weir/C. Morris, N. Snoyink, the University of Canterbury, F. Brailsford, J. Hodgson, Ngai Tahu, and G. McSweeney.**
- 5.58 **Prof Angus McIntosh** has been employed at the University of Canterbury since 1997 and stated he was very familiar with this area. He considered that the Cass River catchment is a relatively pristine environment and stated that it had been used as a study site for freshwater ecology research since 1914, being closely associated with the University's research facility in Cass. He also considered that Grasmere Stream was important especially as it was relatively low in nutrient levels. He emphasised that both waterways were "*disproportionally important for aquatic ecology teaching at UC*" (20).
- 5.59 He considered that the proposed take would lead to major changes in the flow regime in the Cass River, and that the extent of natural habitat drying had been exaggerated by the applicant. He considered the electro-fishing and invertebrate sampling undertaken was insufficient to determine likely impacts on the Cass River ecosystem. He also felt that the abundance of species such as longfin eels had been underestimated.



5.60 He considered the *WAIORA* analysis did not provide an adequate assessment, as it did not address flow related factors controlling non-migratory galaxiid populations, and strongly disagreed with Dr Taylor's findings that galaxias would benefit from dewatering and reduced trout predation. Prof McIntosh considered that the fish community biomass in the basin was closely associated with invertebrate food supply and that any changes in the catchment were likely to have potentially non-linear effects - that is, any significant reduction in flow would result in a tipping point being passed beyond which there would be a significant decline. In his opinion, changes to the flow had to be considered in the context of the length of the food chain, and not individual species within it.

5.61 Effects on water quality

5.62 This was another issue on which there were a large number of submissions lodged, including from **E. Snowdon, P. Snowdon-Lait, M. Snowdon, L. Weir/C. Morris, M&M. Robertson, the University of Canterbury, R. Snoyink, F. Brailsford, P. Deans, G. Mannering, Ngai Tahu, and G. McSweeney.**

5.63 The primary concern here was the effect that irrigation and intensive farming could have on the level of nutrients which would find their way into Lake Grasmere and its downstream waterways, and to a lesser extent the Cass River.

5.64 **Prof A. McIntosh** was concerned that with the clearance of vegetation at the northern end of Grasmere Station, and the intensification of land use on this part of the property could have significant impacts on Grasmere Stream and the Cass River. He did not accept Mr Mains conclusions with respect to contamination by waterfowl, stating:

*"The argument presented is based on a link between bird numbers and bacteria in Lake Grasmere, not bird numbers and nutrient concentrations. Any comparison with Lake Albert, which I assume is the small Albert Lake duckpond of Hagley Park, is not relevant because of the obvious differences between a duckpond and a large high country lake. Moreover, dissolved inorganic nitrogen concentrations, not total nitrogen concentrations (which contain organic nitrogen such as that contained in phytoplankton) would be appropriate unit of comparison". (21)*

- 5.65 While he agreed that bird numbers can be a significant contributor to nutrient levels, in his opinion the size of the lake relative to the number of birds present make this unlikely to be a major contributor. He added that Lake Grasmere was already verging on a eutrophic state, and that where a system is close to a "tipping point", even a small increase in nutrients may have the effect of producing a non-linear response, for example, as a result of a small increase in nutrient loading. He also considered that the overall trend was for an increase in the trophic index.
- 5.66 He considered that the evidence did not establish that riparian buffers would be effective in reducing nutrient loading entering Lake Grasmere, and the waterways to the north and west.
- 5.67 **Ms S. McIntyre**, in her evidence on behalf of Ngai Tahu, was concerned that the effects of intensive irrigated land use on water quality had not been assessed as an integrated package, and that it was contrary to the objectives and policies in the WRRP. (22). She considered the receiving environment was sensitive to nutrient enrichment and was concerned that there was insufficient information on the extent of irrigation activities that had been undertaken since 1984, and in the absence of any records of water use, there was no certainty about effects.
- 5.68 Suitability for Intensive Farming
- 5.69 A number of submitters including **M Snowdon, L Weir/C Morris, R Snoyink, P. Deans, G. Mannering, and Ngai Tahu** questioned the suitability of alpine environments of this nature for intensive farming. For example, the submission of Mr P. Deans who operates a dairy support farm in the Sheffield area was that the growing season in this altitude and location was very limited, and there would be adverse effects of compensating for this by administering large quantities of nitrogen-based fertilisers. Other submitters were concerned that the use of centre pivot irrigators, and the clearance of vegetation on the property, would result in little shelter being available for stock.
- 5.70 Weight to be given to previously authorised takes
- 5.71 The applicant's position was vehemently challenged by a number of submitters including **L Shand, the University of Canterbury, Forest and Bird, Ngai Tahu and G. McSweeney**.

5.72 **Mr S. Hutchings**, In his submissions on behalf of the University of Canterbury, stated:

*"The applicant argued that account should be taken of previous consents being granted on the property for irrigation. While consent was granted in 1972 and again in 1975 to take 280 l/s of water from the Cass River, there is no evidence whether that amount of water was actually abstracted from the river, and certainly there is no evidence that any consent existed, or to what extent water has been taken since 1984. Without this evidence it is wrong to assert that any take up to 280 l/s will have a less than minor effect"* (23)

5.73 Mr Hutchings also added that:

*"Even if some contextual consideration was to be given to the effects assertion, based on what may (or may not) have historically been done on the site, the assessment framework and thinking in respect to irrigation and the adverse effects of taking water have progressed dramatically since 1972. This can be seen to the nationwide release of new regional plans that focus on improving water quality. Any assessment of these effects based on old consents is irrelevant under the current framework"*. (24)

5.74 **Mr P. Anderson**, of behalf of Forest and Bird, made a similar submission and noted firstly that any adverse effects of earlier irrigation had not been established, and secondly that the relevant case law holds that any existing unconsented irrigation takes cannot be taken into account in assessing this application. (25). A number of other submissions expressed the view that there appeared to have been only limited use made of the irrigation infrastructure on this property since the 1980's.

5.75 Effects on other downstream abstractors

5.76 This issue was raised in four submissions, but essentially centred on the potential effect of the applicants proposed take on A and B permit holders downstream below Woodstock.

5.77 **Ms Rachel Dunningham's** submission on behalf of Central Plains Water Limited contained the following statement which effectively summarised this issue:

(23) Hutchings para 4.1

(24) Hutchings para 4.2

(25) Anderson paras 44 and 45

*"CPWL was concerned that if this consent was granted without any restrictions on when water could be taken, it would reduce the flow at Waimakariri Gorge (which is the intended intake location for the CPWL scheme) and adversely impact on the water available for existing users who take below the Gorge. This would be further complicated by the fact that, as the water was being taken well above the Gorge, there would be a delay in the effects being reflected in the Gorge flows." (26)*

- 5.78 Discussions were apparently held between the submitter and the applicant, which focussed on the two B permit allocations (CRC 101865 and CRC 054098.4) held by the applicant below Woodstock. Ms Dunningham notes that both consents were expressly authorised on condition that they were subservient to Central Plains Water Trust (CPWT) consent CRC 061972.
- 5.79 **Mr P. Callander** noted that the WRRP does not specify an allocation block for water above Woodstock, which makes the proposed P&E abstraction a non-complying activity. The concern of his clients was that any P&E consent should not be allowed to occur when downstream A and B permit users were subject to restrictions. He also considered it important that any surrender of the P&E B permits did not provide an opportunity for future applications to take that water, and that this be protected by an appropriate condition. He also noted the substantial distance between the abstraction point on the Cass River and the monitoring site downstream at Woodstock, and the measurement point at the old highway bridge. He said the timing of restrictions needed to be carefully calculated in order to accurately determine the 'unmodified flow'.
- 5.80 He concluded by saying that subject to the proposed P&E consent being subservient to the CPWL consent CRC 061972 (and potentially other consents), and that the volume of the take was correctly incorporated into the calculation of the unmodified flow, a grant of consent to P&E would be acceptable to the submitter.
- 5.81 At the hearing, the submitter also confirmed that subject to a satisfactory mechanism for protecting the interests of downstream abstractors, it had a neutral position on the application.
- 5.82 The application in the context of the provisions of the RMA

