

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications for resource consent by the Central Plains Water Trust and a notice of requirement for the designation of land by Central Plains Water Limited associated with the construction and operation of the Central Plains Water Scheme

**STATEMENT OF EVIDENCE OF JASON MICHAEL HOLLAND ON BEHALF OF
THE NORTH CANTERBURY FISH AND GAME COUNCIL**

1. INTRODUCTION

Qualifications and experience

- 1.1 My full name is Jason Michael Holland.
- 1.2 I hold the qualifications of Bachelor of Resource Studies and MSc in Resource Management (1st Class Hons) from Lincoln University.
- 1.3 I am currently the Environment Officer for the North Canterbury Fish & Game Council (**Fish and Game**) and have held that position since February 2005. In the preceding two years I was employed by Te Rūnanga o Ngāi Tahu (**TRoNT**) as their Resource Consents Officer.
- 1.4 I am responsible for responding to environmental and planning matters that affect the interests of Fish and Game. This role includes evaluating resource consent applications and district and regional plans developed under the Resource Management Act 1991 (**the Act**). I was also responsible for preparing an application for a Water Conservation Order for the Hurunui River, which was lodged in August 2007.
- 1.5 I have presented evidence for Fish and Game at several recent consent hearings, including:
- Synlait's resource consent applications associated with taking Bands 2/3 water from the Rakaia River.
 - Ngai Tahu Property Limited's resource consent applications associated with taking A/B block water from the Waimakariri River.
 - Glenroy Community Irrigation Limited's resource consent applications associated with taking Band 5 water from the Rakaia River.
 - Electricity Ashburton Limited's resource consent applications associated with utilising Barrhill Chertsey's existing take of Band 3 water from the Rakaia River.
 - Selwyn District Council's resource consent applications associated with the Malvern stockwater scheme.

- 1.6 I have also presented evidence for Fish and Game to a number of stages of the hearing for Chapters 4 (Water Quality) and 5 (Water Quantity) of the Proposed Natural Resources Regional Plan (NRRP). Previously in my role at TRoNT, I prepared (in consultation with Nga Papatipu Rūnanga) written submissions to the notified Chapters 4 and 5 of the NRRP.
- 1.7 I confirm that I have read and agree to comply with the Environment Court Code of Conduct for Expert Witnesses (31 July 2006). This evidence is within my area of expertise, except where I state that I am relying on facts or information provided by others. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

- 1.8 My evidence provides a planning background against which Commissioners may consider the technical evidence provided by a number of expert witnesses for Fish and Game. I have also drawn upon the evidence presented by expert witnesses for other parties to this hearing. The focus of my evidence is on regional planning issues, although I address land use issues that affect Fish and Game's interests.
- 1.9 My evidence will cover the following topics:
- a. Preliminary allocation issues.
 - b. Identification of the key planning documents.
 - c. Consideration of activity status and classification, having regard to the applicable rules and standards.
 - d. Evaluation of the proposal in terms of the relevant objectives and policies, having regard to the actual and potential effects of this proposal.
 - e. Assessment of the proposal against the Act's requirements, including the 'threshold tests' for non-complying activities set out in Section 104D of the Act; and
 - f. Assessment of the proposal against the purpose and principles of the Act.
- 1.10 There are a number of additional plans, strategies and other matters that are relevant to your consideration, however I have restricted my evidence to the key planning documents under which determination of these applications will occur.

- 1.11 I do not include a separate planning assessment of the Ashburton Community Water Trust's (**ACWT**) applications for resource consents, as I understand that this will be addressed at a later stage when the proposed Rakaia terrace hydro scheme is considered.
- 1.12 I have not comprehensively assessed whether all necessary applications have been applied for to construct and operate the Central Plains Water (**CPW**) Scheme. I rely on the evidence of Mr Fietje for the Canterbury Regional Council, and Mr Boyes for the Selwyn District Council, in this regard.
- 1.13 I have visited key locations relevant to this proposal, including the intake sites and lower reaches of the Waimakariri and Rakaia, with which I am quite familiar. I have also visited the Waianiwaniwa Valley, reaches of various foothill rivers including the Upper Selwyn River, Hororata River, Hawkins River, Kowai River and Hacketts Creek, and reaches of various lowland waters including the lower Selwyn River, Irwell River, Boggy Creek, Harts Creek, and Lake Ellesmere. While I have occasionally fished for salmon in the middle and lower reaches of the Rakaia and Waimakariri, I am not an expert angler.

2. PRELIMINARY ALLOCATION ISSUES

- 2.1 In my opinion, it is necessary to establish with accuracy the amount of water that is currently available before consideration can be given as to whether consent can be granted.
- 2.2 Any errors in terms of the amount allocated, and restrictions imposed, may potentially result in a breach of Clause 7 of the Rakaia WCO and may also be inconsistent with the requirements set in the WRRP that only 22 cumecs of "A" Block water may be allocated.

Rakaia River

- 2.3 Potential issues relating to existing allocation from the Rakaia River arise from:
- a. Omissions in the summaries of existing allocation, including pending applications that potentially have priority; and, related to that,

- b. Uncertainty regarding interpretation of Clause 7 of the Rakaia WCO, in terms of its application to hydraulically connected groundwater and diversions.

Omissions in the summaries of existing allocation

- 2.4 Based on discussions with Mr de Joux and staff at the Canterbury Regional Council, it appears that there may be potential inaccuracies in the information before you about existing or priority allocations.
- 2.5 For example, CRC061315 (P G Brown) is a pending application to divert and take water at a rate up to 1100 l/s from the Rakaia River. This application was notified in October 2006, yet it does not appear on any recent records provided by the Canterbury Regional Council to Mr de Joux.
- 2.6 It is possible this is not the only priority application that has been overlooked for the Rakaia. This raises the question of whether all existing authorised takes, or priority takes (in terms of the *Synlait* priority scenario), have been correctly identified. This is discussed further in the evidence of Mr de Joux for Fish and Game.

Uncertainty regarding interpretation of Clause 7 of the Rakaia WCO

- 2.7 Another issue, related to the determination of existing or priority allocation, concerns the interpretation of Clause 7 of the Rakaia WCO. Relevant parts of Clause 7 are set out below:
 - (2) Subject to subclauses (3) and (4) of this clause, because of the outstanding characteristics and features specified in clause 3 of this order in that part of the Rakaia River between the North Canterbury Catchment Board's recorder site referred to in clause 2 of this order and the sea, and for their protection, **the minimum gorge flow shall be retained in the river and, while the gorge flow does not exceed the minimum gorge flow, the flow in the river shall not be reduced by abstraction or diversion.**
 - (3) While the gorge flow exceeds the minimum gorge flow by less than 140 cubic metres per second, **the flow in the river shall not be reduced by abstraction or diversion** by more than half of the excess of the gorge flow over the minimum gorge flow.

- (4) While the gorge flow exceeds the minimum gorge flow by 140 cubic metres per second or more, **the flow in the river shall not be reduced by abstraction or diversion** by more than 70 cubic metres per second.

(emphasis added)

- 2.8 The phrase “the flow in the river shall not be reduced by abstraction or diversion” is repeated throughout Clause 7. As the Rakaia WCO does not expressly differentiate between surface takes or the stream depleting effects of hydraulically connected groundwater takes, the issue arises whether such takes are an "abstraction" that "reduce the flow in the river".
- 2.9 In relation to the stream depleting effect of hydraulically connected groundwater, I understand that some takes have in the past been included in allocation calculations, and that some have partial restrictions based on the minimum flows set in the Rakaia WCO. On the other hand, I also understand that some other takes with stream depleting effects have not had any requirements to comply with the Order.
- 2.10 I do not see any grounds for excluding stream depleting effects. If such takes impact on flows in the river, then they should be subject to Clause 7 restrictions.
- 2.11 The other issue is whether all diversions are subject to Clause 7, which, as noted above, requires that “the flow in the river shall not be reduced by abstraction **or diversion**”.
- 2.12 Certainly it is not an option to ignore diversions, because each of Clauses 7(2), (3) and (4) include reference to them. Rather, a decision must be made as to which diversions reduce the flow in the river, and which merely move water about in the riverbed.
- 2.13 I consider that any diversion that takes water out of the riverbed for any distance should be subject to Clause 7 restrictions. This would include any diversion for electricity generation and takes of additional water for fish bypasses where that additional water is taken out of the riverbed for any distance.
- 2.14 There also appears to be some inconsistencies with respect to the Canterbury Regional Council's treatment of the diversion issue. I understand that some

diversions have been approved and not made subject to Clause 7, however I am aware of two diversions that are required to comply with parts of the Order.

2.15 CRC970827 (P G Brown) is probably the only existing diversion of Rakaia mainstem water for the purposes of generating electricity. Relevant conditions on this consent include:

- 1 The rate at which water is diverted from the Rakaia River, at or about map reference NZMS 260 L36:3346-1618, shall not exceed 550 litres per second.
- 6 The diversion of water shall cease whenever the taking of water ceases in accordance with the terms of the National Water Conservation (Rakaia River) Order 1988 minimum flow.
- 7 The nearest local office of Fish and Game New Zealand shall be notified of the intention to cease the diversion and discharge of water on the day these activities cease.

2.16 This diversion must therefore cease in accordance with Clause 7(2) of the Order, although it is not subject to the flow-sharing rules in Clause 7(3). It was absent from the spreadsheet of existing and priority allocations provided by the Canterbury Regional Council to Mr Richard de Joux in April 2008. Therefore this particular diversion has not been taken into account when calculating existing allocation for the purposes of applying Clause 7(4) of the Rakaia WCO.

2.17 CRC052056 (Glenroy Community Irrigation Ltd) has complex conditions, which appear to impose both Clause 7(2) and 7(3) constraints on that diversion. It appears this consent authorises a non-consumptive diversion of 616 litres per second, presumably intended to supply water to a fish bypass channel. This diversion also does not appear on the Rakaia allocation spreadsheet provided by the Canterbury Regional Council, so it has not been included in allocation limits.

2.18 I consider that if the diversions mentioned above are subject to some control under Clause 7 of the Rakaia WCO, then they should be included in any allocation calculation.

Waimakariri River

- 2.19 In the case of the Waimakariri take, the existing and priority allocation must be known to ensure that A block allocation does not exceed 22 cumecs, which is a requirement set in the WRRP for A block takes.
- 2.20 Hydraulically connected groundwater is included in allocation calculations, as provided for in the WRRP (refer definition of "Allocation Limit"). Therefore any calculation of how much water remains to be allocated in the A block must account for the cumulative total amount of stream depletion from hydraulically connected groundwater (subject to certain exceptions in Rule 5.1(b), which are not relevant in this case).
- 2.21 The WRRP has separate rules governing takes and diversions, but as it does not clearly identify the point at which a diversion becomes a take, some uncertainty remains on this matter.

3. ASSESSMENT OF RULES AND ACTIVITY STATUS

Relevant planning instruments

- 3.1 The key planning instruments I have considered in my assessment of the proposed CPW Scheme include:
- a. National Water Conservation (Rakaia River) Order 1988 (**Rakaia WCO**)
 - b. Operative Canterbury Regional Policy Statement 1998 (**RPS**)
 - c. Operative Waimakariri River Regional Plan 2004 (**WRRP**)
 - d. Proposed Natural Resources Regional Plan (**NRRP**)
 - e. Proposed Selwyn District Plan (**District Plan**)
 - f. Transitional Regional Plan (**TRP**)
- 3.2 My assessment of relevant rules and standards under these planning instruments follows a similar format to that provided by Mr Murray for the applicant. Where I substantially agree with Mr Murray's evidence I have attempted to avoid unnecessary repetition. I also consider issues raised by Mr Fietje in his Section 42A report, where relevant. To a limited extent I address land use activities covered in the evidence of

Ms Susan Robson for the applicant, and by Mr Boyes in his Section 42A report for the Selwyn District Council, where they relate to issues of interest to Fish and Game.

Bundling of activities

- 3.3 Mr Murray advances a case for considering each application individually for the purpose of determining the activity classification.
- 3.4 It is my understanding that, where activities are inter-related, the general approach is that the activity status for all activities should be collectively determined based on the most restrictive classification that applies. I understand it is possible in some circumstances to exclude applications for activities that are truly ancillary to the overall proposal. In my opinion, this should not apply in this case to activities which are integral to the operation of the irrigation scheme.
- 3.5 Therefore I consider a bundling approach is the appropriate way forward in determining activity status.
- 3.6 In the following section of my evidence, I assess the requirements of the key planning instruments and consider the extent to which the applicant complies with those requirements.

4. NATIONAL WATER CONSERVATION (RAKAIA RIVER) ORDER 1988

Background

- 4.1 I briefly summarise the development of the Rakaia WCO as follows:
- An application for an order on the Rakaia River was lodged in 1983 by a coalition of Acclimatisation Societies.
 - The draft Order was notified for submissions in 1984.
 - The Planning Tribunal conducted a substantive inquiry of the application, and submissions, over a period of 28 days between October and December 1984. It released its recommending report in May 1985.

- Appeals were heard on a range of matters in 1986. It is fair to say these appeals were of a broad legal nature, rather than (for example) being focused on the merits of clauses concerning the flow regime or discharge quality standards.
- The Rakaia WCO was finally gazetted in 1988.

4.2 The bulk of evidence was presented to the Planning Tribunal hearing in 1984. A total of 67 witnesses presented evidence to that hearing on a range of matters, including Dr Glova who has given evidence for the applicant. The information provided at the hearing was undoubtedly as thorough as was possible at that time.

4.3 You have already heard from Dr Glova that the provisions of the Rakaia WCO, particularly the minimum flows set for key angling months, are now considered to be potentially too low to afford suitable protection for salmon fishing. As was explained by Dr Glova in a 1987 report:¹

At the Rakaia National Water Conservation Order Tribunal held in Christchurch during October-December 1984, several witnesses (myself included) were cross-examined to some length about the probable effects of irrigation developments on salmon fishing. At the time some information was available about the effects of reduced flows on the fishability of the river but none was available about the actual catching of salmon in their preferred holding areas.

4.4 The evidence of Dr Hayes, and that of the expert anglers, also suggests that the proposed take of water may have a potential effect on salmon angling. Insufficient information has been provided by the applicant to quantify this accurately.

4.5 The proposed Rakaia take should be classified as an innominate activity, and is therefore discretionary under section 77(C)(1) of the Act. In my opinion, it is therefore appropriate to consider all effects of the take, including effects on salmon fishing and any other effects, in deciding whether or not to impose restrictions exceeding the minimum requirements in order to satisfy the purpose of the Rakaia WCO.

4.6 I now turn to relevant clauses in the Rakaia WCO.

¹ Glova, G.J. 1987. Rakaia salmon fishing – a further look at the problem. MAF Freshwater Catch 33: 10-12.