- 5.83 A number of submitters contended that the proposed application was contrary to the provisions of the WRRP, the Regional Policy Statement (RPS) and the National Policy Statement on Freshwater. These concerns were reflected in the submissions of **N. Snoyink, the University of Canterbury, Forest and Bird, Ngai Tahu, and G. McSweeney.**
- 5.84 **Ms S McIntyre** for Ngai Tahu, submitted that the application was contrary to Objective 5.1 and Policy 5.1 of the WRRP, and Objective 6.1 and Policies 6.1 and 6.2 of the RPS. She also considered that it was inconsistent with the policies in the Taumutu Runanga Iwi Resource Management Plan, and to Objectives A1, B1, B2 and Policy B5 of the NPS on Freshwater Management.
- 5.85 Broadly similar conclusions were reached in legal submissions of Mr Anderson for Forest and Bird, and Mr Hutchings for the University of Canterbury. All of these parties considered that the application failed the "gateway" test under section 104D of the Act for noncomplying activities, and was contrary to Part 2.
- 5.86 Other matters raised in submissions
- 5.87 A number of submitters considered that the application would create a precedent for similar applications to take water in the Upper Waimakariri above Woodstock.
- 5.88 **Mr P Anderson** for Forest and Bird emphasised this point, noting that the activity was non-complying, and the WRRP was now operative. He argued that the application had no unusual quality to it which would differentiate it from similar applications in the upper catchment of the Waimakariri.
- 5.89 Other matters raised in submissions were concerns that should the application be granted, it would be for a period of 35 years which is considered too long in light of potential effects that might develop. Several submitters also expressed concern about the effects of the removal of matagouri from the northern part of the property.
- 5.90 During the course of the hearing, the overwhelming weight of evidence from the applicant and submitters was directed to the take and use of water from the Cass River and its effects. Only limited evidence was presented in terms of the works associated with the intake point, and effects within the bed of the river. It was indicated by the applicant that only limited bed works would be involved as the intake structure already existed. A flow recorder and the installation of a fish screen would be required in association with the rather rudimentary diversion structure.
- 5.91 Prof A. McIntyre's evidence of behalf of the University of Canterbury did touch on this issue briefly, expressing concern that disturbance of the bed

may disturb the flow downstream, and research work undertaken by the University.

5.92 ***Evidence from the reporting officers***

5.93 **Mr G.Deavoll's** section 42 a report considered the effects of the application in two parts, firstly the application to divert, take and use water (CRC 093148), and secondly the works of the bed of the river (CRC 093150).

5.94 Mr Deavoll's conclusions were as follows in terms of the headings in his report:

*(1) Adverse effect of taking water on surface water flows and ecosystems.*  
Based on the advice of Dr Meredith, it was concluded that the assessment of effects on flows was not conducted on the 'natural' Cass River, but on the managed diversion channel. The conclusion was that the likely effects had not been adequately determined.

*(2) Adverse effects of taking water on fish life.*  
The conclusion was that subject to the provision of a fish screen any adverse effects on fish life were considered to be no more than minor.

*(3) Adverse effects of taking water on other users*  
It was considered that the adverse effects on downstream abstractors would be more than minor, but that this might be satisfactorily addressed through the hearing in terms of a possible mechanism for surrendering or transferring consents held by the applicant downstream of Woodstock.

*(4) Adverse effects of water use on water quality.*  
Based on the advice of Dr Meredith, there was significant disagreement with the applicants advisers with respect to this issue. It was considered that the trophic level in Lake Grasmere as measured by CRC has shown a strong upward trend towards becoming eutrophic under current land use practices, and that a similar trend was apparent with respect to Lake Sarah. It was considered the Lake Grasmere of was highly sensitive to nutrient enrichment, and that while the vegetative buffer strip would partly remove nutrients, it would be ineffective at removing nutrients from deeper groundwater. The influence of waterfowl on nutrient levels was considered to be overstated.

*(5) Effect of the water use on landscape and amenity values.*  
Mr Deavoll concluded that while landscape values were reflected in the policies of the RPS, implementation was expected to take place at the district plan level. Landscape values were not addressed through the WRRP.

*(6) Adverse effect of inefficient use of water on the environment.*

Mr Deavoll concluded that the applicant had not established through the information provided, whether the annual volume sought was reasonable given the intended use for irrigation.

*(7) Adverse effects on Tangata Whenua values.*

His conclusion was that the adverse effects with respect to matters of concern to Tangata Whenua would be more than minor particularly with respect to the Te Taumutu Runanga Resource Management Plan.

- 5.95 With respect to works in the bed of the river(CRC 093150), his conclusions were that the adverse effects would not be more than minor. Any additional works were considered to be minor in extent, and the existing intake structure was an established feature to users of the Cass - Lagoon tramping route.
- 5.96 In considering the Objectives and Policies in the NPS on Freshwater, he considered the application was contrary to Objective A1 because it would not safeguard the life supporting capacity of ecosystems associated with freshwater, or sustainably manage the use and development of land and the discharges of contaminants. He also considered that the application was contrary to Objective B2 in that the application would not maintain or improve the overall quality of freshwater.
- 5.97 Referring to the RPS, he considered that the application was contrary to Policy 7.3.4 because it did not protect flows and flow variability, and effects on associated ecosystems, having regard to the size of proposed take he also concluded that the proposal was also contrary to Policy 7.3.7 in terms of protecting the quality of water in the catchment and land use changes which would have an adverse effect on water quality.
- 5.98 He considered that the application was contrary to Objective 5.1 and Policies 5.1, 6.1 and 6.2 of the WRRP, which emphasised maintaining the volume and quality of water in the catchment above Woodstock.
- 5.99 Finally he contended that the proposed take would be contrary to the policies of the pLWRP in terms of water quality, albeit that consent was not being sought under this plan.
- 5.100 **Dr A. Meredith** is the Principal Surface Water Quality Scientist at ECAN, with approximately 25 years experience. He has been employed by ECAN since 1997 and was responsible for developing the Canterbury region lake water quality monitoring programme. He presented evidence in response to that of the applicant's witnesses with particular regard to effects on water quality. He said that most lakes "*have a relatively stable nutrient content that arises from the balance between catchment inputs and*

*outflows, but primarily internal cycling of nutrients between the sediment and macrophytes, and the water column (and back again). Lakes are generally very good at conserving nutrients and other contaminants, so it is important to focus on preventing additional nutrient inputs, as once present in the lake ecosystem they are otherwise very difficult to rectify or remove" (27).*

- 5.101 Dr Meredith was of the opinion that when irrigated pastures were established, this provided additional feeding sources for waterfowl which contributed to increased nutrients. He agreed that waterfowl can have adverse effects on bacteria concentrations and hence the suitability of water bodies for swimming or drinking, but it was not established that they had a significant impact on nutrient load.
- 5.102 Like Prof. McIntosh, he was he was concerned that Mr Main's evidence sought to compare total nutrients with soluble nutrients, as the former would be dominated by measuring faecal inputs, an environment dominated by wildfowl. He considered that the concept of bird excreta being rich in phosphorus was not relevant in this case because we were not dealing with a phosphorus rich marine environment.
- 5.103 He said that the pLWRP had specifically identified Lakes Grasmere, Sarah and Pearson as being sensitive lake zones in terms of land intensification and nutrient enrichment. He said that issues concerning nutrient loads from land use intensification in lake catchments were of major concern locally, regionally, and nationally, and had attracted significant planning intervention and government research and restoration funding.
- 5.104 He also contested Mr Main's conclusions that other alpine lakes also exhibited increasing trophic indices, with reference to the catchments of Lakes Sarah and Clearwater. He said that land use intensification on Mt Possession Station in the Lake Clearwater catchment was generating major water quality changes, and that this had been the subject of concerns from the bach community there. He said these issues had arisen despite the presence of a Department of Conservation wetland reserve between the career of intensified land use and the lake. He added that Lake Sarah had also been subject to cultivation and cropping along one of its margins in recent years, and referred to Prof. McIntosh's comments relating to recovery from earlier cattle impacts.



5.105 He said catchments in the monitoring programme that did not have any recent land intensification in their catchments (e.g. Lakes Pearson, Lyndon, Ida, Selfe, Camp etc, had not shown recent changes in nutrient status. (28). He asserted that Mr Main was seeking to discredit or cast doubt on the CRC Lake monitoring programme.

5.106 Dr Meredith also disagreed with the efficiency of riparian buffer strips in removing nutrients, stating that while earlier studies in the early 1990s showed positive outcomes, recent work indicated that these were not as effective as initially thought. He considers that alluvial gravel systems such as the Cass Basin have not been proven to contain effective clay aquitard systems. On that basis, he concluded that subsoil conditions in this area are unlikely to be a barrier to significant groundwater movements. His overall conclusion was that given the sensitivity of the receiving waters to nutrient enrichment, a precautionary approach was required.

5.107 **The applicant's right of reply**

5.108 **Ms Appleyard** presented a very extensive right of reply accompanied by four further statements of reply evidence from witnesses for the applicant.