Clause 3 – Outstanding characteristics and features

- 4.7 Clause 3 declares that the Rakaia River and its tributaries include and provide for an outstanding natural characteristic in the form of a braided river. Outstanding features include wildlife habitat above and below the Gorge, outstanding fisheries, and outstanding recreational, angling, and jetboating features.

Clause 7 – Further partial retention of natural waters

- 4.8 Clause 7 is relevant to the joint application by CPW/ACWT to take water from the Waimakariri.
- 4.9 Clause 7(1) specifies ‘minimum gorge flows’. A different minimum flow is set for each month. It is notable that the winter minimum flows (taken as May - September) differ little from month to month, ranging between 90 – 95 cumecs, whereas the summer minimum flows (October – April) vary greatly between 97 – 139 cumecs. I assume this reflects the naturally occurring pattern of high and low flows in the Rakaia River.
- 4.10 Clause 7(2) applies to the reach of river between the recorder site (presumably the uppermost of the two potential sites, which is the Gorge bridge site), and the sea. It states that “while the gorge flow does not exceed the minimum gorge flow, the flow in the river shall not be reduced by abstraction or diversion”.
- 4.11 Clause 7(3) does not explicitly state to what reach of river it applies; however I consider it also applies to the reach between the recorder site and the sea. It states that “while the gorge flow exceeds the minimum gorge flow by less than 140 cubic metres per second, the flow in the river shall not be reduced by abstraction or diversion by more than half of the excess of the gorge flow over the minimum gorge flow.
- 4.12 Clause 7(3) imposes what is commonly known as “1:1 flow sharing”. For ease of administration the Canterbury Regional Council has chosen to ensure compliance with Clause 7(3) by placing abstractors into a ‘banding system’. This approach works

by setting different minimum flows for each band, and by setting the size of each band as being double the total allocated abstraction or diversion in that band.²

- 4.13 Assuming that the banding approach is an effective means of implementing Clause 7(3), when granting any new application to abstract or divert water, it becomes crucial that accurate information is available as to the amount of water that has already been allocated for those purposes (inclusive also of the amount of water sought by priority applicants). This information is required to know what minimum flow should apply to that new abstraction or diversion. If the minimum flow for the new band is set too low, it is likely abstractions and diversions will breach Clause 7(3) by virtue of taking more than 'half of the excess gorge flow over the minimum gorge flow'.
- 4.14 As I mention earlier in my evidence, the stream depleting effect of all hydraulically connected groundwater should also be included when calculating the appropriate minimum flow for new takes from the Rakaia River.
- 4.15 Clause 7(4) of the Rakaia WCO does not explicitly state to what reach of river it applies; however I consider it also applies to the reach between the recorder site and the sea. It states that "while the minimum flow exceeds the minimum gorge flow by 140 cubic metres per second or more, the flow in the river shall not be reduced by abstraction or diversion by more than 70 cubic metres per second". This is commonly referred to as the '70 cumec allocation block'.
- 4.16 Again, an accurate understanding of how much allocation has already occurred (including priority applications) is critical to ensuring compliance with Clause 7(4). Given that CPW/ACWT are seeking to take all water remaining for allocation, if certain abstractions and diversions are overlooked when calculating existing and priority allocation, this could potentially result in abstractions and diversions exceeding the 70 cumec limit.

² It appears the Canterbury Regional Council consider this approach to be preferable to requiring daily adjustment of individual takes, which might be considered difficult to implement and monitor. I am uncertain as to how effective this approach is in terms of ensuring compliance with the 1:1 flow sharing rule. With the evolution of telemetering and remote adjustments of take via computer, it may become more practicable for more accurate daily changes to take. In any case, I understand the Canterbury Regional Council are presently in the early stages of preparing a variation to the NRRP to formalise the banding system, so in the medium term it may remain as the preferred approach .

Clause 9 – Water rights and general authorisations

- 4.17 Clause 9 is relevant to applications to discharge to the Rakaia, and to any land use activities which encroach into the river.
- 4.18 Clause 9(1) relates to encroachment, and it applies to any part of the Rakaia River or its tributary streams. It states that water rights shall not be granted and general authorisations shall not be made “for the purposes of constructing or maintaining stock barriers or facilitating agricultural encroachment into those bodies of water.”
- 4.19 Mr Fietje’s report includes Appendix D, in which he classifies the activity status of all applications to the Canterbury Regional Council. This includes application CRC061822, which is partly described as “to excavate and disturb land, deposit material and remove and plant plants and vegetation, in the riparian margin of the Rakaia River.” In regard to this application, Mr Fietje notes that it may be necessary to consider provision of the Rakaia WCO regarding encroachment of the bed. I consider that conditions should be imposed on CRC061822, if consent is granted, to ensure that the proposal is not contrary to Clause 9(1). Set out below is an example of what would be appropriate, should the Commissioners be minded to grant consent.
- 4.20 I consider the most comprehensive example of conditions ensuring compliance with this clause are those associated with CRC052103 (Rakaia Island Dairies). This consent authorises flood protection works including disturbance of the bed and margins of the Rakaia River, the removal and placing of material, the placing and modification of structures and the removal and planting of plants. Conditions of that consent specifically tailored to ensure compliance with Clause 9(1) include:
- 3 The works shall be carried out in accordance with the layout shown on Plan CRC052103 attached to this consent, and shall not be undertaken beyond the outermost line marked on the Plan.
 - 12 There shall be no agricultural encroachment beyond the innermost line marked on Plan CRC052103.
 - 13 Prior to commencement of works the consent holder shall supply Canterbury Regional Council with a copy of Plan CRC052103, clearly showing the location of the existing boundary fence and the location of the proposed

works (as marked on Plan CRC 052103), together with a grid and at a scale that allows determination of a grid reference to an accuracy of within 10 metres.

- 4.21 If consent is to be granted for activities in the Rakaia River bed or berm, I consider conditions similar to those imposed on CRC052103 are necessary to ensure compliance with Clause 9(1).
- 4.22 Clause 9(2) of the Rakaia WCO specifies provisions and standards relating to discharges, and requires that any discharge “be substantially free from suspended solids, grease, and oil”.
- 4.23 As noted by Mr Murray, any sluicing discharge will by nature fail to be ‘substantially free’ of suspended solids. Mr Murray concludes that a literal interpretation of this clause would suggest this discharge (application CRC061980) would not comply with Clause 9(2)(a), but expresses the opinion that a purposive interpretation of this clause would demonstrate, on the basis of minor adverse effects, that the discharge would be consistent with the purpose of the Rakaia WCO. In my opinion, the purposive approach may be less appropriate when interpreting the provisions in Water Conservation Orders, which are typically more absolute, and which must be complied with when making decisions on applications.
- 4.24 Notwithstanding that contention, I have examined Mr Kennedy’s evidence, and it appears he recommends that sluicing discharges into the Rakaia should only occur when river flows exceed 300 cumecs.³ He bases this recommendation on suspended solids readings at different flows, which suggest the river has a naturally high suspended solid loading at flows exceeding 300 cumecs.
- 4.25 The approach favoured by Mr Kennedy, that being to discharge only when flows exceed 300 cumecs, may prove difficult to adhere to. This is because the sluicing discharge is expected to occur regularly. The information given by the applicant about the expected frequency of the sluicing discharge suggests the frequency of flushing will be at least monthly. I am unclear what would happen in the event that the river went for a longer period without a fresh that exceeded this flow.⁴

³ See page 32 of Mr Kennedy’s evidence-in-chief.

⁴ Evidence-in-chief of Mr Lewthwaite, p.36.

- 4.26 Mr Kennedy also outlines conditions on sluicing discharges imposed on Waimakariri Irrigation Ltd (**WIL**), Barrhill Chertsey, and Rangitata Diversion Race Management Ltd (**RDRML**).
- 4.27 I do not agree that a comparison with the RDRML discharge permit is appropriate. The National Water Conservation (Rangitata River) Order 2006 does not contain any requirements for discharges to observe minimum suspended solids, turbidity or water clarity standards. Therefore it is to be expected that the RDRML's sluicing discharge permit will have less onerous conditions.
- 4.28 The comparison with WIL's sluicing discharge permit is relevant to the proposed CPW sluicing discharge to the Waimakariri, but again, the WRRP is more liberal than the Rakaia WCO in that a reasonable mixing zone can be applied to that discharge.
- 4.29 Mr Kennedy observes that WIL have chosen to excavate mechanically rather than using their discharge permit. A similar approach in the Rakaia would ensure compliance (at least in respect of that discharge) with Clause 9(2)(a).
- 4.30 I also note that the approach favoured by Mr Kennedy excludes many aspects of the Barrhill Chertsey sluicing discharge permit (CRC990089). The latter includes conditions specifying that:
- The discharge should occur at 1pm (I assume this is a safety measure, so that river users can at least observe what is happening in full daylight).
 - An audible warning shall be issued to warn river users prior to discharge.
 - The discharge shall be progressively rather than suddenly reduced to allow fish time to find their own way back to the river. A minimum water depth of 0.3m must also be maintained along the length of the fish bypass channel to ensure passage is always possible.
 - Monitoring of fish entrapment must occur, including salvaging of any fish present, notification to the relevant authorities, and the requirement for a 'solution to be found' if the issue becomes problematic.
- 4.31 There is no condition on Barrhill Chertsey's consent requiring river flows to be rising at the time of discharge commencement. Given that the discharge can take hours to complete (and the applicant has not promoted a constraint on the duration of the

discharge), and river levels may drop quickly after a fresh, there is the potential for at least part of the discharge to occur when river flows have dropped below 300 cumecs. While the WIL discharge also lacks such a condition, that discharge is only allowed to occur for a maximum of one hour, which reduces the risk of the discharge continuing at lower flows.

- 4.32 The other matter that I consider relevant to the decision on the sluicing discharge is the inappropriateness of enabling up to 80 cumecs of water to be diverted. If such a diversion involves the removal of water out of the river bed between the point of diversion and the point of return, I consider it should be included in the allocation limit. If this is the case, the proposal would be contrary to Clause 7(4) of the Rakaia WCO because it would lead to more than 70 cumecs being abstracted or diverted from the river at any one time.
- 4.33 In respect of the relevance of Clause 9(2)(a) to other discharges to the Rakaia, the applicant has indicated that it will not breach this standard. I would expect this to be reflected in any conditions of consent for those discharges, if approval is granted.
- 4.34 Clause 9(2)(b)(i)-(vii) also sets out water quality standards for discharges. However these standards differ from the suspended solid standard discussed above, insofar as they apply to the quality of the receiving water (rather than to the discharge itself), and then only after allowing for reasonable mixing. The Rakaia WCO does not provide any interpretation of 'reasonable mixing', although it is possible that guidance could be taken from the NRRP, Schedule WQL1 Part 2 (Zone of Non-Compliance).
- 4.35 Mr Murray anticipates that no discharges will breach any of the standards set out in Clause 9(2)(i)-(vii). As far as I am aware, the applicant has not undertaken any calculations of 'reasonable mixing' in order to confirm this to be the case.
- 4.36 Finally, I note that Clause 9(3) requires that water rights shall not be granted, and general authorisations shall not be made, where the effects of such would be that the provisions of the order cannot remain intact. It applies to any part of the Rakaia River or its tributary streams, or of Lake Heron or Lake Coleridge or their tributary streams.

5. WAIMAKARIRI RIVER REGIONAL PLAN (WRRP)

Background

5.1 The applicant has emphasised that compliance with the minimum flow regime contained in the WRRP is sufficient to ensure protection of all relevant instream values. I do not agree that this is necessarily the case.

5.2 The development of the now operative WRRP is summarised below:

- Resource studies to inform the development of the plan were released in 1986 (NCCB, 1986).
- A discussion document titled “The Waimakariri River and Catchment Management Plan Discussion Draft” was released in 1991.
- The Draft Plan was released in 1993.
- The Proposed Plan was notified in 1996.
- Habitat modelling analyses to inform discussion about setting an appropriate mainstem flow regime were released in 2001 (Duncan, 2001).
- The current WRRP was made operative in 2004.

5.3 Several years have passed since a comprehensive analysis was undertaken of the values associated with the Waimakariri catchment. Furthermore, as Dr Hayes also notes in his evidence, a number of matters were not fully accounted for in the development of the WRRP, such as the habitat modelling undertaken by Duncan (2001) which excluded consideration of ‘flow-hungry’ elements such as benthic invertebrates and salmon angling.

5.4 Therefore, while the plan was made operative in 2004, much of the ‘thinking’ behind the plan is now considerably dated, and there are certainly some crucial areas of information that were absent during its development. This should be accounted for when considering the view expressed by the applicant that compliance with the mainstem flow regime alone offers suitable protection to instream values.

Rule 5.1 - Take

- 5.5 Rule 5.1 of the WRRP applies to the taking of water from all surface waters 'below Woodstock'. While no map reference is provided in the WRRP to indicate exactly where 'Woodstock' is, it appears from Figure 4 (p.17) of the WRRP to be above the proposed upper intake.
- 5.6 I concur with Mr Murray that Rule 5.1 classifies as restricted discretionary any proposed take that complies with the specified standards and terms.
- 5.7 However, the evidence of Mr Bejakovich indicates that the proposed fish screening will not ensure compliance with standard (a), which requires that fish shall be prevented from entering the water intakes.
- 5.8 The WRRP is not clear about the activity status for a take that fails to comply with the standards and terms of Rule 5.1. If the requirements are not met, then it may be appropriate to classify the activity as non-complying. This matter was raised in the hearing of a proposed take by Ngai Tahu Property Ltd from the Waimakariri, and was clarified in the decision (paragraph 137) as follows:
- ...Standard 5.1(a) in the operative WRRP... states that "fish shall be prevented from entering the water intakes"...If the standard is not met, the activity strictly becomes a non complying activity.
- 5.9 However the WRRP does not contain a non-complying activity rule to which any activity that did not meet the standards and terms of Rule 5.1 would default to. Therefore it may be that failure to meet those standards and terms means the activity defaults to being innominate, and therefore discretionary under Section 77(C) of the Act.
- 5.10 In any event, Rule 5.1 includes a wide range of matters relevant to the exercise of the discretion. These include the reasonable need for the quantities of water sought, and the ability of the applicant to abstract and apply those quantities (Assessment Matter 5.1 (a)), and the effects the take has on river flows, and consequential effects on those values identified in (a) to (h) of Objective 5.1, near the point of take (Assessment Matter 5.1(c)).