5.109 She addressed submitter complaints about the description of the activity by noting that there was no significant difference between nutrient outputs for beef and dairy cattle, and that there was no change to the level or nature of effects associated with the proposal. She said there was change to the scope of the application, and that there had been no intention to mislead.

5.110 She said the additional evidence of Dr Davoren established that the assumed stock water take of 144l/s was reasonable, and that transmission losses were comparable to those on other rural properties. She was adamant that any assessment of effects needed to recognise that in practical terms that at least 144l/s of water had been taken for irrigation for many years. She added that *"in short, it is the case for P&E Ltd that irrigation occurred on Grasmere Station for almost 40 years with no observed adverse effects"* (29).

- 5.111 She then focused on landscape issues raised in submissions. She noted that under the Selwyn District Plan pivot irrigators were a permitted activity and that the other plans cited by Forest and Bird related to specific landscape rules contained in those plans (e.g. Waitaki and Mackenzie Districts). Grasmere Station was not identified as being an outstanding landscape in terms of the Selwyn District Plan and that landscape effects were of limited relevance. She noted that Policy B1.4.22 in the district plan recognised pastoralism, and associated pasture improvements, shelter belts and small-scale structures as appropriate activities in areas of outstanding landscape in the high country. She contended that irrigation infrastructure would fall within the permitted baseline.
- 5.112 In terms of plan integrity issues raised by opposing counsel, she contended that the P&E proposal could be identified as an exception as there were extremely limited opportunities for irrigation above Woodstock; the application was supported by the surrender of downstream consents held by the applicant; and the stock water take was reasonable and permitted in accordance section 14(3)(b) of the Act. Finally, there was a history of irrigation on Grasmere Station for many years.
- 5.113 She said the proposal was not being promoted as environmental compensation as implied in the submissions of Mr Anderson, and that a transfer is effectively an application for resource consent under section 136. She submitted that the WRRP treated transfers as resource consents under that plan. The proposal was not comparable to a transfer from another catchment, - for example, the Rakaia River.
- 5.114 She considered that the concerns raised in submissions and evidence for CPW were overstated. She said that the risk of over allocation and loss of priority access to water was largely theoretical, and any future consents to take unallocated water would be subject to submissions. She considered that a number of the matters of concern raised by CPW would be better addressed as part of the review required with the adoption of the new Otarama flow measurement site. She said the applicant would be prepared to accept the suggestion in Mr Callander's evidence (out of an abundance of caution) that any consent be deemed to be a B permit takes and subject to the B permit flow regime (30)(31). She said the applicant opposed any condition that would make the existing consent held by P&E Ltd subservient to the whole A and B block permits.

(30) Callander para 3.13

(31) Appleyard reply para 55.2

- 5.115 She did volunteer a significant additional condition, should the application be granted. This effectively sought to acknowledge the requirements under the pLWRP should consent be granted. These conditions were a requirement for a farm environmental management plan (FEMP) to be prepared, and a requirement for a total property nutrient limit to be met, as modelled by *OVERSEER*.
- 5.116 **Dr Davoren's** evidence in reply sought to address concerns raised by submitters and the reporting officer, about whether the stockwater take was "reasonable". He said there was no distinction between dairy and beef cattle with respect to daily stock water requirements. He said the leakage from the stock water diversion on Grasmere was in relative terms comparable to transmission losses in other race systems, citing the Acton and Rangitata - Rakaia Diversion races. He rejected Mr Hutchings' assertion that there would be increased run-off from irrigation, which he said reflected a lack of understanding the efficiency of centre pivot irrigation. This form of irrigation would ensure there was no ponding and surface run-off to waterways.
- 5.117 **Ms Phillips** evidence clarified that in terms of the *OVERSEER* (V6) model, there was only a small difference in nutrient outputs from irrigated dairy replacements compared to beef cattle. She said that modelling for the current farming scenario was completed assuming dryland not borderdyke irrigation (32). However, she did model a borderdyke scenario and concluded that nitrogen losses would be 43kg/ha/year, and phosphorus 1.0 kg/ha /year. (This was based on 384ha of borderdyke irrigation, as 114ha of Grasmere had never been irrigated).
- 5.118 In response to a further request for clarification from me, she confirmed that with a reduction in stock numbers, nitrate losses would be the same as under the current dryland scenario without irrigation. She said that although there would be an increase in nitrate losses from 41kg/ha/year to 49kg/ha/year with irrigation, there are likely to be no additional losses with riparian buffer strips and buffer distances from Lake Grasmere.

- 5.119 **Mr Main** reiterated his contention that the presence of waterfowl has significant implications for nutrient levels in the Alpine lakes. He again cited Lake Emma in the Ashburton catchment as having the poorest water quality of any high country lake, despite the absence of improved pasture. He queried whether waterfowl populations on Lake Grasmere would increase as a result of irrigation since that activity had been carried out since 1975 on the property, including on the paddocks closest to the lake. He said the majority of the new area to be irrigated does not flow towards Lake Grasmere.
- 5.120 He said the TLI was always based on total concentrations of nutrients, not soluble nutrients. He considered it was important to acknowledge that there were high TLI indices in lakes which were also wildlife refuges, such as Lake Grasmere. He felt Dr Meredith had exaggerated the effects of further land use intensification (irrigation) on Lake Grasmere, as the *OVERSEER* model used by Ms Phillips showed that the nutrients lost through efficient spray irrigation were only slightly greater than would occur without irrigation, and in fact lower in the case of phosphorus. He said there was no evidence of cultivation or cropping on the margins of Lake Sarah.
- 5.121 He said he was not seeking to discredit data from the ECAN lake monitoring programme, but only the interpretation that had been placed on it.
- 5.122 He agreed that while the effectiveness of riparian buffers was variable, in his view it had failed where these strips were of inadequate width, were disconnected or retrofitted, and that buffers of more than 10m in width provided significant reductions in nutrient concentrations.
- 5.123 He considered that while there was no conclusive evidence of impermeable layers in the vicinity of Grasmere Station, he said there was evidence of their presence in bore logs from Cass, and from his field study.
- 5.124 **Dr Taylor** maintained that the evidence clearly showed that the Cass River is predominantly a single channel waterway, with only weak braiding present. He was firmly of the view that at least some of the studies undertaken by the University of Canterbury took place during a period when either a full or partial take was being exercised from the river, and all studies would have been affected by the (reasonably substantial) stock water takes.

5.125 He disagreed with Prof McIntosh's conclusions with respect to the range of fish species present in the Cass River, and defended his sampling technique. He maintained that salmonids except brown trout are rare in the affected part of the river, and that alpine galaxias and that non-migratory Canterbury galaxias were the dominant fish species. He maintained that longfin eels would be rare in the vicinity of the intake. He said that the *WAIORA* modelling showed there would be some reduction in water velocity and depth but only a very small impact on wetted width. While this model, like others, may have imperfections, he said it was one of the few analytical tools available. He contended that the small changes to the flow regime were unlikely to manifest themselves as increases in predation. He said:

*"It will not suddenly become a small stream with heavy predation by brown trout. Indeed the model shows if anything, the hydraulic habitat will become slightly less optimal for trout. At the same time, the somewhat shallower profile would improve the habitat for small native fish like the Canterbury galaxiid and the alpine galaxias, which were found in the shallows during the day" (33)*

5.126 He was of the opinion that the minor changes to flow resulting from the proposed take would make very little difference to the environment for fish life or invertebrates comparison to that which has evolved as a result of previous irrigation and ongoing stock water takes.

## **6.0 ASSESSMENT OF EFFECTS**

### **Preliminary matters**

6.1 Some submitters, and it would appear to a large degree the applicant and their witnesses, considered that a decision to either decline or approve the application according to their respective viewpoints, was a simple and straightforward judgement. However this proved to be far from the case. This is one of the reasons why I have sought to take considerable care to record the key points made by the various parties in evidence.

6.2 The site visit included the intake point, the Cass River both upstream and downstream at this point, the Cass River upstream of the State Highway 73 Bridge, the Grasmere Stream from Craigieburn Rd, and the southern end of Lake Grasmere.

***The description of the activity***

- 6.3 The description of the application was quoted earlier under my summary of submissions, which included the wording contained in the AEE accompanying the application. The application makes reference to the land use being beef and sheep farming, whereas at the hearing it was apparent that the intended land use related primarily to non-milking dairy stock.
- 6.4 Some submitters were very concerned that the application was misleading, and that this may have influenced the content and volume of submissions that were lodged, and how the application was assessed.
- 6.5 The following factors have relevance to this:
- (1) There is no requirement under the WRRP or the Selwyn District Plan which would require resource consent for a change of use from sheep/beef to a combination of non-milking dairy stock and cropping. Beef and dairy cattle create similar nutrient loadings. However the applicant's reply did not comment with respect to sheep.
  - (2) Any change to an existing farming activity prior to 1 July 2017 is subject to a range of conditions under Rule 5.42 of the pLWRP. However consent has not been sought in respect of this Plan, but may be required later regardless of the outcome of this application.
  - (3) The activity status remains noncomplying.
  - (4) The proposed activity was publicly notified in 'The Press' and as well as continuing to make reference to beef and sheep, also added the words "excluding milking dairy cows".
  - (5) The assessment presented to the hearing by the applicant, notably in the evidence of Ms Phillips, makes reference to 3000 non-milking dairy stock. I understand ECAN officers were advised in information provided by Dr Davoren in July 2012 in response to the 'Request for Further Information' (RFI).- that various scenarios involving beef cattle were used for modelling nutrient effects (34).

- 6.6 I somewhat reluctantly accept that the changes to the description of the activity was probably not a factor of such significance as to compromise the submission process, and observed that ECAN did not raise it as an issue with the applicant at the time of receiving the further information. I understand that they also undertook their assessment of the application on the basis of the stocking rate which was described in Ms Phillips evidence. That said, I consider it entirely understandable that some of the submitters were very critical of the description given in the application. The content of the AEE was quite explicit and unambiguous in stating that the proposed land-use would comprise sheep and beef, and further, that there was no intention to change this land use.
- 6.7 Submitters are entitled to rely on the description given in an application and accompanying AEE, at face value. Put another way, I think it would be quite unreasonable to criticise the submitters for any alleged failing to understand the niceties of the changes made to the description of the activity. The description of what is proposed in an application is important in influencing people's decisions as to whether or not they want to make a submission. However, I have concluded that ultimately, based on the factors outlined above, the effect of the inaccurate description did not materially alter the outcome of this application.

***The weight to be given previously authorised takes and current use of water.***

- 6.8 In her opening submissions for the applicant, Ms Appleyard accepted that there is no valid consent currently in place, and that the previous consents granted do not form part of the existing environment in terms of a permitted baseline.
- 6.9 However she argued strongly that considerable weight should be placed on the consents that were granted in 1972 and 1975, and what she contends has been ongoing "*extensive irrigation activity*" on the property up until 2008/09. This was the point when irrigation ceased when it became known that a resource consent was required (35).
- 6.10 She also argued that as irrigation has been taking place on the property for approximately 40 years, albeit under a relatively inefficient border dyke system, there was no evidence of any adverse effects having arisen, or that any such effects were more than minor.

- 6.11 As noted in my summary of her submissions, the key point that she was seeking to make was that in considering the likely effects of the proposed activity, regard can and should be had to known effects of the previous activity. In the right of reply, there appeared to be greater emphasis on relying on the take for stockwater, which subject to it being reasonable, and not having an adverse effect on the environment, is *permitted as of right* under Section 14(3) of the Act.
- 6.12 From this, I am faced with the vexed question of considering whether in fact extensive irrigation activity took place between 1984 and when the property recently changed hands in 2009. Could it be reasonably argued that the proposed level of irrigation and land use intensification contained in this application (and its effects on the environment) is in large part a continuation of what has already been done for years?
- 6.13 As noted above, during the course of the hearing, a number of submitters strongly contested the claim that there had been significant irrigation on the property since at least the mid-1980s.
- 6.14 I acknowledge Mr Bennett's detailed knowledge of how the original irrigation scheme on this property came into being. However I consider that the farming regime originally developed in the late 1960s and given effect to through the consents granted in 1972 and 1975 was materially different to the proposed land use scenario being promoted by the applicant.
- 6.15 40 years ago, I strongly suspect that the concept of irrigation using centre pivot irrigators, particularly in this alpine environment, would not have been contemplated. The irrigation technology at that time was directed at improving the economic viability of high country sheep farming activity on the property following the retirement of mountain land from grazing. It relied on the development of a relatively unsophisticated canal system for irrigation and stock water supply.
- 6.16 As noted in the summary of evidence, Dr Davoren was firmly of the view that leaching to groundwater was to be expected in a scheme such as this. He indicated that the last gauging at the Cass River intake was in 1985, and that in his judgement, "*it is reasonable to assume that for all of this time (1985 to 2007) 100 –150L/s has been diverted for stock water purposes*" (36.)



- 6.17 Nevertheless, there is no clear evidence as to the volume of water taken for stockwater purposes for a period of over 20 years until the current owner acquired the land and began intensifying the land use on Grasmere. It appears to me that the applicant is anxious to secure acceptance that a relatively high ongoing take for stockwater has occurred during that 20 year period. This is because it can then be argued that a relatively high stock levels can be achieved on Grasmere without irrigation, and that accordingly any adverse effects such as nutrient losses with irrigation will only be marginally greater, if at all. Similarly, any additional effects of the take now proposed on flows in the Cass River will not be much greater either. An example of this can be seen in the reply evidence of Mr Main where in debating the effects of waterfowl, he poses the question "*Will the waterfowl populations on Lake Grasmere increase as a result of something which, to all intents and purposes, has been carried out since 1975?*" (37). The argument that the effects of the proposed farming regime that will be undertaken if the application is approved are to a large extent a continuation of 'business as usual', is a consistent theme in the applicant's case.
- 6.18 I remind myself that the applicant has noted that only 135 l/s would be taken initially, but consent is specifically sought for 276l/s, a point consistently emphasised in Ms Appleyard's submissions, and in her right of reply.
- 6.19 I certainly acknowledge that the intake and race system has remained in commission, and has never been abandoned - but I think that from a cautious perspective, a take in the region of 100l/s - at the lower end of Dr Davoren's estimate - would be a more realistic "baseline".
- 6.20 Mr. Morrison noted that "*the proposed irrigation will allow for much better pasture production and stock food. There is also the option for supplements or grain crop to be produced which could be taken elsewhere*". (38).
- 6.21 The installation of pivot irrigators is very capital intensive, and it is apparent to me that the proposed farming regime on Grasmere, for all its merits, is a significantly different activity in terms of its intensity, to what has occurred for the previous 20 to 25 years.

- 6.22 I acknowledge there are circumstances where a long-standing farming activity reliant on irrigation may be faced with a situation where ongoing access to water may be rendered uncertain by the need for a renewal of consent, or perhaps less likely, a scenario whereby consent has inadvertently been allowed to lapse. Such a situation could cause significant hardship to the individual concerned. I do not consider that is the case here. I believe it is improbable that the previous owner of the property, if they were concerned about the importance of irrigation, would simply overlook the need to renew their consent. I think it is equally likely that what has happened after 1984 is that the owner at that time simply elected not to pursue irrigation on the property (except for stock water), or to intensify land use through the application of fertiliser. They may well have chosen not to take active steps to renew the consent.
- 6.23 Earlier in this decision, I quoted from the submissions presented by Mr Hutchings on behalf of the University of Canterbury with respect to the weight to be given to the previous take, and I agree with the thrust of his argument in this respect. There is very limited information available as to what volume of water was actually taken and how was used over the period from 1984. I have reservations about accepting that any adverse effects of this proposal can be largely discounted as a result of the level of effects associated with previous ongoing use of water on Grasmere.

#### ***Other Matters***

- 6.24 Dr Davoren noted the calculation of the annual volume of water to be taken for irrigation contained a minor error, and should have referred to an annual volume of 3,324,000 m<sup>3</sup> a year, not 3,336,000<sup>3</sup> a year as contained in the application. This amendment is within the scope of the application.

#### **The effects of taking water on surface water flows and ecosystems**

- 6.25 It was generally accepted by all witnesses that there was limited information available in terms of a flow record for the Cass River, and perhaps unsurprisingly the WRRP did not contain a flow regime or specify a MALF.
- 6.26 Some submitters were concerned that the full take of 276l/s would amount to "half the flow" of the Cass River. However it was apparent from the evidence that this was not the case. Dr Davoren was sceptical of the reliability of information in the officer's report. The applicant's case was that the initial take of 135l/s would have little impact, and that even after the exercise of the full take of 276l/s, the residual flow would probably be nearly 500 l/s, bearing in mind restrictions to protect A and B Permit users downstream. Accordingly I accept that if the application were granted, it would not have an impact at times of low flows in the Cass River.