- 5.11 An assessment of the proposed take against each of these matters is provided through an analysis of relevant objectives and policies, later in my evidence. However for clarification purposes I discuss the terms “reasonable need” and “near the point of take” below.
- 5.12 “Reasonable need” is not defined in the WRRP, but I consider this has a broad meaning that ensures that no more water can taken than is required for a particular proposal.
- 5.13 The phrase “near the point of take” is not defined in the WRRP. It could be interpreted to mean a short distance from the point of take, or alternatively in terms of the distance relative to the size of the take. For instance, where there is a large take affecting a long reach of the river, the phrase could be interpreted broadly to allow these effects to be considered. Given the fact that the WRRP did not define this phrase, it could be argued that this term is intended to be flexible and will vary according to the size and characteristics of the take. This would allow proper consideration of Objective 5.1 matters in all circumstances.
- 5.14 In support of that approach I note that the scope of evidence provided by witnesses for the applicant extends well beyond the river “near to the point of take”. However, there is little evidence provided on the effects of the take on the immediate reach. I note that Canterbury Regional Council have also adopted a broad scope, including for instance the effects of the take on dilution of discharges that presently occur into the river about the Old Highway Bridge. In my opinion, the phrase “near to the point of take” imposes little, if any, constraints on the ability to consider matters listed in Objective 5.1, given the size of the proposed take.

Rule 5.2 - Diversion

- 5.15 This rule also applies to the Waimakariri River catchment below Woodstock. It classifies the diversion of water from, or the discharge of water into the Waimakariri River, as a discretionary activity.
- 5.16 Mr Murray considers that applications to divert water that are relevant to this rule are CRC061941 and CRC061943. I concur.

Rules 6.1 and 6.2 - Discharges

- 5.17 Rule 6.1 states that the discharge of contaminants into surface water bodies in the Waimakariri River catchment is a discretionary activity, subject to meeting specified standards and terms. The rule applies to the entire Waimakariri River catchment, and includes discharges onto land within 20 metres of water bodies, or onto or into land which may result in contaminants entering water bodies. Receiving waters of particular relevance to Fish & Game include the Waimakariri River, Kowai River, Hacketts Creek and Cabbage Tree Flat Stream.
- 5.18 Discharges that do not comply with the standards and terms are considered non-complying activities under Rule 6.2.
- 5.19 Mr Murray considers that the principal contaminant relating to discharges is sediment. He cites the evidence of Mr Mabin who noted that “the natural volume of sediment moving down the river will remain essentially the same as currently occurs”. Therefore Mr Murray concludes that “the natural state of the water quality will not be altered”.
- 5.20 However, the sluicing discharge in particular will result in changes to the concentration of suspended sediments, and consequently changes to water clarity and turbidity. I consider it is the concentration of contaminants at any given time that relevant to assessing whether a proposed discharge meets the standards of Rule 5.1, not the volume as suggested by witnesses for the applicant.
- 5.21 This is consistent with the approach applied to other ‘classes’. For example, standard (2) of ‘class WAIM Water’ (applicable to the reach below the Otukaikino River confluence) states that “there shall be no conspicuous change in the colour or visual clarity”, defined as “a change greater than 33%, as measured by black disc”. This is a standard relating to concentration rather than volume or loading.
- 5.22 Mr Lewthwaite’s evidence provides further detail regarding the conditions that the applicant may consider suitable for imposition on the sluicing discharge permit. Constraints put forward by Mr Lewthwaite include that the flushing flow should not exceed 80 cumecs; the sluicing discharge should only occur when flows exceed 100

cumecs; and that a time-of-day constraint should be established in consultation with the Canterbury Regional Council.⁵

5.23 Ultimately, to achieve the status of a discretionary activity, the applicant must demonstrate that natural state water quality is protected below a reasonable mixing zone. In the absence of appropriate mitigation, I am not confident that proposed discharges to Waimakariri River waters (including tributaries and the mainstem) will meet the relevant standard for Rule 6.1. Therefore I conclude that discharges to the Waimakariri should be considered non-complying activities under Rule 6.2.

Rules 7.4 and 7.5

5.24 I concur with Mr Murray that the construction, operation and maintenance of structures and works at the proposed upper and lower intakes are to be assessed as discretionary activities under Rule 7.4.

5.25 However, to ensure this is the correct classification of this activity, I consider a condition would be required preventing the deposition of any substance except those set out in Rule 7.5(a)(i)-(v).

6. PROPOSED NATURAL RESOURCES REGIONAL PLAN (NRRP)

6.1 Before assessing the status of activities under the NRRP, I wish to discuss the weight that should be afforded to this document.

Plan weighting

6.2 The applicant suggests that relatively little weight should be given to the NRRP, on the basis that it is not well progressed and that it may be subject to change.

6.3 It should be noted that the NRRP has progressed through a draft plan stage, upon which submissions were sought and received, and that changes were made in response to those submissions. The NRRP was developed after public consultation and, to some extent, can be said to represent the aspirations of the community. The

⁵ Evidence-in-chief, p.39.

NRRP has also existed since 2004, and while subject to a number of variations, these variations make little, if any, difference to the provisions of relevance to this proposal. In my opinion, it should not be assumed that the NRRP will be altered in a manner favourable to the applicant, as seems to be inferred by Mr Murray. I am aware, for instance, that the Canterbury Regional Council has recently approved development of variations to more comprehensively address the effects of land use on water quality, and to more comprehensively address concerns about stock access to waters throughout the Canterbury region.

- 6.4 I consider greater weight should be afforded to the NRRP than the Transitional Regional Plan, as the Transitional Regional Plan was prepared under previous legislation.

Rules WQL18 and WQL19 - Discharge of nitrate-nitrogen into groundwater

- 6.5 Rule WQL18 sets out 5 conditions that must be complied with in order for the *use of land that may result in nitrate-nitrogen to be discharged into groundwater* to be classified as a permitted activity. If a proposed use fails any one of those conditions, the activity shall be classified as discretionary under Rule WQL59.
- 6.6 These rules apply everywhere in the Canterbury region excluding the coastal marine area. However I note that the activity column of Rule WQL18 only refers to the use of land in Zone NN or Zone IB. Further, the parts of Rule WQL59 dealing with land use that may result in the discharge of nitrate-nitrogen to groundwater only apply to land in those zones.
- 6.7 The activity column of this rule states that it “does not take effect until the rule becomes operative.” However as the rule has been included in the evidence of Mr Murray, I have addressed it.
- 6.8 Zone NN is defined as “the area of unconfined or semi-confined aquifers where leaching of nitrate-nitrogen from land use activities may affect groundwater quality.”⁶ I concur with Mr Murray where he states (paragraph 65 of his evidence-in-chief) that a large area of the proposed scheme area is located in ‘Zone NN’ as identified in the planning maps.

⁶ See p.6 of “Map Volume 1: Part 1: Planning Maps”.

- 6.9 Zone IB is defined as “the area of inland basins and upper river valleys containing unconfined or semi-confined aquifers and groundwater fed rivers where land use activities may affect natural state water quality in these rivers or groundwater.” The proposed scheme does not appear to include land zoned as Zone IB.
- 6.10 Condition 1 of this rule requires a calculation of the average annual concentration of nitrate-nitrogen in the soil drainage water below the plant root zone. This is only required where the land use activities are likely to result in an average concentration of 8 g/m³ nitrate-nitrogen. Guidance as to the land uses likely to exceed this threshold is provided in the “For information only” part of this rule. Such uses include the production of commercial annual crops which involve soil cultivation, and pasture grazing with an average stocking rate of more than two dairy cows per hectare, or more than three beef cattle per hectare.
- 6.11 On the basis of this guidance, most uses of land to which water would be supplied by the scheme will probably exceed this concentration. Therefore this calculation must be provided in accordance with Condition 2 before the activity can be considered permitted.
- 6.12 Conditions 2-4 set out actions that must be taken post-commencement of the land use. For instance, Condition 2 requires best management practices to be followed to reduce losses of nitrate-nitrogen where it exceeds 8 g/m³. Where such losses exceed 16 g/m³, Condition 3 sets out a specific programme for reduction (as opposed to simply following best practice). Condition 4 relates to record-keeping and provision of information to the Canterbury Regional Council.
- 6.13 Condition 5 requires that where there is a change in ownership of property where land use is subject to this rule, that records kept under Condition 4 shall be provided to the new owner.
- 6.14 Once this rule becomes operative, if any condition in Rule WQL18 is not met, the activity will require resource consent as a (fully) discretionary activity under Rule WQL59.
- 6.15 The only requirement that must be met by the applicant in this case to ensure permitted activity status is to:

- a. Provide a calculation under Condition 1 now; and
- b. In the proposed sustainable farm management plan (adherence to which would be mandatory on shareholders), to:
 - i. Require shareholders to keep records as required by Condition 4, and to pass on these records as required by Condition 5; and
 - ii. Based on the results of those calculations, require shareholders to undertake actions as necessary under Conditions 2 and 3.

6.16 If effect were given to this rule, and the applicant was unable to meet these requirements, then I would consider the use of land should be considered a discretionary activity under Rule WQL59. However as previously noted this rule does not take effect until the rule becomes operative.

Rules WQL20, WQL21 and WQL22 - Discharge of contaminants

6.17 The NRRP does include rules intended to limit stock access to rivers and lakes. These rules have not been addressed in evidence by Mr Murray, possibly because he does not consider them applicable to rivers within the scheme area, or because he does not consider adherence to these rules is the responsibility of the applicant.

6.18 There is some uncertainty about where the line should be drawn regarding the responsibilities of the scheme, and the responsibilities of individual shareholders. In my view, the scheme is responsible for the use of water, including any consents that are required to enable that use. I consider that the use of water extends to enabling stock grazing, and therefore that rules such as this are relevant. I 'draw the line' at matters relating to effluent pits, for example, which I consider are ancillary and (from a statutory perspective) are the responsibility of the individual landowner. Therefore while the proposed farm management plan could (and should) address matters such as appropriate effluent pit management, I consider the plan should firstly ensure that the relevant permitted activity rules are met for activities such as stock grazing, which I consider are central to the purpose of the CPW Scheme.

- 6.19 Rules WQL20-22 excludes waters covered by the WRRP. Therefore they do not apply to disturbance to the bed, or discharges to water caused by livestock in any Waimakariri waters that pass through or adjacent to the scheme area.
- 6.20 These rules only apply to permanently flowing rivers or lakes. It is open to interpretation whether this includes permanently flowing reaches of rivers that are ephemeral or intermittent in other reaches. However I consider that the intention of this rule was to cover such reaches. For instance, Rule WQL20 includes a reference to rivers and lakes listed in Schedule WQL7 ('Areas on rivers or lakes commonly used for contact recreation from which farmed deer, cattle and pigs are to be excluded by 2008'). The list includes sites on the Ashley and Selwyn Rivers, both of which are partly ephemeral and/or intermittent.
- 6.21 The permitted activity rule (Rule WQL20) sets out 6 conditions that must be complied with for the activity to be permitted. If those conditions are not complied with, the activity defaults to being a restricted discretionary activity under Rule WQL21, or a prohibited activity under Rule WQL22.
- 6.22 In regards to Rule WQL20, Condition 1 states that the discharge or disturbance by livestock shall not, outside of the Zone of Non-Compliance, change clarity in a river by more than 20 percent or cause *E.coli* concentrations to exceed 550 *E.coli* per 100 millilitres.
- 6.23 I consider the simplest and most effective means of ensuring compliance with this condition is for stock to be excluded from all rivers passing through the scheme area. While this exceeds the requirement in Condition 1, in this instance I consider it more effective to direct resources towards mitigation rather than towards monitoring, because the effects of stock on habitat and amenity values is well-known.
- 6.24 Condition 2 of WQL20 sets out four categories of water bodies in which there shall be no discharge or disturbance after 31 December 2007. Categories include salmon spawning areas identified in Schedule WQN14; within one kilometre upstream from locations listed in Schedule WQL7; permanently flowing reaches of rivers identified as a 'lowland river' in planning maps; and within three kilometres upstream from an intake listed in Schedule WQL2. Condition 3 applies to certain rivers in Zone IB.

- 6.25 Based on a review of the relevant schedules and planning maps, I conclude there are no water bodies relevant to Condition 2 or 3 within the proposed scheme area.
- 6.26 Condition 4 of WQL20 requires that any discharge or disturbance complies with the relevant water quality provisions of any relevant Water Conservation Order. The proposed scheme area extends to lands adjacent to the Rakaia River, so the provisions set out under Clause 9(2) of the Rakaia WCO are applicable.
- 6.27 Discharges from livestock could potentially contravene the requirement that any discharge be substantially free of suspended sediments. As previously noted, this could be dealt with by requiring exclusion of livestock from rivers on all properties that receive scheme water.
- 6.28 Conditions 5 and 6 of WQL20 set out minimum requirements for stock crossings and approaches to stock crossings. These conditions should also be incorporated as mandatory requirements.
- 6.29 In summary, I conclude that the permitted activity rule (Rule WQL20) can be satisfied by incorporating the following requirements:
- a. Fencing of all rivers that pass through properties to which water is supplied; and
 - b. Adherence to stock crossing guidelines as set out in Conditions 5 and 6 of Rule WQL20.
- 6.30 Should these requirements not be met, I would expect the applicant to demonstrate that discharges or riverbed disturbances would not lead to breaches of the water quality standards set out in Condition 1 of Rule WQL20. If those guidelines cannot be met, I would consider a resource consent would be required under Rule WQL21.

Rule WQL34 - Vegetation clearance or soil disturbance

- 6.31 I concur with Mr Murray that restricted discretionary activity status is appropriate for those applications seeking to clear vegetation or disturb soil in riparian zones.

- 6.32 Rule WQL34 includes 7 matters for which the Canterbury Regional Council has restricted its discretion. Matters of particular relevance to Fish & Game include the area, timing, and location of the activity; measures to avoid, remedy and mitigate any adverse effects of the activity (including water quality, bed sedimentation, aquatic ecosystems, and trout and salmon spawning areas), and remediation and maintenance of the site after the activity has ceased.

Rule WQL56 and WQL60 -Discharge of water/contaminants

- 6.33 These rules apply to all discharges except those to waters covered by the WRRP. Receiving waters of particular interest to Fish and Game include the Hawkins River, Hororata River, Selwyn River and Rakaia River.
- 6.34 Mr Murray notes relevant discharges include the disposal of dewatering water, stormwater and tunnel water; discharges through bywashes, and discharge of diverted and dammed water back to waterbodies.
- 6.35 Rule WQL56 contains a number of conditions which must be met if the activity is to be considered discretionary. Mr Murray notes that compliance with the conditions of Rule WQL56 cannot be assured. He notes that water quality standards outside the Zone of Non-Compliance may be breached, although it is not clear from Mr Murray's evidence which standards may be breached.
- 6.36 I concur with Mr Murray that these discharges fall to be considered as non-complying activities under Rule WQL60. However I consider the applicant should clarify which of the above standards under Condition 4 of Rule WQL56 will not be met, and why it would be impracticable to do so.