- 6.27 I note that Dr Taylor's evidence for the applicant was that while the full take of 276l/s would not be exercised continuously, he was concerned that the effects on downstream ecology would at least need to be monitored. The University of Canterbury were particularly concerned because the primary effects of reduced flows would be on the section of the river between the intake point and the Grasmere Stream confluence, which was the section of the river which was critical for research purposes.
- 6.28 The applicant has perhaps the singular misfortune of having a "non-consumptive" user in the form of the University of Canterbury downstream of its take. I accept that in the sense of being an affected abstractor, strictly speaking, the University cannot be defined in this way. However the University is an affected party in terms of this application. I also accept however the evidence of Dr Davoren and Dr Taylor, that research work undertaken by the University in the past on the Cass River would not have represented study of an 'unmodified' flow environment.
- 6.29 At the higher rates of take proposed, I consider the reductions in flow could have a periodic influence on the ability of the University to undertake its very long-standing research activities, particularly in terms of additional variations in flow that would not occur if the flow was unmodified. Quantifying the scale of this as a 'problem' however, would be difficult.
- 6.30 The evidence as to effects on the extent of wetted surfaces, and on ecosystems was somewhat inconclusive, given the highly conflicting evidence. I accept that the take would not be taken continuously at the full rate sought, resulting in flatlining during periods of 'medium' flows. On balance, I have a slight preference for the evidence of Dr Taylor, because he undertook an assessment which was not seriously challenged by ECAN officers, while that of Prof McIntosh was largely a critique, rather than a presentation of contrary evidence.
- 6.31 However I consider that the exercise of the full take of 276l/s sought through the application could have at least a moderate impact on stream flows.

#### **The effects of taking water on fish life**

- 6.32 The effects of this have been in part addressed in my comments above. Under this heading, the officers report primarily focused on the need for a fish screen. The evidence also suggested that such a screen have to be sufficient to intercept galaxias. If consent were granted, I consider an appropriate condition could be drafted to adequately address the needs for screening. The specific design requirements and impacts on the intake point were not discussed at any length during the hearing.

### **The effects of taking water on other users**

- 6.33 Ultimately, this issue became focused on discussions in evidence involving Central Plains Water and the applicant (Mr Callander and Dr Davoren) with respect to the potential impacts of the proposed take on A and B permit holders in the lower Waimakariri.
- 6.34 The applicant's proposal was to surrender or transfer their existing B permit allocation from the lower Waimakariri to the Cass River, a total of 135 l/s. The submitter considered that in principle this would be an acceptable arrangement, subject to a suitable legal mechanism being devised which protected the priority of A and B permit consent holders, as are already provided for under existing consent conditions. It was however apparent that the drafting of such a mechanism was complex and challenging, but as I understood it, practicable.
- 6.35 The applicant was sceptical of the need for specific detailed conditions, and considered these were already adequately addressed under the consents as they stood, and as incorporated into conditions of consent.
- 6.36 Ultimately, I came to the view that this was not so much an issue of whether adverse effects on downstream abstractors could be mitigated, but more an issue of how this would be best achieved in terms of process and conditions. Accordingly, I consider that if consent were granted, it would be possible to draft a suitable mechanism which protected downstream users, albeit that it might be potentially cumbersome.
- 6.37 There was concern expressed by some submitters during the hearing that such an arrangement would effectively mean that the environmental effects of the transfer could result in effects on the Cass River being discounted. I do not consider this was the applicant's intention, and the effect of the arrangements proposed by the applicant was solely to address impacts on downstream abstractors. This was to be considered completely independently of the effects of the take on the Cass River.

### **The effects of water use on water quality**

- 6.38 This has been arguably the most important, and almost certainly the most difficult factor, in assessing this application.
- 6.39 Central to this issue is whether the intensification of farming activity associated with irrigating Grasmere Station would result in an increase in nitrogen losses into surface waters including Lake Grasmere. I say including, because it is apparent that given the area to be irrigated, particularly at the northern end of Grasmere Station, any potential effects could impact Lake Grasmere, Grasmere Stream, and possibly the Cass River.
- 6.40 I have commented earlier what I consider to be the starting point for this assessment, which is that in the absence of clear evidence to the

contrary, the property has been used for many years as a dryland farming unit with a take of water for stockwater purposes. There is no 'baseline' for irrigation in any form.

- 6.41 Ms Phillips evidence has addressed the potential effects of land use intensification, and has applied the *OVERSEER* model, as would appear to be for applications under the pLWRP where land use changes are proposed. I am aware that the *OVERSEER* model is now widely accepted; the officers and submitters did not challenge the accuracy of how Ms Phillips applied the model. Similarly, Dr Davoren noted that use of centre pivot irrigation offered much more efficient application of water than borderdyke irrigation would, and that it would avoid the likelihood of surface ponding or overland flows into surface water bodies. I accept the evidence of these witnesses on those matters.
- 6.42 Ms Phillips evidence contrasts a current dryland scenario and an irrigated scenario, which indicated an increase in nitrogen loss to water of 41 to 49 kg/ha/year, and for phosphorus of 0.3 to 0.5 kg /ha/year.
- 6.43 The fundamental position put forward for the applicant was that this represented a relatively small increase in nitrate and phosphate loadings. Equally importantly, Mr Main sought to establish that any such increase in nitrogen or phosphate loadings would be effectively mitigated through a setback from lake (and I assume stream) boundaries and wetland vegetation. The potential effects of nitrate and phosphorus access to Grasmere Stream and ultimately Lake Sarah were not addressed in any detail.
- 6.44 At times I entertained the thought that there was perhaps a missing link between the evidence of Ms Phillips and Messrs Main and Meredith, which may have been best addressed by evidence from a hydrogeologist, but no party presented such evidence to the hearing. I also acknowledge the limits to the resources that an applicant can be expected to bring to bear in these circumstances.
- 6.45 Both Mr Main and Dr Meredith were insistent that their conclusions were based on the results obtained from the ECAN lakes monitoring programme. Both are very experienced and qualified ecological experts. Prof McIntosh broadly supported the position taken by ECAN on the potential effects of the proposal on water quality. Yet the conclusions of Mr Main and Dr Meredith largely contradicted each other, and appeared to go beyond mere disagreement over matters of emphasis, as is so often the case with applications of this nature.
- 6.46 Dr Meredith concluded that vegetated buffers were of doubtful benefit as a means of mitigating nitrate and phosphorus infiltration into surface water, a view strongly contested by Mr Main.

- 6.47 Mr Main was strongly of the opinion that waterfowl had a significant impact on nutrient levels in alpine lakes, whereas Dr Meredith considered this was a much less important factor, and certainly less important than land use intensification.
- 6.48 Dr Meredith questioned the presence of aquitards in the Grasmere area, whereas Mr Main considered they were likely to be a significant inhibiting influence on groundwater movements.
- 6.49 Dr Meredith was of the opinion that the TLI in Lake Grasmere and other alpine lakes were showing a long-term increasing trend, and there was a serious risk of these lakes becoming eutrophic. In contrast, Mr Main was of the opinion that the TLI in many of these lakes were more recently showing a declining trend.
- 6.50 In addition, the two witnesses were in disagreement over whether the appropriate approach was to consider total nutrient levels, or soluble nutrients.
- 6.51 Other factors raised included the influence of stock having access to water bodies.
- 6.52 To a large extent, this part of the hearing expanded into a debate on the much wider issue of what factors were driving nutrient levels in Canterbury alpine lakes generally, and whether or not more intensive farming was a major driving factor or not. The contrasting positions of the two witnesses went to the very heart of this issue.
- 6.53 Having regard to the undoubted expertise of both of these witnesses, and to a degree Prof McIntosh (who did not take such a central part in this particular debate) I found it very difficult to arrive at any definite conclusion as to whether the irrigation regime proposed on Grasmere Station posed a significant risk to water quality in Lake Grasmere or even beyond it.
- 6.54 In approaching this conflict of evidence, I consider it was important to keep the objective and policy background contained in the RPS, the National Policy Statement on Freshwater, and the WRRP in mind. Essentially this framework is that the quality of water in sensitive environments such as this must be at least *maintained*.
- 6.55 I consider the evidence of Dr Meredith and Prof. McIntosh supports the view that the maintenance of water quality in Lake Grasmere and the surrounding waterways is a matter of fundamental importance, and I also accept that such water bodies are fragile in terms of their potential to absorb any greater level of nutrients and risk the coming eutrophic. I note that the cost of rectifying contaminated water bodies is very high, and the adverse effects may for practical purposes be irreversible.