Rules WQN6 to WQN12 - Taking of surface water (in larger quantities)

- 6.37 I concur with Mr Murray that these rules do not apply to the Waimakariri (covered by rules in the WRRP) or the Rakaia (covered by the Rakaia WCO), although I have previously noted that because the NRRP does not provide any guidance as to the status of a take from the Rakaia River, it becomes innominate.
- 6.38 Mr Murray considers that the proposed take of water from the Waianiwaniwa River is a discretionary activity under Rule WQN9.

- 6.39 Rule WQN9 (Taking or diverting of water from a surface water body or an artificial water course not affecting allocation limits – discretionary activity) has only one condition. It states that the taking or diverting of water must be from a water body for which an allocation limit has been set in Schedule WQN1, or that can be derived from Schedule WQN2, and that take must also have no effect on the allocation regime.
- 6.40 The Waianiwaniwa River does not have an allocation limit set in Schedule WQN1, so it would be necessary to establish such a limit under Schedule WQN2. While it is possible such an allocation limit has been worked out, I do not see any evidence of that in Mr Murray’s assessment.
- 6.41 Further, once this limit has been established, then for the activity to be discretionary, the take must have no effect on the allocation regime, i.e. it is non-consumptive. Examples provided in the explanation for this rule include where a take is returned to a river a short distance downstream after its use.⁷ I understand the proposed activity does not return the take to the river, but rather consumes it to produce concrete and to control soil moisture and dust.
- 6.42 Therefore I do not consider this take is a discretionary activity under Rule WQN9. This take should be considered non-complying under Rule WQN11.

Rule WQN18 - Taking of water from groundwater for site de-watering

- 6.43 I concur with Mr Murray that these takes should be considered discretionary activities under Rule WQN18.

Rule WQN26 - Using of water for irrigation

- 6.44 While the use of water for irrigation can be a permitted activity under Rule WQN25, I understand from the evidence of Mr Murray and Mr Fietje that the proposed use breaches at least one of the permitted activity conditions (though it is not clear which condition/s would be breached). Therefore the relevant rule is Rule WQN26, which classifies the use of water for irrigation as discretionary.

⁷ See explanation for Rule WQN9, p.5-179.

6.45 I note in Mr Murray's response to the Section 42A report that the scheme has recently been amended to remove an area that previously fell within the Christchurch Groundwater Recharge Zone.

6.46 Accordingly I agree with Mr Murray that this is the appropriate rule and activity status for applications to use water for irrigation.

Rule WQN41 - Damming and/or diverting of water

6.47 The only condition set out in this rule is that the damming or diverting shall not be within a natural state or high naturalness water body listed in Schedule WQN5. None of the proposed activities are within the reaches of any water body listed in this schedule.

6.48 Therefore I concur with Mr Murray that these activities are appropriately considered as discretionary under this rule.

Rule BLR 1-9 - Activities in the Beds and Margins of Lakes and Rivers

6.49 These standards apply to all proposed activities within the beds and margins of all rivers, except those covered by the WRRP (including the Waimakariri River mainstem, Hacketts Creek, Kowai River and Cabbage Tree Flat Stream).

6.50 These rules do not apply where an activity is already covered by a provision in a relevant Water Conservation Order. Because the Rakaia WCO does not include provisions relating to other matters for which consent is required (for example, vegetation clearance in a riparian margin), I consider to that extent Chapter 6 applies to the Rakaia River. Mr Murray's evidence suggests he agrees on that point.

6.51 Permitted activity rules include Rules BLR1-7. In regards to matters of concern to Fish and Game, I note that:

- a. Rule BLR1 includes a condition that the activity shall not obstruct fish spawning or the passage of fish both upstream or downstream. A condition providing for fish passage is also included under Rules BLR2, BLR4, and BLR5.

- b. Conditions specifying maximum changes to colour, clarity and substrate embeddedness are included in Rules BLR1, 2, 4, 5 and 7.
- c. Conditions relating to remediation upon completion of the activity are included in Rules BLR 1, 2 and 3.

6.52 Mr Murray stated that applications subject to Chapter 6 of the NRRP may not comply with the conditions of relevant permitted activity rules, and should therefore be treated as discretionary activities under Rule BLR8. However, Mr Murray does not clarify which of the conditions will not be complied with.

6.53 I concur with Mr Murray that these activities should be considered discretionary and I consider the applicant should clarify which conditions will not be met, and why it would be impracticable to do so.

Rules WTL1-10 - Wetlands

6.54 Chapter 6 rules are applicable to all proposed activities affecting wetlands, except for activities affecting wetlands where the activity is covered by the WRRP or the Rakaia WCO.

6.55 The Rakaia WCO does not include any clauses applicable to wetlands. Rules in the WRRP pertaining to wetlands cover the diversion of water from, or the discharge of water to wetlands within the mainstem and its tributaries (a discretionary activity under Rule 5.2) and works in those wetlands (a discretionary activity under Rule 7.4). Therefore I consider any wetland within the scope of the plan area (defined in Map 2, p.107 of the WRRP) would not be subject to NRRP rules, but that applications are required for any diversion from, discharge to, or works within a wetland under that plan.

6.56 I firstly discuss the applicability of permitted activity rules in this chapter.

6.57 Mr Murray identifies that resource consents are required for activities that affect wetland areas in the Waianiwaniwa Valley. Mr Murray notes that other activities will “for the most part avoid wetland areas”. I am unclear what this statement means. Either other wetland areas are affected or they are not.

- 6.58 In this case it should be noted that p.7-30 of the NRRP states that permitted activity rules in the wetland chapter “do not take effect until any submissions in opposition have been withdrawn or decided or any appeals withdrawn or determined”.
- 6.59 Dr Bishop, in his evidence-in-chief, has identified a number of other wetlands within the scheme area. It would appear that resource consent is required in relation to any activities that affect these ‘other wetlands’, depending on their location.
- 6.60 Also, because the permitted activity rules are not yet in effect, I do not agree with Mr Murray’s statement that the creation of offsetting wetland areas will be a permitted activity.
- 6.61 While the permitted activity rules are not in effect (i.e. until the rule is operative it cannot be used against the need for a resource consent), I consider they must have effect for the purposes of interpreting the appropriate rule that applies to an activity. Otherwise, all associated rules become unworkable.
- 6.62 I now consider Chapter 7 rules as they may apply to activities affecting wetlands in the Waianiwaniwa Valley.
- 6.63 I note that Mr Murray considers that the reduction in wetlands in the Waianiwaniwa Valley caused by the damming of water may not comply with the permitted activity conditions of Rule WTL2. Mr Murray does not specify which conditions of Rule WTL2 would fail to be met. Failing to meet conditions 1 or 2 strictly means the activity becomes discretionary under Rule WTL4 (subject to the conditions of that rule), whereas non-compliance with any of conditions 3-8 means the activity becomes discretionary under Rule WTL7 (again subject to its conditions).
- 6.64 Condition 1 of Rule WTL2 states that, subject to condition 2, “the activity may only affect wetlands where Environment Canterbury has completed an assessment of wetlands in accordance with *Appendix WTL1: Wetland Assessment Methodology*.” Condition 2 states that “the activity may not affect any wetland identified in *Schedule WTL1: Moderate or Higher Significance Wetlands*.”
- 6.65 To determine the significance of the Waianiwaniwa Valley wetlands, reference would be made to the methodology outlined in Appendix WTL1. That methodology states

that significance would be judged according to ecological and hydrological viewpoints. Under the “Criteria for assessing ecological significance of wetlands”, it is stated that a variety of parameters will be considered, including “Rarity/distinctiveness”. This section includes the following statement:

In assessing rarity/distinctiveness, particular attention is drawn to the possibility of the area being Canterbury mudfish (*Neochanna burrowsius*) habitat.⁸

- 6.66 On this basis, I consider that Chapter 6 clearly suggests that any area that supports Canterbury mudfish habitat is of moderate or higher significance.
- 6.67 Given that mudfish habitat is already known to exist in the Waianiwaniwa Valley, a purposive interpretation of this rule would lead to the damming of the Waianiwaniwa Valley being in breach of Conditions 1 and 2. On that basis, the appropriate discretionary activity rule is Rule WTL4.
- 6.68 Rule WTL4 sets out two conditions that must be complied with in order for the activity to be considered discretionary. Condition 1 states that any reduction or loss of wetland area shall be offset by enhancing, restoring, or creating a wetland of an area at least as large as the area which is being reduced or lost. Condition 2 requires that if the land on which the offsetting wetland is not owned by the applicant, then an enforceable covenant (or equivalent instrument) must be registered over that land.
- 6.69 In comparison, Rule WTL7 does not include any conditions.
- 6.70 While I understand the applicant *may* be offering some offsetting wetland, I understand they have not applied for any consents under Rule WTL6 to do so. As previously noted, Mr Murray does not acknowledge that the permitted activity rules are not effective yet, and a similar misinterpretation may have led the applicant to believe that resource consents were not required to authorise any restoration, enhancement or creation of wetlands.
- 6.71 I consider you cannot count on offset mitigation where consents are required, but have not been sought. This point has been made by Ms Robson when discussing

⁸ Chapter 7 of the PNRRP, p.7-66.

potential recreation benefits of the reservoir, and I consider it is equally applicable here.⁹

6.72 I am also unclear whether the proposed offsetting wetland will be of an area at least as large as the area which is being lost or reduced. Nor am I certain whether that wetland will be located on land owned by the applicant. If it is not, I note that an enforceable covenant (or other equivalent instrument) must be registered over that land.

6.73 If Condition 1 or 2 of Rule WTL4 cannot be complied with, then the damming of water in the Waianiwaniwa Valley should be assessed as a prohibited activity under Rule WTL10. However, as this rule is not operative, this activity should be assessed as a discretionary activity under section 77(C)(1)(a) of the Act.

7. TRANSITIONAL REGIONAL PLAN (TRP)

7.1 Mr Murray covers the relevant provisions of the TRP in paragraphs 29-37 of his evidence-in-chief.

7.2 I have briefly reviewed the provisions of the TRP, and consider that its provisions have been accurately addressed in the evidence of Mr Murray.

8. PROPOSED SELWYN DISTRICT PLAN

8.1 Matters of concern to Fish and Game in relation to the notice of requirement, and land use applications, related primarily to activities with a potential effect on the habitat values of waterbodies, amenity values related to natural character, and activities with a potential effect on the ability of anglers and gamebird hunters to gain access to and along those waterbodies.

8.2 I have not undertaken a detailed review of the activity status for the land use consent applications. If the proposal does fall to be considered as a "utility", then the activities are fully discretionary. Matters of concern to Fish and Game relating to

⁹ Paragraph 6.12 of Ms Robson's evidence-in-chief.

habitat and amenity (including access and landscape/natural character matters) are therefore within the scope of matters that can be considered when determining these applications.

- 8.3 As an important aside, I note that Ms Robson refers to Rule IX 1.10 and 1.10A, which relate to exclusion of dairy cattle from water bodies. Both Ms Robson and Mr Boyes consider these rules do not apply to the CPW Scheme on the basis that it is the individual shareholder's responsibility, rather than the applicant, to ensure compliance with rules relating to the use of land.
- 8.4 As previously explained in relation to Rules WQL20-22 of the PNRRP, I draw the line between scheme and shareholder responsibility differently. I consider that activities that are a necessary but ancillary part of farming activity, such as effluent pits, would fall below the line above which the scheme has statutory responsibility. In my opinion, compliance with rules such as Rule WQL18, WQL20-22, and Rule IX 1.10 and 1.10A are within the statutory responsibility of the applicant. Certainly if Rule WQL18 relating to nitrate-nitrogen of groundwater resulting from intensification is considered relevant (and it is, according to Mr Murray), then surely rules intended to address similar effects on surface water are no different.

Overall summary of activity status

- 8.5 As mentioned earlier in my evidence, I consider the 'bundling approach' to be appropriate for determination of the activity status of all activities which are central to the operation of the irrigation scheme.
- 8.6 On the basis of the range of activities I have assessed, I find that this proposal should be assessed overall as a non-complying activity.

9. OBJECTIVES AND POLICIES

- 9.1 In the following section of my evidence I assess objectives and policies of the RPS, WRRP, NRRP and District Plan, with reference to the evidence of expert witnesses and having particular regard to effects on habitat and amenity matters that are of interest to Fish and Game.

10. REGIONAL POLICY STATEMENT 1998 (RPS)

Chapter 8 – Landscape, Ecology and Heritage

- 10.1 Objective 1 is to protect or enhance wetlands, including their ecology and recreational values. Policy 1 seeks to avoid, remedy or mitigate adverse effects on wetlands, including effects on their ecology and recreational values.
- 10.2 The evidence of Mr Canham points to the recreational values of riparian wetlands along the Waimakariri and Rakaia Rivers, particularly for gamebird shooting. It is unclear from the application whether, and to what extent, any of these wetlands are affected by proposed activities.
- 10.3 The importance of wetlands around the upper Waimakariri intake for salmon spawning has been addressed in the evidence of Mr Hay. These values may be lost altogether as a result of activities in that area.
- 10.4 Policy 2 encourages artificial wetland creation to improve habitat and landscape values, and as a way to improve water quality. Mr Hay notes that insufficient information has been provided regarding the management of proposed artificial wetlands, such as proposed bywash discharge wetlands, to understand whether they will be of any benefit either for habitat or to improve water quality.
- 10.5 Objective 2 is to protect and enhance natural features and landscapes contributing to Canterbury's distinctive character and sense of identity, including ecological, recreational and amenity values. Policy 3 states that natural features and landscapes that meet the relevant criteria of sub-chapter 20.4(1) should be protected.
- 10.6 I note from the evidence of Ms Lucas, for the Canterbury Regional Council, that the Rakaia and Waimakariri Rivers are listed as Regionally Significant Landscapes in the Canterbury Regional Landscape Study (1993). The criteria in 20.4(1) include whether a natural feature or landscape is identified as being regionally outstanding in that study. While these natural features and landscapes are not identified as being outstanding in the District Plan, Ms Lucas also notes that this is not necessarily a prerequisite for classification as a regionally outstanding landscape.

10.7 The value of these landscapes to recreational users is also explained in the evidence of Mr Canham, and in that of expert anglers.

10.8 I consider that the proposed activities may not be consistent with Policy 3.

Chapter 9 - Water

10.9 Objective 1 is to achieve sufficient quantities of water in the region's water bodies to gain various benefits, including recreational benefits, whilst providing for a range of matters. Those matters include (b) safeguarding the life supporting capacity of the water including its associated aquatic ecosystems; (g) protecting and enhancing significant habitat or trout and salmon; and (h) maintaining and where appropriate enhancing amenity values.