- 6.56 Mr Main commented that in his evidence *that "my personal view is that there is some natural periodicity in TL's, which could be related to a climatic factor that is influencing many, if not all, of the lakes in the region"* (his paragraph 54). While undoubtedly an honest assessment which reflects the many uncertainties that influence the quality of water bodies, I do not find this observation reassuring in the context of the sensitive environment in this area and the potential effects of the application being granted.
- 6.57 I consider that it is necessary for me to be confident that the effects of granting this application will not have an adverse effect on the affected water bodies, having regard to their sensitivity to increased nutrient loadings, and the irreversibility of adverse effects. I am acutely aware that the "precautionary principle" can become a scoundrel's refuge when used as a mantra to oppose development generally, but in this case I think it has relevance. Put another way, while I don't think the evidence can provide certainty, it would need to engender confidence that there would not be adverse effects from excessive levels of nutrients entering Lake Grasmere and downstream waters. The evidence did not sufficiently convince me that that was the case.
- 6.58 I also note that this is one of those issues where if the "tipping point" was passed, monitoring would serve little purpose, unless it were able to provide sufficient warning in time. However even if this were the case, the mitigation measures required may be too late, and/or would have a serious adverse effect on the viability of the farming operation.
- 6.59 While I am prepared to accept that a riparian buffer strip might be successful in reducing nutrient levels, the effectiveness of this as a mitigation method appears to be subject to ongoing debate in the literature and in field studies. I noted Dr Meredith's comments with respect to the relative absence of increased nutrient levels in alpine lakes where there is no land use intensification, or where stock have been excluded from lake margins. On balance, the evidence has led me to a narrow preference for the evidence of Dr Meredith. There is little to separate the weight of arguments presented by both witnesses. However in the final analysis, it is for want of caution that I have concluded that the possible impacts of nitrogen enrichment of nearby water bodies creates a potential risk of adverse effects that would be more than minor, and where the consequences of 'getting it wrong' would be serious.

#### **The effects of water use on landscape and amenity values**

- 6.60 The effect of the application in terms of the landscape values of the Cass Basin was the subject of comment in numerous submissions, as described earlier in this decision. Reference was made to the iconic landscape character of the area, with two issues in particular being raised through submissions. Reference is made in submissions of both Nicola Shoyink and Rosalie Shoyink to the famous Rita Angus painting of Cass railway station,

with the backdrop of Mt Misery which lies to the west of the application site; and the panorama to be obtained of the Cass Basin from State highway 73, which bisects the application property. In particular, the view from the highway as seen from the top of the large outwash fan south of Grasmere towards the north is regarded as something of a tourist icon.

- 6.61 While I don't think the landscape as represented in the Rita Angus painting would in fact be altered by this particular application, I agree it has powerful symbolism, and I would certainly accept that the proposed land-use associated with irrigation, and more particularly the introduction of centre pivot irrigators, could have a significant adverse visual impact on views from State Highway 73. The manner in which outstanding landscapes in the Selwyn District Plan are defined, is to include the mountains but to exclude the intervening river flats and outwash fans which would make up a large part of Grasmere Station.
- 6.62 I consider there are three primary issues arising with effects on landscape. The first of these is the "greening" effects of intensive farming raised in a number of submissions; the second is the introduction of irrigation infrastructure in the form of centre pivot irrigators; and finally vegetation clearance undertaken on the property.
- 6.63 With respect to the "greening" of the landscape, this is a characteristic which is already a long established feature on many high country stations (along with exotic shelter belt plantings), particularly in close proximity to homesteads. This greening is the result of establishing exotic pasture grasses through oversowing, the planting of winter feed crops, the application of fertiliser, and 'farming to the conditions', recognising that these are generally higher rainfall areas. Except to the extent that irrigation may increase the area of greening, I consider this is already a feature of the high country.
- 6.64 I understand that there may already be a few examples of centre pivot irrigation within the Canterbury high country, but I have no confirmation as to whether this is the case or not. However I am aware that the visual impacts of large centre pivot irrigation structures have been of concern in the Mackenzie country, and have been the subject of litigation relating to landscape controls generally in that area. Plans made available by the applicant indicate that there would be five centre pivot irrigators located on the property, with a total length of approximately 3 km.
- 6.65 I accept that this area has high landscape values, and that the scale of the pivot irrigator infrastructure proposed could have a significant adverse visual effect on this landscape. I also accept Mr Anderson's contention that the irrigation infrastructure is directly related to the proposed use of water through the application. However as Ms Appleyard also points out, while such structures may be controlled in other district plans, they are not under the Selwyn District Plan, which defines them as "utility structures". Such structures do not appear to be restricted along the scenic corridor of



State Highway 73 either. I am not entirely surprised at this, because even if there was a will to restrict this form of infrastructure in the high country, I consider it was very unlikely that those who drafted the plan in the 1990s would have anticipated centre pivot irrigators in this environment.

- 6.66 It is the district plan (not the regional plans) which impose rules with respect to landscape. This does however result in the somewhat unusual outcome that a relatively small farm building might require consent in terms of landscape impacts along State Highway 73, but the extensive pivot irrigator system does not. It is also paradoxical that provisions in the WRRP which encourage the efficient delivery and application of water for irrigation have the effect of providing a very strong incentive for centre pivot irrigation, in direct contrast to the relatively innocuous visual effects associated with 'inefficient' border dyke irrigation.
- 6.67 This leads to the question as to the extent to which landscape values can be taken into account with respect to an application to take and use water. The application is noncomplying in status, which enables any effects associated with the application to be taken into account.
- 6.68 Mr Anderson sought to persuade me that Objective 5.1, subclause (g) in the WRRP required me to take account of the effect on amenity values of the application. This subclause refers to "*maintaining and enhancing amenity values*". The reporting officer, Mr Deavoll, took the view that this objective was referring to the amenity values of water bodies. I agree with his view, and consider that the WRRP is not particularly helpful with respect to landscape values generally, perhaps unsurprisingly because that is not the focus of the plan. I am also conscious that I have no evidence before me in the form of a landscape assessment which assesses potential landscape impacts of irrigation infrastructure on Grasmere Station. I don't think it would be fair to see that as an omission on the part of the applicant, but I consider I have to take a wider view.
- 6.69 I note that Objective 12.2.1 and Policy 12.3.1 of the RPS do provide for natural features and landscapes to be taken into account. The policy specifically refers to Appendix 4 of the RPS, which identifies the Waimakariri Basin (as a whole, not simply the mountains (excluding the intervening lowlands and valleys) as having significant natural science, aesthetic, Tangata Whenua, historic and shared and recognised landscape values.
- 6.70 The activity is noncomplying in status, and I have the discretion to consider all relevant effects. As noted earlier, I accept that there is a direct linkage between a grant of consent to take water, and its use through centre pivot irrigation infrastructure, which in turn has significant visual impacts, particularly on the scale proposed here. I also note that the RPS has only

recently become operative, and significant weight can be attached to it. While I am aware that the permitted baseline should be applied in appropriate circumstances, this is not mandatory, I am not convinced that in this case discretion should be exercised to apply the permitted baseline given the potential adverse visual effects.

- 6.71 Accordingly, notwithstanding the qualifications set out above, I have come to the conclusion that a grant of consent to this application would have a significant adverse effect on the landscape values of the Cass Basin (as part of the Waimakariri Basin) which is recognised in the RPS, but not the district plan.
- 6.72 I would like to add that those submitters who might take comfort from these comments, and particularly Forest and Bird, should not do so. If it is considered appropriate that pivot irrigators be restricted in the high country in some form, I can only observe that the rules framework in the Selwyn District Plan is currently woefully inadequate for this purpose, and would need to be revisited.
- 6.73 Finally, a number of submitters expressed concern about the removal of matagouri from the northern end of the property. The applicant invited me to inspect the 'Google Earth' aerial photograph of the property. This was dated 2008 and showed most of the northern area of the property as clear of matagouri with the exception of a strip adjacent to the northwestern edge parallel to the Cass River, and what appeared to be another patch of vegetation extending on both sides of State Highway 73 in the same block. Whether such work requires consent under the district plan is beyond the scope of matters that I can consider here, and would if necessary be an enforcement matter.

#### **The effects of inefficient use of water**

- 6.74 The reporting officer's section 42 a report had expressed concerns that there was inadequate information accompanying the application to determine whether the use of water would be efficient.
- 6.75 I consider that Dr Davoren's evidence established that the application of irrigation utilising centre pivot irrigators would ensure that the water was taken and used efficiently<sup>(39)</sup>, and certainly much more efficiently than would be the case under the current border dyke system with its extensive losses to groundwater.

- 6.76 A number of submitters queried the wisdom of intensive farming in this area, particularly given the limited growing season. Others, notably Mr McSweeney, argued that specialised Merino farming was an example of a profitable activity that could be undertaken on such properties without reliance on irrigation. However I see this is essentially a broader and different issue to the matter of the efficient use of water. In other words, the issue to be considered in terms of the WRRP under this heading is whether the method being used to apply the water would be efficient, rather than whether dairy support farming is appropriate in the high country.