10.10 Dr Hayes considers that insufficient information has been provided to ensure sufficient recreational benefits will continue to be achieved from the Rakaia River following the proposed abstraction. Dr Hayes and Dr Olsen consider the proposed abstraction from the Waimakariri River will have significant effects on aquatic ecosystems, the habitat of salmon, and amenity values.

10.11 Policy 1 states that water flow or allocation regimes should be set and managed to achieve (a) to (g) of Objective 1. I have previously asked Canterbury Regional Council officers why (h) was not included and was advised that was likely to have been an error, and that Policy 1 should read (a)-(h). It may be helpful for this matter to be clarified by Canterbury Regional Council officers who are present at this hearing.

10.12 The evidence of Dr Hayes and Dr Olsen suggests that the WRRP mainstem flow regime is insufficient to meet matters (b), (g) and (h).

10.13 Policy 1 also provides for an "exception", whereby flow regimes can be set that do not meet matters including (g) and (h), but only where adverse effects on those matters can be remedied or mitigated. The accompanying explanation states that where this exception is applied, "the nature of these adverse effects should be identified in relevant regional plans, as should the general remediation or mitigation measures which may be needed to address these adverse effects." I am not aware of these matters being included in the WRRP. Consequently I conclude it was not the

intention of the WRRP flow regime to apply this “exception” to the Waimakariri River mainstem flow regime.

- 10.14 Policy 2 is related to the exception above, in that it provides flexibility in the setting of flow regimes to enable “people and communities to maximise their wellbeing”. Where appropriate, Policy 2 provides for enhancing the availability of water through increased efficiency of use, augmentation or storage.
- 10.15 To be consistent with Policy 2 the applicant would have to prove that the value of the water to people and communities out of stream would exceed that of retaining it instream. The explanation to the policy states that such a cost-benefit exercise should include both monetary and non-monetary values. I do not consider this has been evidenced.
- 10.16 Policy 4 states that water flow or allocation regimes will be established to resolve competing demands for water, including in the Waimakariri River and catchment. I turn to the objectives and policies of the WRRP later in my evidence.
- 10.17 Policy 6 states that the Canterbury Regional Council should consider certain matters when determining permits to take water. One matter to be considered is the need for takes to be “based on actual and reasonable water needs”. The term “reasonable need” is not defined in the RPS, but I do note in the “principal reasons” for Policy 6 that it deals with problems associated with “inadequately specified water permits”. I consider that the proposed take from the Waimakariri may not be based on actual and reasonable needs, if it includes more water than is required to operate the scheme efficiently.
- 10.18 Objective 3 is to enable benefits to arise from the water quality in water bodies (including recreational benefits) while providing for certain matters. Those matters include (b) safeguarding the life supporting capacity of the water including its associated aquatic ecosystems; (g) protecting and enhancing significant habitat or trout and salmon; and (h) maintaining and where appropriate enhancing amenity values. Policy 9 relates to point and non-point source discharges, and states that (a) to (h) shall be achieved by setting water quality conditions and standards and terms in plans, and conditions on resource consents.

- 10.19 Dr Hayes and Mr Hay's evidence suggests that proposed point source discharges to water may not provide for matters (b), (g) and (h). Dr Larned also notes there is considerable uncertainty regarding the effect of non-point source discharges on lowland streams and Lake Ellesmere arising from the intensified use of land.
- 10.20 Policy 10 states that degraded water bodies should be progressively improved. Priority is given to Lake Ellesmere and associated tributaries, and the Waimakariri River and catchment.
- 10.21 Dr Larned's evidence concludes that there is scope for water quality in Lake Ellesmere and associated tributaries to be further degraded as a result of land use intensification enabled by the proposed scheme. Dr Meredith for the Canterbury Regional Council also notes that reduction in dilution of discharges to the lower Waimakariri River may worsen the effects of those discharges on water quality.
- 10.22 Policy 11 promotes land use practices which maintain and where appropriate enhance water quality. The explanation of this policy states that favourable practices include not over-grazing in areas where soil may wash into streams as a result; keeping stock clear of stream margins; and retaining and enhancing riparian vegetation.
- 10.23 The proposed activities include removal of riparian vegetation and may also lead to intensification of stocking rates, which could in turn lead to intensification of any existing problems regarding stock and their effects on water quality.
- 10.24 There is potential for the proposed sustainable farm management plan to be consistent with aspects of Policy 11. However a number of witnesses including Dr Larned consider that insufficient detail is provided to give confidence this will be the case, and in any case, I am uncertain to what extent provision for these matters is being put forward by the applicant as an enforceable condition of consent. Accordingly I am not able to conclude whether the proposal is consistent with Policy 11.

Chapter 10 - Beds of Rivers and Lakes and their Margins

- 10.25 Objective 1 is (in relation to land use and development within the beds and margins of lakes and rivers) to protect, and where appropriate enhance matters including (a)

natural character; (c) significant natural features and landscapes; (e) habitat values of braided river beds; (f) significant amenity and recreation values; (h) significant habitat of trout and salmon; and (i) life-supporting capacity (health) of aquatic and riparian ecosystems.

10.26 Policy 1 states that important areas should be identified, and that land use or development should avoid causing significant adverse effects on the conservation values in those areas. Areas to be identified include those with natural character, significant natural features and landscapes, and that support significant amenity and recreation values, significant habitats of trout and salmon. Prior to identification of those areas, activities should be carried out in ways that avoid or mitigate adverse effects, including effects on landscape values, spawning habitats and the passage of trout and salmon, and amenity and recreational values.

10.27 The beds of the Rakaia River, Waimakariri River (and tributaries), the Selwyn River, and the Hororata and Hawkins Rivers support valued amenity and trout and/or salmon habitats. Various witnesses for Fish and Game including Mr Hay, Dr Hayes, Mr Canham and the expert anglers consider that the proposed activities will have effects of varying significance on those values. In particular:

- Mr Canham and expert anglers rate highly the landscape, amenity and habitat values adjacent to the intake areas on the Rakaia and Waimakariri. They have expressed considerable concern at the effects of activities in the riverbed and margins on those values.
- I also note the evidence of Ms Lucas for the Canterbury Regional Council where concern is expressed at the effects of works in the bed, and margins, on these values.
- The importance of the river bed and margins around the Upper Waimakariri intake area are addressed by Mr Canham and Mr Hay. They conclude that works and structures in the beds of Hacketts Creek, the Kowai River, and Cabbage Tree Flat Stream will have significant adverse effects on amenity values and the spawning habitat of salmon.

- Mr Hay is also concerned at potential impediments to fish passage caused by works and structures in the foothill rivers.

10.28 Policy 3 states that indigenous riparian vegetation should be retained and its establishment promoted to reduce the adverse effects of land use on water quality, and to enhance conservation and amenity values.

10.29 The proposal involves vegetation clearance along riparian margins, so to that extent it is difficult to see how those activities will be consistent with Policy 3. It is possible that mitigation could be provided in the form of indigenous riparian plantings. However I am uncertain of the extent to which any such measures are being offered as a condition of consent, and if it is, whether it would be of sufficient scale to be consistent with this Policy (including the need to offset removed vegetation).

10.30 Objective 4 is to achieve improved and safe public access to and along rivers and lakes and their margins, to enhance values including recreational opportunities, so long as it does not adversely affect certain matters. Policy 7 also states that public access to and along rivers shall be maintained and enhanced, except where restrictions are necessary for various matters, including public safety.

10.31 Mr Canham concludes that the proposal may result in significant adverse effects on public access to and along rivers. As access will not be maintained or enhanced, it is likely the proposal is inconsistent with Policy 7, except where restrictions can be justified according to the matters listed.

Chapter 11 – The Coastal Environment

10.32 Policy 1 states that the direct and indirect adverse effects of land uses inland of the coastal marine area should be avoided, remedied or mitigated where they would cumulatively effect matters including (a) the life-supporting capacity of coastal ecosystems and the natural processes that sustain them; (c) natural character (including associated natural processes); and (d) amenity and recreational attributes.

10.33 Dr Larned suggests there is potential for adverse effects to water quality, and associated values, to occur in Lake Ellesmere as a result of the cumulative effects of land use in the proposed scheme area. .Consequently I consider that the proposal may be inconsistent with Policy 1.

Chapter 12 - Settlement and the Built Environment

10.34 Chapter 12 relates to development in urban areas or smaller settlements. Given the focus of this chapter, I do not consider Objectives 1 and 2 and references to network utilities were intended to apply in this circumstance. Therefore I do not regard Chapter 12 objectives and rules as being relevant.

Chapter 16 – Natural Hazards

10.35 Objective 1 and Policies 1-6 seek to avoid or mitigate the actual or potential loss or damage to life, property or other parts of the environment from natural hazards. Policy 3 states that the consent authority should take a precautionary approach to the potential for a natural hazard to be created or increased. This policy also states that this may be achieved by giving priority to the principle of avoidance. Policy 5 states that the responsibility of costs associated with management of natural hazards should fall on those who benefit.

10.36 The risks associated with dam breach, any failures of canals that traverse steep river terraces, and/or emergency bywash discharges constitute a threat to lives or the environment. To the extent that they constitute natural hazards (or exacerbation of natural hazards), I consider the proposal may not be consistent with this Objective and associated policies.

11. WAIMAKARIRI RIVER REGIONAL PLAN

Chapter 5 – Water Quantity

11.1 Objective 5.1 covers diversions and takes. It seeks to enable various benefits (including recreational) from Waimakariri catchment waters, while providing for matters including (b) safeguarding the life-supporting capacity of the water, including aquatic ecosystems; (e) preserving the natural character of rivers, lakes and wetlands; (f) protecting natural features and landscapes; (g) maintaining and enhancing amenity values; and (h) protecting the significant habitat of trout and salmon.

- 11.2 As discussed earlier in my evidence, Rule 5.1 provides discretion to consider all matters (a) to (h), near to the point of take. Interpretation of the clause “near to the point of take” was provided earlier in my evidence, where I considered it is a flexible clause that can be interpreted according to the scale of abstraction.
- 11.3 Policy 5.1 states that water flow and allocation regimes shall be set, and controls shall be set in place on the taking, use, diversion, discharge and damming of water to provide for certain purposes whilst achieving (a) to (h) of Objective 5.1. The applicable purposes for the river below Woodstock are set out in Policy 5.1(b). These include to protect braided character, aquatic ecosystems and habitats, wetlands, and amenity based on the river. In relation to tributaries below Woodstock, I note the purpose for controls and regimes for the Kowai River are to protect aquatic ecosystems and habitats, wetlands and amenity.
- 11.4 I firstly address matters regarding the take.
- 11.5 Dr Hayes has analysed the effects of the take on the availability of optimum conditions for salmon angling, using a variety of different approaches, and concludes the take will not maintain salmon angling amenity. He considers that the proposed abstraction will considerably reduce the temporal availability of optimum conditions, and also the spatial availability of fishing lies. Various expert anglers express similar concerns in terms of the effect on much of the river below the proposed points of take, but also more locally, in relation to the effects of the take and diversion (and other aspects discussed below).. These matters are relevant to Objective 5.1(g).
- 11.6 Dr Hayes has also analysed the effect of the take on salmon passage and the effects of delayed migration on their energy reserves. He concludes that the take has a potentially significant effect on salmon passage. These matters are relevant to Objective 5.1(h).
- 11.7 Dr Olsen states that the take will not safeguard the available benthic invertebrate habitat, which is relevant to Objective 5.1(b).
- 11.8 I also note the evidence of Ms Lucas for the Canterbury Regional Council, who expresses concern that the take may not preserve the natural braided character of the river. Dr Davies notes that insufficient information is available on this matter, but based on his calculations he considers the takes may change the braided nature of

the river by increasing aggradation. Concerns about the effect of the take on the natural braided character of the river are expressed by Mr Canham, and in the evidence of expert anglers. These matters are relevant to Objective 5.1(e).

- 11.9 The localised effect of the take particularly in the reach between the point of diversion and bypass channels has, in the opinion of various experts including Dr Hayes and Mr Bejakovich, not been adequately explained. For instance, there is uncertainty about the residual flow to be maintained between those points in the natural river channel. This is of particular concern when the river is at low flows, and relates to salmon passage and localised angler amenity, which as explained above are relevant matters under Objective 5.1.
- 11.10 Therefore I consider that serious concerns exist about the effects of the take on a range of Objective 5.1 matters, which suggests that adherence to the plan minimum flows is not in itself sufficient to adequately provide for those matters.
- 11.11 If you consider on the balance of evidence before you that the plan minimum flows do not provide for any one or more of the values set out in Objective 5.1(a)-(h), I consider that the following options are available:
- a. Declining the resource consent to take water.
 - b. Granting resource consent, but on terms and conditions that are more restrictive than the present mainstem flow regime.
- 11.12 If you consider (b) is the appropriate course of action, then I consider that a plan change would be necessary to ensure that any “spare” water created by the imposition of more restrictive conditions in this instance is not allocated to future users.
- 11.13 It is also necessary to consider what additional restrictions are required to ensure the take, in terms of its direct and cumulative effects, suitably provide for all matters contained in Objective 5.1(a) – (h).
- 11.14 Dr Hayes and Dr Olsen conclude that none of the ‘alternative scenarios’ put forward by the applicant to date that they have analysed, including a reduced total take and flow sharing for the B block take, provide enough additional protection.

- 11.15 Fish and Game have asked Mr de Joux, Dr Hayes and Dr Olsen to consider an alternative not put forward by the applicant, being that the minimum flow for their B block abstraction be set at an unmodified flow of 100 cumecs (without flow sharing, and assuming a 40 cumec take). It appears this provides *some* additional protection, particularly in relation to benthic invertebrates and salmon angling. However it is not clear whether this additional restriction alone will provide suitable protection for all relevant matters. For instance, there may still be outstanding issues relating to the effects on higher flows, for example resulting from increased aggradation. It also fails to address the matter of the residual flow between the point of diversion and discharge.
- 11.16 Therefore I consider that the weight of evidence points towards the proposed take being inconsistent with Objective 5.1.
- 11.17 Objective 5.1 also relates to diversions. This has been partly covered earlier in my evidence, particularly in relation to localised effects on residual flow between the points of diversion and return of unused water. The following section of my evidence is therefore focused on fish screening arrangements.
- 11.18 Mr Bejakovich has expressed the opinion that significant adverse effects on salmonid passage will arise from the proposed fish screen arrangements, based on the information supplied by the applicant to date. He is particularly concerned that the arrangements will not be consistent with parameters that are understood to provide a high level of protection for downstream migrating salmonid fry. This is relevant to Objective 5.1(h).
- 11.19 The evidence of other witnesses will address fish screening from a native fish perspective.
- 11.20 It appears CPW seeks a consultative process with little, if any, direction regarding the standards that should be applicable to fish screen and bypass channel design. In my opinion this provides no certainty as to an acceptable level of protection of trout and salmon habitat.
- 11.21 As outlined by Mr Bejakovich in his evidence, Fish and Game, DOC and NIWA have each reached similar conclusions about the parameters necessary to ensure

effective fish screening. Therefore I do not consider there is any need for, or benefit in, establishing a Working Group to further discuss what parameters should apply. If there is to be a Working Group, then it should be focused on ensuring that parameters established in consent conditions are given effect to in practice.

11.22 On the basis of Mr Bejakovich's evidence, and my comments regarding the Working Group approach, I consider that the proposed diversion is inconsistent with Objective 5.1(h).

11.23 Policy 5.2 seeks to promote efficiency in the use of water. This includes technical and allocative efficiency. I consider the proposed take from the Waimakariri would not be efficient from an allocative perspective if any consent granted is for more water than is required to operate the scheme efficiently.

Chapter 6 – Water Quality

11.24 Objective 6.1 is identical to Objective 5.1, except it excludes reference to hydraulically connected groundwater. It seeks to enable benefits (including recreational benefits), but not at the expense of matters (a) to (h). Policy 6.1 states that water quality standards shall be set and maintained, and discharges controlled, to achieve certain outcomes. These outcomes differ according to the reach of river. For the reach of the Waimakariri upstream of the Otukaikino Creek confluence, the outcome is to protect the natural state of water.

11.25 Policy 6.3 states that within 10 years of the plan becoming operative, no direct discharges shall occur unless that discharge does not reduce water quality outside of the reasonable mixing zone. An exemption is provided to stormwater. While the plan has only been operative for four years, this Policy clearly infers that water quality is a critical issue for the future management of the Waimakariri River.

11.26 This Objective and associated policies set a high standard for discharges to this part of the river. However, I have previously noted in relation to relevant rules in Chapter 6 that reasonable mixing zones are allowed. Therefore the direction to protect natural state water quality is not necessarily as stringent as, for example, the WCO provision requiring all discharges to be substantially free of suspended solids.

- 11.27 There is uncertainty whether sufficient mitigation is proposed for the sluicing discharge. As I mention earlier in my evidence, there are significant differences between the mitigation put forward by the applicant, and that which exists on the relevant consent held by WIL. I also have some doubt in my mind whether the conditions on WIL's consent are themselves sufficient to ensure consistency with this Objective and Policy. For instance, it is not clear to me whether the natural state of water is protected if (after reasonable mixing) a change over the background concentration of suspended sediment of up to 50 grams per cubic metre is allowed. I also note that there is no requirement on WIL to discharge only when flows are rising, although as previously noted the limit on duration of discharge to being a maximum of an hour is sufficient to address this.
- 11.28 Therefore, on the basis of the mitigation proposed by the applicant to date, I consider the sluicing discharge is not consistent with Objective 6.1 and Policy 6.1.

Chapter 7 – River and Lake Beds

- 11.29 Objective 7.1 follows similar wording to previous objectives addressed above. It seeks to enable benefits (including recreational benefits) from the use of river and lake beds, but not at the expense of matters (a) – (k). Listed matters of particular relevance to Fish and Game include (b) safeguarding the life-supporting capacity of the water, including aquatic ecosystems; (e) preserving the natural character or rivers, lakes and wetlands; (f) protecting natural features and landscapes; (g) maintaining and enhancing amenity values; and (k) protecting the significant habitat of trout and salmon.
- 11.30 Policy 7.1 seeks to impose controls on activities in the bed or rivers and lakes so that matters (a) – (k) of Objective 7.1 are achieved. Policy 7.1 lists particular matters which may be assumed to be of higher priority, including (iii) salmon spawning sites are not disturbed; (iv) wetlands are protected; (v) braided character is sustained where it exists; and (viii) specifically for below Woodstock, the present natural character of river beds is at least maintained.
- 11.31 Mr Hay has identified salmon spawning areas in Hacketts Creek and Cabbage Tree Flat which will be severely disturbed, and possibly destroyed completely by the proposed works in those riverbeds. Such effects would not be consistent with

Objective 7.1 or Policy 7.1, with particular reference to higher priority matters (iii) and (iv) of that policy.

11.32 Various experts including expert anglers, recreation planner Mr Canham, and Ms Lucas for the Canterbury Regional Council have identified potential adverse effects from activities in the mainstem river bed on amenity, natural character and landscape matters. I am also uncertain to what extent riparian wetland areas may be affected.

11.33 I consider there is insufficient information to be certain that proposed activities in the mainstem riverbed will be consistent with Objective 7.1 and Policy 7.1.

12. NATURAL RESOURCES REGIONAL PLAN

12.1 I concur with Mr Murray that the NRRP is relevant to all activities outside the area covered by the WRRP. This means activities that affect wetland areas, the Rakaia River, Selwyn River, Hororata River, Hawkins River, and waters below the scheme area including Lake Ellesmere and its tributaries, are all subject to the objectives and policies of the NRRP.

12.2 I have not addressed objectives and policies relating to Chapter 3 – Air Quality in my evidence. I note that it is possible that discharges to air may have an adverse effect on the amenity values of recreational users, particularly in riverbeds within reasonably close proximity to works, and could potentially adversely affect water quality if considerable amounts of fine particulate material are transported by air into the water.

Chapter 1 - Overview

12.3 Chapter 1 is at a more advanced stage than Chapters 4 – 8. Decisions of the independent commissioners on Chapters 1 – 3 were adopted by the Canterbury Regional Council in September 2007. I understand appeals have yet to be heard.

12.4 Chapter 1 does not contain any objectives or policies. However, it does include Section 1.3.5 “Consent Duration” which is relevant to your determination as to appropriate durations of any consents you may choose to grant.

- 12.5 Section 1.3.5 states that durations shall be set for as long as is consistent with sustainable management, having regard to:
- a. The nature and sensitivity of the affected environment.
 - b. The nature of the activity, and
 - c. Any other relevant matters.
- 12.6 In summary, this section suggests that where there is a high level of certainty about the affected environment and its capacity to deal with effects, where rigorous monitoring and reporting will be undertaken, and where the costs of the activity clearly outweigh the benefits, then a case can be put for a long-term duration. Conversely, a short term duration is appropriate in cases where significant uncertainty exists.

Chapter 4 - Water Quality

- 12.7 Objective WQL1.1 concerns water quality outcomes for rivers and lakes. It is supported by Policies WQL1 - 5.
- 12.8 Objective WQL1.1(1)(a) states that where water quality is in its natural state, the water quality and the characteristics of the substrate are maintained in that state. Mr Murray considers there are no relevant water bodies within the scheme area that have natural state water quality. I generally agree with his conclusion.
- 12.9 For all other water bodies, Objective WQL1.1(1)(b) applies. It states that where a river's water quality is less than natural state, its water quality and substrate shall be maintained or improved. There are several objectives stated for these waters, including (i) to be suitable for contact recreation; (iii) to be suitable as habitat for indigenous species and salmonids; and (iv) to provide for amenity values. As noted previously, the applicant has signalled they are unable to meet Rule WQL56 water quality guidelines for discharges to the Selwyn River, Hororata River and Hawkins Rivers. Therefore those discharges may not be consistent with this objective.
- 12.10 Objective WQL1.1(2) relates to the numerical outcomes set out in Table WQL5. The aim is to ensure rivers that have water quality lower than specified in Table WQL5

should be brought up to at least that standard. I am unaware of any evidence being brought to this hearing at the time I prepared my evidence, regarding the water quality of affected foothill and lowland waters in relation to the outcomes set in Table WQL5. Therefore I cannot draw any conclusions at this time regarding consistency with this objective.

- 12.11 Objective WQL1.1(3) relates to the effects of augmentation, damming, diversion or discharges on water quality and riverbed substrate. It seeks to ensure that certain changes resulting from those activities do not result in significant adverse effects on existing instream values. Those changes include to water quality, sedimentation of substrate, and excessive growth of periphyton or aquatic plants.
- 12.12 The evidence of Dr Larned indicates that incidental augmentation of lowland rivers and Lake Ellesmere may result in significant adverse effects on water quality through increased nutrient loading, and potentially increased nutrient concentration. This may also contribute to excessive plant or periphyton growth. Mr Hay also addresses the potential effects of discharges to foothill rivers, including sedimentation of substrate. In these respects, the proposal may not be consistent with Objective WQL1.1(3).
- 12.13 Objective WQL1.2(2) relates to coastal lakes, and is applicable to Lake Ellesmere. It states that water quality shall be maintained or improved in those lakes to achieve three outcomes, including (a) it is suitable as habitat for indigenous fish and trout; and (c) there are no toxic or nuisance algal blooms. Dr Larned addresses the potential for an increase in algal blooms in Lake Ellesmere, which raises the question as to whether the proposal will be consistent with this objective.
- 12.14 Objective WQL1.2(3) sets out four aims in relation to water quality in artificial lakes. These are potentially applicable to the proposed reservoir. It is unclear, from the evidence presented by the applicant, the extent to which these aims will be provided for as proposed conditions of consent.
- 12.15 Policy WQL1 covers point source discharges to water.
- 12.16 Policy WQL1(1)(a) promotes discharges to land, or where that cannot be undertaken, it seeks to ensure that contaminant concentrations and loads will be minimised. I am not aware of any proposed conditions relating to the sluicing discharge to the Rakaia

that would minimise sediment loading or concentrations. I note that mechanical excavation and disposal to land would certainly ensure consistency with this policy. The proposed bywash wetlands and sustainable farm plans may perform this function for the bywash discharges, but (as noted in the evidence of Mr Hay and Dr Larned) insufficient specificity has been provided to know how effective they will be at this function.

- 12.17 Policy WQL1.1(b) relates to the mixing of waters. Four matters of concern are covered, including the movement of pest or exotic species between catchments, and adverse effects on water quality, substrate and associated values. By transferring water from the Rakaia to any other part of that catchment, or to the Waimakariri catchment, it appears inevitable that the CPW Scheme will cause the spread of didymo. The risk of didymo spread has been widely acknowledged and accepted by all parties. I consider this risk must be balanced against the risk of didymo being spread by another vector, which could include birds or humans, but also against the considerable benefits to be gained by delaying that spread for as long as possible.
- 12.18 Policy WQL1(2)(a) relates to reasonable mixing zones, and matters to be considered when established those zones. Policy WQL1(2)(b) states that water quality outside of those zones shall meet standards specified for that river either in Schedule WQL1 or in a relevant WCO. Policy WQL1(2)(3) applies to discharges to waters whose existing water quality does not meet applicable Schedule WQL1 standards. It states that discharges to those waters shall not be allowed unless it does not result in water quality being reduced to below those standards.
- 12.19 I have previously noted that the applicant has not defined mixing zones for any of the proposed discharges. I also consider insufficient information has been provided to understand whether existing water quality in rivers affected by proposed discharges meets applicable Schedule WQL1 standards. Accordingly no assessment can be completed against Policy WQL1(2) matters.
- 12.20 Policy WQL4(1) relates to non-point source discharges to water from farming activities. It includes provisions relating to the management of riparian margins, exclusion of stock, discharge of agrichemicals and fertiliser, and irrigation. Many of these matters could be addressed via the proposed sustainable farming plan. However, I consider that the plan lacks sufficient detail to ensure the proposed scheme will be consistent with this policy. It is also questionable whether such a plan

would be enforceable by the consenting authority. Policy WQL5 is focused on management of riparian margins. It seeks to ensure activities in those margins minimise sediment discharge and bank erosion. It also promotes riparian plantings, so long as they are undertaken in an appropriate manner and avoid, for example, impeding public access to or along rivers. Provided sufficiently rigorous and enforceable conditions are imposed on consents for activities in riparian margins, I consider that consistency with Policy WQL5 could potentially be achieved. I consider that the proposal lacks sufficient detail to ensure that consistency will be achieved with these policies.

- 12.21 Objective WQL2 is concerned with ground water quality, and is supported by Policies WQL6 - 11.
- 12.22 Objective WQL2(2) relates to all aquifers inland from the coastal aquifer system. It states that where water quality is largely unaffected by human activities, it shall be maintained in that state. Where it has already been affected, guidelines are set regarding the maximum extent of further change that should occur.
- 12.23 I note the 'maximum extent of change' guidelines are principally related to human health, except possibly for Objective WQL2(2)(b)(i), which states that nitrate-nitrogen concentrations shall not increase by more than 2 mg/l over the maximum concentration measured between 1996 and 2001, and reported in 2002. It is not clear from the explanation to this Objective, whether this provision is intended to protect spring-fed streams, or whether it is focused solely on human health. I understand that guidelines relating to nitrate-nitrogen contamination for human health are relatively permissive, compared with nitrate-nitrogen guidelines for maintenance of aquatic ecosystem values. Therefore achieving consistency with these guidelines may not provide sufficient protection for instream values associated with spring-fed lowland waters.
- 12.24 Policy WQL9(3) requires that where groundwater enters rivers or lakes, that the contaminant concentrations in the groundwater shall not result in the surface water quality being reduced below the values of Objective WQL1, or any relevant water quality standard set in the plan or by a water conservation order.
- 12.25 I have set out earlier in my evidence the key values of Objective WQL1, and Schedule WQL1 water quality standards for the Selwyn, Hororata and Hawkins

Rivers. I have also described water quality standards in the Rakaia WCO. These are all relevant to the extent that groundwater quality from the scheme area influences water quality in those rivers. There is also a Water Conservation Order for Lake Ellesmere, but it does not set any water quality standards.

- 12.26 Probably of most relevance are the water quality standards for Lake Ellesmere and its tributaries. Lake Ellesmere is classified as 'Class COAST', while Ellesmere tributaries are classified as 'Class LOWLAND'. From a Fish and Game perspective, relevant purposes of management for Class COAST and Class LOWLAND include natural character, amenity values and aquatic ecosystems.
- 12.27 Dr Larned's evidence is that insufficient information has been provided by the applicant to confirm whether standards for both classes relating to nitrogen (in its various forms, including ammonia), phosphorus and algal growths will be met. A standard also exists for emergent macrophytes in lowland streams, which is also addressed by Dr Larned as a potential issue. Consequently I am not confident that the proposed use of land in the scheme area will be consistent with Policy WQL9(3).