#### **The effects on Tangata Whenua**

- 6.77 Chapter 2 of the RPS contains "Issues of resource management significance to Ngai Tahu". Contained in this chapter are the "outcomes desired by Ngai Tahu which include establishing sustainable environmental flow regimes, emphasising customary use and instream values over abstraction, avoiding discharges to water, and maintaining and enhancing water quality.
- 6.78 Of particular significance is the concept of *mauri*. Clause 2.2.3 indicates that the health of *mauri* includes the presence of healthy mahinga kai and other indigenous flora and fauna, and the presence of resources for cultural use.
- 6.79 Section 104(1)(c) enables the consent authority to consider other matters relevant to the application. The Te Taumutu Runanga Iwi Resource Management Plan contains specific policies relevant to high country lakes and rivers (2.4.1 and 2.4.2 respectively). The content of these policies includes the protection of the *mauri* of high country lakes, that any water saved through efficient use be returned to waterways, no discharge of chemicals or contaminants into high country lakes, avoiding stock access to lakes and their riparian margins, and the over allocation of water.
- 6.80 To the extent that the activity might compromise water quality in high country lakes, there is potential for conflict with the provisions. The proposal of the applicant to restrict stock within the margins of the lake would be consistent with what is sought through these policies, and would be a positive factor.

- 6.81 Ms McIntyre's evidence stated that "*Ngai Tahu believes that this part of the Canterbury high country is culturally, ecological, and aesthetically very special and that there is a duty on those farming within that tread lightly*" (40) I agree with the submitter that the farming regime proposed, whatever its merits, is significantly different in its intensity to what has been undertaken in the past.

#### **Positive Effects**

- 6.82 As part of the assessment of an application, it is appropriate that positive effects be taken into account and that these can be balanced against any adverse effects.
- 6.83 I consider that a grant of consent to this application would improve the economic viability of Grasmere Station, reduce its vulnerability to climatic variations, and provide more flexibility in terms of the manner in which it could be managed. It would also have a positive economic benefit for the applicants, and to the extent that it forms a component of the wider dairying and dairy support industry in Canterbury, would contribute to the industry and its downstream economic benefits.
- 6.84 The applicant has offered to protect the riparian margins of Lake Grasmere through excluding stock within 24 m of the lake edge. While I consider that is a benefit in terms of protecting water quality, I consider this represents good farming and environmental practice which is to be expected whether or not this application were granted.

#### **Overall conclusions on effects**

- 6.85 I have come to the conclusion that there are potential adverse effects associated with this proposal that may be more than minor, in terms of the potential risks associated with nutrient enrichment of Lake Grasmere and potentially downstream waterways, when regard is had to the fragile nature of this and other alpine lakes.
- 6.86 I also consider that the application would result in a form of irrigation (using centre pivot irrigators) which while efficient, would have a significant adverse visual effect on an area containing significant landscape values.

- 6.87 While the additional adverse effects on flows in the Cass River beyond previous (largely undocumented) rates of irrigation may not be significant for much of the time, there is potential for adverse effects beyond that previously experienced as a result of stock water takes, particularly in terms of the long-standing research activities undertaken by the University of Canterbury and the Cass River and the Grasmere Stream.
- 6.88 In her reply, Ms Appleyard identified reasons why she considered the P&E application was unique. The first was that there were few opportunities for irrigation above Woodstock (because of potential effects on downstream takes). However I'm not convinced this is necessarily the case as there may be other landowners who can transfer water permits and take advantage of this opportunity. In addition, she also submitted that the noncomplying activity status above Woodstock is not a prohibition, and that some take of water is anticipated (41).
- 6.89 Of more concern, is her observation that the application is supported by an existing section 14(3) b) take (for stockwater). I would be surprised if there were not other high country stations which also had similar takes, and could cite them as a platform to promote future irrigation. Finally, she relies on what she calls a long history of irrigation on Grasmere Station, but as indicated earlier in this decision, I remain unconvinced that for many years there has been a significant take of water, beyond an undefined take for stock water purposes.
- 6.90 It might be that opportunities should be provided for some form of irrigation on properties such as Grasmere Station, but I think this is better resolved in a more holistic way when there is a clearer understanding and consensus on what the effects of land use intensification through irrigation are in the high country. I have some concern that a grant of consent to this application, as a noncomplying activity, could create a precedent for ad hoc decision-making.
- 6.91 This is one of the most difficult applications I have ever had to consider in terms of weighing up potential effects on the environment. Overall, the matter is finely balanced. Ultimately, it is for a want of caution with respect to this sensitive environment that has led me to conclude that the potential adverse effects of the activity on the environment would be more than minor.

## 7.0 OBJECTIVES AND POLICIES

7.1 Mr Deavoll's report set out the statutory position with respect to the objectives and policies that are relevant to my consideration of this application. Section 104 (1) (b) states that in considering an application for a resource consent the consent authority must have regard to a plan or proposed plan, and the Regional Policy Statement.

### **Objectives and policies of the WRRP**

7.2 Objective 5.1 of the WRRP states as follows:

*Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the rivers, lakes and wetlands in the Waimakariri River Catchment, and from hydraulically connected groundwater while:*

- a) *Safeguarding their existing value for efficiently providing sources of drinking water for people and their animals;*
- b) *Safeguarding the life-supporting capacity of the water, including its associated: aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation;*
- c) *Safeguarding their existing value for providing mahinga kai for Tangata Whenua;*
- d) *Protecting wahi tapu and other wahi taonga of value to Tangata Whenua;*
- e) *Preserving the natural character of rivers, lakes and wetlands and protecting them from inappropriate use and development;*
- f) *Protecting outstanding natural features and landscapes from inappropriate use and development;*
- g) *Maintaining and enhancing amenity values; and*
- h) *Protecting the significant habitat of trout and salmon*

7.3 The application accords with the ability to obtain economic benefit from the waters of the Waimakariri Catchment, but this has to be balanced against the qualifications in subclauses (a)-(h). In addition, the WRRP has a significantly different regime for the use of water below Woodstock, than it does in the upper catchment. Albeit now virtually fully allocated, takes of water from the lower catchment are authorised on a significant scale for the irrigation of land on the Canterbury Plains, in contrast to the upper

catchment where there is no allocation provided for irrigation water. I consider that the application is at least inconsistent, if not contrary, to subclauses (b), (c), (e) and (h). With respect to subclauses (f) and (g), any degradation of water quality in Lake Grasmere and downstream water bodies is arguably contrary to the second of these subclauses, even accepting a narrow interpretation that they only apply to water bodies and not the landscape generally.

7.4 Policy 5.1 of the WRRP states:

*Set and maintain water flow, water level and water allocation regimes and control the taking, use, diversion, discharge and damming of surface water, and the taking of water from hydraulically connected groundwater, while achieving (a) to (h) of Objective 5.1, so that:*

- *Above Woodstock (Figure 4 and Map 1 of the WRRP):*
  - I. *The range or rate of change of levels or flows of water in or entering lakes Blackwater, Grace, Grasmere, Hawdon, Letitia, Marymere, Mavis, Minchin, Pearson, Rubicon, Sarah, and Vagabonds Inn are preserved in their natural state;*
  - II. *The natural flows, including flow patterns and variability, in the Waimakariri River and tributaries are protected;*
  - III. *The natural water levels in wetlands are protected;*

This policy primarily concerns water abstraction and effects on the volume and levels of water bodies rather than the quality of water in them. As the application will have periodic adverse effects on water levels in the Cass River, it is to some degree contrary to subclause (ii).

7.5 Policy 6.1 of the WRRP aims to:

*"set and maintain water quality standards for, and control the discharge of contaminants into, surface water bodies in the Waimakariri River Catchment as outlined in Figure 6 and defined in Map 2 to:*

- *Protect the natural state of the water in lakes and rivers upstream of the confluence of the Waimakariri River with the Otukaikino Creek;"*

7.6 Policy 6.2 of the WRRP states:

*"promote land management practices in:*

- *The Waimakariri River Catchment which assist in achieving water quality standard;...*

7.7 The officer's report noted that the explanation of this policy stated that topdressing and heavy stocking in the catchment of some lakes in the upper catchments may result in accelerated rates of nutrients entering

these lakes and consequently accelerating the natural eutrophication rates of these waters. It was also noted that micro-organisms are also likely to occur at higher concentrations than would occur naturally and that the present relatively high water quality status of these water bodies will deteriorate unless measures are taken to reduce the possible impacts of intensive land uses.

7.8 I have discussed issues associated with the potential risk of nutrient enrichment of Lake Grasmere at some length earlier in this decision, and I have concluded that the degree of that risk has to be considered in the context of the fragile nature of water quality in these alpine lakes.

7.9 I consider that the application is contrary to these policies.

7.10 Objective 10.2.2 of the RPS requires the maintenance of the flood carrying capacity of rivers. I consider that the application is not contrary to this objective.

7.11 Objective 7.1 of the WRRP states:

*“Enable present and future generations to gain cultural, social, recreational, economic, health, and other benefits from river and lake beds in the Waimakariri River catchment while:*

*(i) protecting and where appropriate enhancing the flood carrying capacity of rivers;”*

7.12 I consider that the proposed activity is not contrary to this objective.

#### **Objectives and Policies of the Regional Policy Statement**

7.13 Objective 7.2.1 of the RPS addresses the sustainable management of freshwater resources:

*“To enable people and communities to provide for their economic and social well-being through abstracting and/or using water for irrigation and other economic activities, and for recreational and amenity values, and any economic and social activities associated with those values”*

7.14 On the face of it, the application is not contrary to this objective, but as discussed above with respect to WRRP Objective 5.1, the regulatory regime for taking irrigation water from the upper Waimakariri catchment is considerably less accommodating than it is from the river below Woodstock.

7.15 Policy 7.3.4 of the RPS in relation to the management of water quantity:

*“(1) to manage the abstraction of surface water and groundwater by establishing environmental flow regimes and water allocation regimes which:*



- (c) Protect the flows, freshes and flow variability required to safeguard the life-supporting capacity, mauri, ecosystem processes and indigenous species including their associated ecosystems and protect the natural character values of fresh water bodies in the catchment, including any flows required to transport sediment, to open the river mouth, or to flush coastal lagoons'*
- 7.16 In terms of the effects of taking water from the Cass River, there will be periodic adverse effects on natural flows in the river. Overall, I consider the application is at least inconsistent with this policy to that extent.
- 7.17 Objective 7.2.2 of the RPS discusses the concept of parallel processes for managing fresh water where:
- "Abstraction of water and the development of water infrastructure in the region occurs in parallel with:*
- (2) the maintenance of water quality where it is of a high standard and the improvement of water quality in catchments where it is degraded; and*
- (3) the restoration or enhancement of degraded fresh water bodies and their surroundings."*
- 7.18 Policy 7.3.7 of the RPS aims to avoid, remedy or mitigate adverse effects of changes in land uses on the quality of fresh water by:
- "(1) identifying catchments where water quality may be adversely affected, either singularly or cumulatively, by increases in the application of nutrients to land or other changes in land use; and*
- (2) controlling changes in land uses to ensure water quality standards are maintained or where water quality is already below the minimum standard for the water body, it is improved to the minimum standard within an appropriate timeframe."*
- 7.19 I consider it is appropriate to consider Objective 7.2.2 and Policy 7.3.7 conjunctively, as they are complementary. The thrust of these two provisions is the *maintenance* or *restoration* of fresh water quality. It is not a case where economic and environmental issues are to be balanced, and a conclusion reached where a degree of deterioration (even small) would be acceptable in exchange for economic benefits. I consider that the application is contrary to this objective and policy.
- 7.20 Objective 12.2.1 of the RPS concerns identifying and protecting of outstanding natural features and landscapes within the Canterbury Region, from inappropriate subdivision, use and development.
- 7.21 Policy 12.3.1 of the RPS is more specific and seeks to:

*"Identify the outstanding natural features and landscapes for the Canterbury Region, while:*

*(1) Recognising that the values set out in Appendix 4 indicate the outstanding natural features and landscapes for Canterbury at a regional scale..."*

- 7.22 The policy is linked to Appendix 4 of the RPS, which describes the Waimakariri Basin (Intermontane Basins and Ranges) as containing outstanding natural features and landscapes. In addition to its aesthetic values, in Appendix 4 it is described as *"a striking landscape, which has a combination of memorable elements, such as the braided river, lakes and mountain ranges.*

*Landscape offers significant recreational opportunities including many tracks, lakes and caves.*

*Highly accessible landscape with important road and rail links"*

- 7.23 Overall, having regard to a broad overview of the relevant objectives and policies, I consider that the application is contrary to many of them.

#### **The Proposed Land and Water Regional Plan**

- 7.24 I am aware that this plan is at a relatively early stage of its development, and is subject to the hearing of submissions and potentially appeals, which limits the weight I can place on it. I have concluded that in terms of the WRRP and the NPS that the activity is contrary to the relevant policy framework of those plans. I observe that the provisions of the pLWRP seek to take the provisions of the RPS with respect to the protection of water quality and the impacts of land use on such water quality, to a more detailed level. To the limited extent that I can place weight on the objectives and policies in the pLWRP, I consider the application is contrary to them.

- 7.25 I again observe that both the RPS and the WRRP are plans which have both only become operative in very recent times, and for that reason I consider that significant weight must be placed on their provisions

#### **8.0 SECTION 104D of the RMA**

- 8.1 As I have concluded that the application fails to meet either of the two limbs under section 104D, the application must be declined. However in case I am wrong with respect to one or either of the two gateway tests, and for completeness, I will consider the provisions under section 104 (1) of the Act.

## **9.0 THE NATIONAL POLICY STATEMENT ON FRESHWATER**

- 9.1 As an initial comment, I note that as the application was first lodged before the NPS took effect on 1 July 2011, the provisions of Policy A4 do not apply to the application. This policy adds a requirement that regional plans be altered (without plan change process under Schedule 1 to the RMA) requiring consent authorities to have regard to the effects of contamination and discharges to fresh water. The exception in subclause (3) refers to "this policy" rather than the NPS as a whole.
- 9.2 Part A of the NPS addresses water quality. Objective A1 seeks to *"safeguard the life supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of freshwater, unsustainably managing the use and development of land, and discharges of contaminants."*
- 9.3 Objective A2 (a) calls for the *"protecting the quality of outstanding freshwater bodies"*. Policy A1 (a) requires regional plans to establish freshwater objectives and quality limits and (ii) to have regard to *"the connection between water bodies"*. Policy A2 calls for the improvement of water quality in water bodies.
- 9.4 Objective C1 and Policy C1 call for regional councils to manage *"fresh water and land use and development in an integrated way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects"*.
- 9.5 On balance, I consider Objective A1, Policy A2 and Objective C1 and Policy C1 would be better achieved by declining consent to this application.

## **10.0 PART 2 RMA**

- 10.1 The purpose of the Act under section 5 is to promote the sustainable management of natural and physical resources. Section 5 (2) states that sustainable management means-

*"...managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while-*

*(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*

*(b) safeguarding the life supporting capacity of air, water, soil, and ecosystems; and*

*(c) avoiding, remedying or mitigating the adverse effects of activities on the environment"*

10.2 I consider the relevant provisions of section 6 of the Act to this application are –

*(a) the preservation of the natural character of the coastal environment (including the coastal marine area, wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development;*

*(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*

*(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;*

*(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga*

10.3 I consider the relevant provisions of section 7 of the Act to this application are-

*"(b) the efficient use and development of natural and physical resources;*

*(c) the maintenance and enhancement of amenity values;*

*(d) intrinsic values of ecosystems*

*(f) maintenance and enhancement of the quality of the environment*

*(h) the protection of the habitat of trout and salmon"*

10.4 The Waimakariri Basin is identified as an outstanding landscape at a regional scale in the RPS, which has only recently become operative, and which the district plan is required to give effect to under section 75(3)(c). I consider that the establishment of centre pivot irrigation infrastructure, and certainly on the scale proposed, within the alpine vistas of the Cass Basin would have an adverse effect on this landscape. It would be completely artificial to try and separate consideration of the visual impacts of physical structures in the intermontane basins of this area independently of the surrounding mountain environment. For this reason, I consider the establishment of irrigation infrastructure which is directly associated with the development and use of water taken from the Cass River as sought through this application would be contrary to sections 6 (a) and (b) of the Act.

10.5 I also consider that the application would be contrary to sections 7 (c), and (f) of the Act. While I have come to the conclusion that the range of factors relevant deciding this activity are finely balanced, my overall conclusion is that the activity is contrary to section 5 of the Act, and notably subclauses (2) (b) and (c). On balance, I have concluded that the purpose of the Act would be better served by declining consent to the application.

## **11.0 CONCLUSIONS**

- 11.1 In arriving at our conclusions, I accept that the matters in contention are finely balanced. I acknowledge the effort that the applicant has invested in preparing the application.
- 11.2 In isolation, I would be minded to grant the application for works in the bed of the Cass River, but this would seem to serve little practical purpose if the application to take and use water is declined.

## **12.0 DECISION**

- 12.1 For the foregoing reasons, and pursuant to Sections 104 and 104D of the Resource Management Act 1991, resource consent applications CRC 093148 and CRC 193150 are declined.



Commissioner Robert Nixon

12 March 2013