Chapter 5 - Water Quantity

- 12.28 Objective WQN1 is similar to Objective 5.1 of the WRRP, and to Chapter 9, Objective 1 of the RPS. It seeks to enable benefits (including recreational benefits) while providing for matters including (b) safeguarding the life-supporting capacity of the water, including aquatic ecosystems; (e) preserving the natural character of rivers, lakes and wetlands; (f) protecting natural features and landscapes; (g) protecting the significant habitat of trout and salmon and (h) maintaining and where appropriate enhancing amenity values.
- 12.29 This objective is supported by Policies WQN1-5. Policies WQN1 and WQN2 are not relevant, as they relate only to a select set of natural state or high naturalness water bodies.
- 12.30 Policy WQN 3 requires flow or level regimes to be set by the Canterbury Regional Council where taking, using, damming, diverting or discharging of water occurs or is likely to occur. These will be introduced into Schedules WQN1 and WQN3.

- 12.31 Mr Murray concludes that flows have not been set for any of the waters within the CPW Scheme area. To the extent that they are not present in either schedule, I agree with him.¹⁰
- 12.32 There a considerable number and range of activities associated with the CPW Scheme that will affect the rivers of the Upper Selwyn catchment. They include proposed bywash discharges, takes of shallow groundwater for dewatering purposes that are quite likely to be hydraulically connected to those rivers (noting Mr Murray's reference to these takes being likely to continue for a period exceeding nine months), and the proposed take and damming of the Waianiwaniwa River.
- 12.33 Mr Hay has noted in his evidence that there is a general paucity of information about the hydrological characteristics of these rivers, and the relationship between hydrology and associated instream values is also poorly understood. However, as Mr Hay and Mr Canham note, these waters continue to hold some significance as trout spawning areas and for trout angling (along with native fish values in their upper reaches). Although these values have been degraded in recent years, it is perhaps noteworthy that the Upper Selwyn River, including the Hawkins, Waianiwaniwa and Hororata Rivers are included in Table WQL6 as a priority water body for managing non-point source contamination. This suggests improvement of these waters is a regional priority.
- 12.34 The lack of information about the Upper Selwyn catchment rivers makes it difficult to assess the extent to which the proposed activities will be consistent with Objective WQN1 matters, including (from a Fish and Game perspective) the habitat of trout, and amenity values.

¹⁰ The Upper Selwyn River, Hawkins River and Hororata River have minimum flows established by decisions on previous resource consents. It is likely none of these minimum flows are based on a good understanding of the rivers' hydrology or instream values, and on that basis they are unlikely to be consistent with the objectives and policies of the NRRP. The Upper Selwyn River minimum flow is 550 l/s at Whitecliffs, resulting from a decision on a resource consent in 1987. The Hororata River has a minimum flow of 30 l/s at Haldon water race, based on a consent granted in 1984. Both are listed in Appendix WQN2, p.5-215. I also understand the Hawkins River has a minimum flow of 35 l/s based at the Willows. The origins of that minimum flow are less clear, but may date back to a similar period. I am not aware of any interim allocation limits being set for the Upper Selwyn River or the Hororata River. However in response to an application to take water from the Hawkins River, the Canterbury Regional Council used the Schedule WQN2 method to calculate an Interim Allocation Limit for the Hawkins River. That calculation led staff to conclude that the resource was already overallocated, and therefore that no further water should be allocated. I understand that a review of minimum flows for the Upper Selwyn River Catchment is expected to be initiated in 2009/10, with a variation introduced the following year, and a Council decision planned for 2011/12.

- 12.35 As noted in the evidence of Mr Hay, the absence of rigorous baseline data provided by the applicant about the environment, combined with a lack of specificity about the proposed activities, makes it difficult to confirm whether any of the activities will have incidental benefits to those environments. For instance, Mr Hay notes that the incidental augmentation of river flows by bywash discharges could potentially enhance trout values, if discharges were appropriately sited, were timed appropriately, were of an appropriate scale and duration, and comprised sufficiently high quality water. Because these matters do not appear to have been considered by the applicant, it is likely such an opportunity may be missed.
- 12.36 Objective WQN3 covers groundwater management, and is supported by Policies WQN8 – 13. This objective seeks to ensure that various adverse effects are not realised, including that takes do not adversely affects surface water flows and levels, and associated instream values. Policy WQN8 specifies how stream depletion effects shall be calculated and managed.
- 12.37 Mr Murray infers that because proposed groundwater abstractions are temporary, their effects must therefore be minor.¹¹ Effects should not be excluded from consideration , on the basis that they are temporary. In any event, I query whether a period exceeding nine months (I am not aware of any proposed maximum duration of take) could be considered 'temporary'.
- 12.38 Mr Murray and I agree that the proposed takes are fully discretionary activities under Rule WQN18. This is not an activity for which discretion has been limited, for instance to exclude consideration of effects on surface water flows or levels. Therefore in the event these takes have a stream depletion effect, then that effect should be managed consistent with Policy WQN8. If this is not practicable and the adverse effects warrant it, then some other form of mitigation is required.
- 12.39 Consequently if the proposed groundwater takes result in effects on surface water flows that will not be appropriately managed, then I consider those activities to be consistent with Objective WQN3 and Policy WQN8.
- 12.40 Objective WQN4 and associated Policies WQN14-17 deal with the allocation of water. This objective and associated policies do not expressly address the effects of

¹¹ Paragraph 222 of his evidence-in-chief.

allocation on instream values, as that is dealt with elsewhere in the chapter. Rather, they are focused on the methods for allocation including matters such as setting the size of allocation blocks, and appropriate levels of reliability.

- 12.41 Policy WQN14(1) states that where water conservation orders have established allocation regimes, they shall be applied. However, it can be argued that the Rakaia WCO does not establish an allocation regime as such. The banding system followed by the Canterbury Regional Council is not based on a clause in the Rakaia WCO requiring that regime to be followed – it is rather an ‘administrative construct’. Therefore this clause may have little meaning with respect to the proposed take from the Rakaia.
- 12.42 Policy WQN16 requires measuring and recording of water abstraction. It applies both to surface and groundwater abstractions, and it does not provide exemptions for small takes. Mr Murray states that the take from the Rakaia River will be measured and recorded consistent with the requirements of this policy. It is not clear from his evidence whether other proposed takes will be similarly measured and recorded.
- 12.43 Objective WQN5 and associated Policies WQN17 and WQN18 are concerned with efficient use of water. These matters are relevant to Fish and Game if inefficiencies lead to adverse effects on water quality, and where inefficiencies may necessitate unnecessary abstraction leading to greater depletion of surface water flows or levels (these matters are also identified in Issue WQN5).
- 12.44 Objective WQN6 and Policy WQN19 seek to manage water allocation equitably when restrictions are in place. I expect as a matter of course that any prospective abstractor would act consistently with these provisions.
- 12.45 Objective WQN8 and Policy WQN21 relate to augmentation. The term ‘augmentation’ is defined in the NRRP to mean “the storage or addition of water to improve water availability and maintain higher groundwater levels in an aquifer”. Under this definition, the proposed reservoir seeks to improve water availability, so it can be considered augmentation. However unlike the Opuha situation for example, the CPW Scheme does not include any deliberate augmentation of surface waters to achieve certain instream objectives. As noted in the evidence of Dr Larned in relation to lowland waters, and Dr Olsen in relation to foothill rivers, there is considerable doubt about whether any incidental augmentation in flows will provide

any benefits precisely because a considerable level of planning would be necessary to realise those benefits. Increases will only result from inefficiencies in the use, transport or storage of water. Therefore with reference to the three forms of augmentation described by Mr Murray in his paragraph 238, I have some doubt about whether “using the Rakaia and Waimakariri intakes...as the availability of the resource in each river dictates”, and “recharging the groundwater resource, rivers and lowland streams” constitute augmentation. However for the purposes of this analysis I do regard increases in groundwater levels as augmentation.

- 12.46 Objective WQN8 seeks to enable augmentation provided that a number of matters are addressed. The focus of this part of my evidence is on the issue of groundwater augmentation.
- 12.47 Matter (a) of Objective WQN8 is that augmentation should be consistent with Objective WQN1, Objective WQL1.1(2), and Objective WQL1.2(3).
- 12.48 In relation to the consistency of potential groundwater augmentation with Objective WQN1, I consider relevant matters to Fish and Game include (b) safeguarding the life-supporting capacity of the water, including aquatic ecosystems; (g) protecting the significant habitat of trout and salmon and (h) maintaining and where appropriate enhancing amenity values.
- 12.49 Objective WQL1.1(2) sets outcomes for nutrient indicators for lowland streams including emergent macrophytes, algae and periphyton (these are laid out in Table WQL5). These indicators should be maintained at or better than the stated numerical outcomes, and where they already do not meet those standards, they should be improved.
- 12.50 Based on the evidence of Dr Larned, I consider the augmentation of groundwater may not be consistent with Objective WQN1 particularly because it may not safeguard the aquatic ecosystems of Lake Ellesmere and lowland streams. There is considerable potential for the additional groundwater flows into those water bodies to degrade those ecosystems through additional loading of nutrients. If those aquatic ecosystems are not safeguarded, I would expect consequential adverse effects on trout habitat and amenity values. For those reasons, I also conclude that the augmentation will not be consistent with Objective WQL1.1(2).

- 12.51 I am not aware of evidence being given regarding the existing state of lowland waters against the numerical indicators for lowland streams in Table WQL5. However I do note that lowland streams flowing into Lake Ellesmere are included in Table WQL6 (Priority water bodies for managing non-point source pollution). This table cites current water problems which include high nutrient concentrations, together with potential causes of further water decline as including intensive land uses in the catchment. As the CPW Scheme is likely to lead to further intensification of land use, this raises the issue of whether maintenance or improvement of water quality will be achieved, having regard to the parameters in Table WQL5.
- 12.52 Matter (c) of Objective WQN8 is that augmentation should result in long term benefits to the regional community, including environmental benefits. Given the above assessment, I consider that there is insufficient information to suggest that augmentation of groundwater will result in long term environmental benefits to Lake Ellesmere and lowland streams, and that there is a considerable risk that long term costs may be imposed on those water bodies..
- 12.53 Policy WQN21(1) requires that the proponents of an augmentation proposal need to show that the effects are avoided, remedied or mitigated. This is also discussed in the evidence of Dr Larned. While some mitigation has been proposed by the applicant, including sustainable farm plans, Dr Larned states that there is insufficient specificity to be confident that this will adequately mitigate the effects of intensified land use on water quality and associated values downgradient of the scheme area. Accordingly I consider the effects of augmentation on the environment are not consistent with Policy WQN21(1).

Chapter 6 – Beds and Margins of Lakes and Rivers

- 12.54 Objective BLR is to enable activities in the beds and margins while providing for certain matters. Relevant matters include (d) preserving natural character; (e) protecting outstanding natural features and landscapes; (g) promoting the maintenance and enhancement of amenity values; and (j) protecting significant habitat of trout and salmon.
- 12.55 Policy BLR1 seeks to control activities in the beds, and within 7.5 metres of the bed, to ensure achievement of Objective BLR1.

- 12.56 In regards to the effects of proposed activities in the beds of the Rakaia and Waimakariri Rivers, the evidence of Ms Lucas for the Canterbury Regional Council suggests that those activities may not preserve natural character, or protect outstanding natural features and landscapes. The amenity values associated with the natural character, features and landscapes of these rivers may also be compromised, as discussed in the evidence of Mr Canham and expert anglers. Mr Canham also makes specific mention of the amenity values of salmon spawning streams in the vicinity of the Upper Waimakariri Intake, which may be lost entirely as a result of activities in the beds and margins of Hacketts Creek, the Kowai River and Cabbage Tree Flat Stream. Consequently I am concerned that the scale, type and duration of proposed initial and ongoing activities, particularly when considered in combination rather than as individually, may not ensure achievement of Objective BLR1(d), (e) and (g).
- 12.57 As noted above, and in the evidence of Mr Hay, activities in the beds of rivers associated with the Upper Waimakariri intake threaten to permanently destroy the salmon spawning values of Hacketts Creek and Cabbage Tree Flat Stream. Mr Canham notes that the loss of these values would also lead to the loss of considerable amenity values gained by people participating in spawning stream enhancement efforts. While it may be possible to offset these losses, I am not aware of any such mitigation being put forward. Therefore I consider these activities to be contrary to Objective BLR1(k).
- 12.58 Mr Hay notes activities in the beds of the Kowai River and rivers in the Upper Selwyn catchment, particularly the Selwyn River, Hawkins River and Hororata River, may cause considerable disruption to trout passage and may also adversely affect the quality of water and substrate (the latter particularly for the Selwyn catchment waters). Mr Hay describes means by which to mitigate these effects, for example timing of works and where relevant appropriate culvert design. Therefore I consider it is possible these activities could be undertaken in a manner that is consistent with Objective BLR1(k), subject to appropriate controls as per Policy BLR1.
- 12.59 There are a range of potential effects of bed and margin activities on trout and salmon habitat in the beds of the mainstem Rakaia River and Waimakariri River. It is possible some of these effects may not be significant if undertaken under proper controls. However, the scale and duration of activities in the bed and margins, together with a general absence of specific information about what is proposed and

what controls are being put forward, raises the issue whether all of the proposed activities in the mainstem beds of the Rakaia and Waimakariri Rivers will be consistent with Objective BLR1(k).

12.60 Objective BLR2 and Policy BLR2 seek to achieve spatial separation of human activities to avoid conflict between those activities, and between human activities and the habitats of indigenous flora and fauna. The evidence of Mr Canham and expert anglers is that the proposed activities in the beds of the Rakaia and Waimakariri are likely to cause conflict with recreational users. To that extent, I consider proposed activities may not be consistent with this objective and policy.

Chapter 7 - Wetlands

12.61 Objective WTL1(1) partly draws upon wording in Section 5 of the Act, in that it seeks to manage Canterbury's wetlands in ways that enable people and communities to provide for their wellbeing, while meeting certain constraints. Those constraints include:

- a. No overall reduction in the area of moderate or higher significance wetlands in the region; and
- b. No overall reduction in the natural character of wetlands and their margins, and in particular no overall loss of significant indigenous habitats.

12.62 Policy WTL8 explains how rules will be used to achieve Objective WQL1.

12.63 A differentiation exists between the use of rules to regulate activities affecting moderate or higher significance wetlands, and other wetlands. For moderate or higher significance wetlands, activities will be regulated, and where the affected wetland has not had its significance assessed, this shall be done using the methodology in Appendix WTL1. I have previously discussed this methodology, particularly its reference to Canterbury mudfish as a key indicator of ecological significance. This suggests the Waianiwaniwa Valley wetlands should be considered of moderate or higher significance. Rules will also apply to activities affecting wetlands that are a significant salmon or trout habitat. This may apply to wetlands in the Hacketts Creek/Kowai River/Cabbage Tree Flat Stream area. It may also apply to other riparian wetlands adjacent to the Waimakariri or Rakaia Rivers, if they are

affected by any proposed activities. Offsetting will be required as a condition of consent for any loss or reduction of moderate or higher significance wetlands, and such offsetting must be enforceable.

12.64 I consider that the activity of damming water in the Waianiwaniwa Valley leads to loss or reduction of a wetland area that, primarily because of the presence of Canterbury mudfish, should be considered of 'moderate or higher significance'. I also consider insufficient detail has been provided regarding proposed offsetting, including the relative area of offset wetland to be created, and the enforceability of such arrangements. Therefore I consider that activity to be contrary to Objective WTL1(1) and Policy WTL1.

12.65 Rules will permit activities for the purpose of wetland enhancement, restoration or creation where those activities are without risk of adverse effects. Rules will also permit activities that lead to loss or reduction of wetlands that are assessed as being less than moderate significance, provided that relevant water quality and quantity standards are met, and any significant habitat of salmon or trout shall be safeguarded. Mr Murray considers that any proposed wetland creation, enhancement or restoration that may be undertaken as offset mitigation would be permitted. It appears no resource consents have been sought for activities affecting wetlands outside of the Waianiwaniwa Valley, which may suggest that the applicant considers they can comply with conditions permitting the loss or reduction of 'less than moderate significance' wetlands.

12.66 I have previously noted that these rules do not take effect until they become operative. Therefore I consider resource consent is required for any offsetting wetland enhancement or restoration, and possibly for creation also. I also consider that resource consent is required for any activity that leads to the loss or reduction of wetlands of less than moderate significance.

Chapter 8 – Soil Conservation

12.67 Chapter 8 contains three objectives. Objective SCN1 and associated Policies SCN1-5 are not relevant to this proposal, as they relates solely to hill and high country non-arable land.

12.68 Objective SCN2 and associated Policies SCN6 and SCN7 deal with arable land, and are applicable to the proposed scheme area. Objective SCN2(b) seeks that the movement of soil into water bodies is prevented, as far as practicable. Policy SCN6 encourages following of good farming practices to enhance soil quality, while Policy SCN7 encourages good practice to minimise the risk of soil erosion.

12.69 Objective SCN3 and Policies SCN8 and SCN9 address contamination of soils by persistent and/or toxic contaminants, such as cadmium. As cadmium is a constituent of phosphate fertilisers, and the scheme may lead to an increase in phosphate fertiliser use, these objectives and policies are likely to be relevant to the use of land in the scheme area. I am uncertain as to the potential for cadmium to become an issue for instream habitats.

12.70 In my opinion, consistency with the objectives and policies in this Chapter of the NRRP may be achieved through the imposition of consent conditions that require:

- a. Best practice-type procedures consistent with the direction provided by Objective SCN2, and Policies SCN6 and SCN7.
- b. Minimising use of phosphate fertilisers, and best practice where its use is necessary, consistent with the direction provided by Objective SCN3 and Policies SCN8 and SCN9.

13. PROPOSED SELWYN DISTRICT PLAN

13.1 In this section of my evidence I identify particular matters of concern to Fish and Game that relate to relevant objectives and policies of the District Plan. At the conclusion of this section, I explain in broad terms the conclusions reached by the various technical witnesses for Fish and Game regarding the effects of relevance to the District Plan provisions I have identified.

Land and Soil

13.2 These objectives and policies are concerned with the adverse effects of activities on land and soil. Objective 2 seeks that effects on the environment arising from contaminated soil or unstable land are avoided, remedied or mitigated. Policy 4

requires earthworks on slopes to be carried out in ways that minimise the likelihood of land slipping or slumping.

- 13.3** Objective 2 and Policy 4 are relevant to assessment of various proposed earthworks across terraces that border the Rakaia River and the Waimakariri River. Effects of particular relevance to Fish and Game include effects on amenity obtained from the natural character, and natural features and landscapes provided by these terraces. Any slumping of land resulting from these activities may also have adverse effects on water quality and associated instream values.

Indigenous vegetation and wilding tree spread

- 13.4** Objective 3 is to protect, and where practicable enhance indigenous vegetation along riparian margins and wetlands generally. Objective 4 seeks that the potential adverse effects from activities on areas of indigenous vegetation are avoided, remedied or mitigated. These objectives are reflective of Section 6(a) of the Act.
- 13.5** Policy 6 is that adverse effects on indigenous ecosystems, vegetation and habitat should be avoided, remedied or mitigated. The explanation for this policy highlights particular vegetation of importance, including wetland areas and indigenous riparian vegetation, and braided river habitat.
- 13.6** Objectives 3 and 4, and Policy 6 are relevant to activities that involve the removal of indigenous vegetation and habitat in riparian margins. Effects on water quality, and amenity gained from natural character and landscapes are relevant considerations from a Fish & Game perspective.

Water

- 13.7** I consider the following objectives and policies in this chapter to be particularly relevant to Fish and Game matters:¹²

¹² This chapter also includes Policy 13, which is to “monitor within the Waimakariri Gorge, the effects arising from activities in relation to the surface of the water.” This may not be relevant to the proposed scheme, but it is evidence that the Gorge supports a high intensity of water recreation.

- a. Objective 1 seeks to avoid or mitigate contamination of groundwater or surface waters, and to improve degraded waterbodies, through changes in land management practices and controls on land uses.
- b. Objective 2 is to protect and enhance the vegetation, habitat values, ecosystem processes and amenity values of waterbodies and their riparian margins, their role in maintaining water quality and their significant landscape values.
- c. Objective 3 is to protect and enhance the amenity values along waterbodies.
- d. Objective 5 is to protect remaining wetlands and restore degraded wetlands.
- e. Objective 6 is to manage, within catchments and riparian areas, land use activities including earthworks, vegetation clearance and modification, and agricultural activities, to protect water quantity and quality, aquatic habitat, and natural character.
- f. Policy 4 states land shall be managed to protect water resources and avoid, remedy, or mitigate adverse effects on surface water quality and quantity, and aquatic habitat. Specific types of activity to be managed for this purpose include activities located close to waterbodies; and activities which may result in surface runoff of contaminants, or leaching of contaminants into groundwater.
- g. Policy 5 seeks retention of vegetation (particularly indigenous) along riparian margins, and replacement of indigenous vegetation where large areas are removed.
- h. Policy 7 seeks to encourage the management of grazing activities to protect riparian margins and wetlands against the effects of livestock.
- i. Policy 8 is to ensure earthworks, flood protection works, structures or trees that must be located in riparian margins, or access by stock to riparian margins:

- Allows for legal public access along the water body where appropriate if such access exists, or is desirable for recreation.
 - Mitigate any adverse effects on the natural character of the water body; and
 - Avoid adverse effects on trout and salmon habitats.
- j. Policy 10 is to protection or enhance wetlands, particularly their ecological integrity and functioning, their cultural amenity and recreational values, and the preservation of their natural character.

13.8 The primary focus of these objectives and policies is land use activities within riparian margins and wetlands. Such activities should protect indigenous vegetation, water quantity and quality, aquatic habitat, natural character, amenity values, public access, and trout and salmon habitats.

Outstanding Natural Features and Landscapes

13.9 This chapter is primarily focused on protection of identified natural features and landscapes. Te Waihora/Lake Ellesmere is identified as being an outstanding natural feature and landscape. The Rakaia and Waimakariri Rivers are not identified in this chapter, nor are the Upper Selwyn catchment rivers, although the introduction to this chapter notes that both are “spectacular geomorphic features”.¹³

13.10 Objective 1 is that the Outstanding Natural Features and Landscapes of the District are recognised and protected from inappropriate use and development while still enabling people to provide for their economic and social wellbeing. Policy 2 recognises that landscapes will change over time, and that these changes should be allowed provided that they complement the landscape and retain its core values.

13.11 These provisions are relevant insofar as the CPW Scheme may lead to changes to water quality in Lake Ellesmere, and to the extent that water quality changes could result in changes to the landscape (e.g. if algal blooms altered the appearance of the lake).

¹³ PSDP, Volume 2, p.63.

Utilities

- 13.12** I have assumed for the purposes of this evidence that the CPW scheme qualifies as a utility. In my evidence I do not enter into any debate about the merits or otherwise of that assumption.
- 13.13** Objective 1 sets out a generic requirement for the management of adverse environmental effects, having regard to the scale, appearance, location and operational requirements of utilities.
- 13.14** Policy 5 seeks to avoid, where practicable, siting utility structures or buildings in the margins of lakes or rivers. Where this is not practical, adverse effects of the utility and ancillary features shall be mitigated. Policy 8 seeks to ensure utilities located in areas subject to flooding or slips do not create or exacerbate natural hazards. Policy 9 seeks to encourage utilities located in road reserves to be installed, maintained and replaced with minimal adverse effects on traffic safety or flow.
- 13.15** Effects of relevance covered by these provisions include natural character, any risks to the safety of riverbed users associated with the movement of water across terraces adjacent to the Waimakariri and Rakaia Rivers, and effects on access via legal routes.

Community Facilities and Recreational Areas

- 13.16** The introduction to this chapter lists popular recreational areas including the Selwyn River (in reaches where access is currently good), Waimakariri River and Rakaia River. It also notes that tensions currently exist with recreational users seeking access across private property to some small rivers in the hill country, which could include the Selwyn River (in reaches where access is currently poor) and Hororata and Hawkins Rivers.¹⁴
- 13.17** This chapter contains several objectives and policies address public access to recreational areas with a focus on the provision of additional access, rather than the protection of existing access from the adverse effects of activities. For instance, Policy 4 seeks to use opportunities to negotiate forms of public access over land to

¹⁴ PSDP, Volume 2, p.106.

lakes, rivers or other recreation areas with landowners where such access is appropriate.¹⁵ Therefore this chapter does not contain any relevant objectives or policies.

Natural Hazards

13.18 Objective 1 is that activities do not cause or exacerbate natural hazards. Policy 7 seeks to ensure the risk of damage from avalanche, earthquakes or slips is minor when locating buildings, other structures or recreational facilities at high altitudes or on steep slopes. These provisions are relevant to Fish and Game matters to the extent that proposed activities, such as earthworks or structures along the margins or terraces of the Waimakariri or Rakaia may exacerbate risks to recreational users of riverbeds (including anglers and gamebird hunters).

13.19 Objective 2 is that measures to mitigate natural hazards do not cause or exacerbate adverse effects on the environment. Policy 8 requires that the adverse environmental effects of any measures proposed to mitigate a potential natural hazard are avoided, remedied or mitigated. These provisions are relevant activities intended to protect scheme infrastructure in the bed or margins of rivers from flooding. These activities may have adverse effects on natural character, amenity and habitat values, which should be avoided, remedied or mitigated to ensure consistency with this policy.

Amenity Values, Quality of the Environment and Reverse Sensitivity Effects

13.20 This chapter includes objectives and policies dealing with a range of matters, including the nuisance effects of noise, lighting or dust. These nuisance effects may well affect the amenity gained by recreational users from the use of rivers and their beds. However, I have adopted a similar approach to this issue as I did in regards to the Air Chapter of the NRRP, in that I expect those matters will be addressed in detail by local persons, and that if their concerns are adequately addressed it is assumed so will be the effects on riverbed users.

¹⁵ Appendix 17 (List Of Waterbodies For Esplanade Reserves And Strips) sets out rivers to which improving access by virtue of marginal strips or reserves is seen as a priority. This list of rivers includes "Hororata River – (from Windwhistle Road to Selwyn River Confluence)". While perhaps not relevant to the proposed activities, the inclusion of the Hororata River in this Appendix does reflect the public's wish to recreate on that river.

Consistency with District Plan objectives and policies

- 13.21** The evidence of Mr Canham and expert anglers, along with the evidence of Ms Lucas for the Canterbury Regional Council, is that a major element of the amenity gained from recreational use of rivers comes from enjoyment of natural character. Where they are present, indigenous vegetation and natural features such as gorges and braids add considerable value to that amenity.
- 13.22** The conclusions of these witnesses is that the proposed activities, including activities for which consent was sought from the Selwyn District Council, and including activities that would be authorised by the Notice of Requirement, have a potential significant effect on that amenity. Ms Lucas in particular concludes that insufficient information and mitigation has been provided to ensure that amenity will be suitably provided for. Therefore the proposed activities may be inconsistent with several objectives and policies that seek to maintain natural character, natural features and landscapes, and indigenous vegetation.
- 13.23** The objectives and policies summarised above also seek to protect water quality from the adverse effects of activities, particularly in riparian zones. I am not confident that sufficient mitigation has been put forward to ensure those activities will be consistent with relevant objectives and policies.
- 13.24** The protection of people from activities that exacerbate natural hazards is also repeated across several objectives and policies. Activities along the terraces of the Waimakariri and Rakaia Rivers, for instance, may exacerbate threats to riverbed users, and this may mean those activities are not consistent with relevant objectives and policies of the District Plan.

14. STATUTORY CONSIDERATIONS

Section 104

- 14.1** Relevant section 104 matters have been discussed throughout my evidence, with reference to witnesses called by Fish and Game and other experts.

- 14.2 In relation to section 104(1)(a) I consider that there will be a number of significant actual and potential effects on the environment arising from the construction and operation of the CPW Scheme. There is a degree of uncertainty about some of the effects. This is due to the fact that insufficient information has been provided by the applicant to confirm the extent of certain effects and precisely what mitigation the applicant proposes.
- 14.3 In relation to section 104(1)(b), I also consider that the proposal will be inconsistent with a considerable number of objectives and policies of the RPS, WRRP, NRRP and District Plan.
- 14.4 Insufficient information has been provided to confirm whether the proposal complies with the requirements of the Rakaia WCO. To ensure compliance, the amount of water potentially remaining for allocation must first be accurately established. Based on the evidence to date, there is also uncertainty regarding whether the proposed discharges will meet water quality parameters.
- 14.5 Section 104D imposes particular restrictions on non-complying activities. I find that the proposal does not meet either of the threshold tests for the reasons set above.

Section 105

- 14.6 Section 105(1) sets out additional matters in relation to consideration of applications for discharge permits. In my opinion, insufficient information has been provided to ensure these matters are suitably addressed, including a lack of information about the nature of receiving environments, reasons for the proposed choice, and possible alternatives including discharges to other receiving environments.

Section 107

- 14.7 Section 107(1) sets out matters that preclude granting of discharge permits ((d) and (g) being the relevant matters). Again, I find that insufficient information has been provided regarding the adequacy of proposed mitigation evaluate the potential effects of the proposal under this section of the Act.

Section 108

14.8 Given the uncertainty surrounding the specific conditions that are being proposed, I have not commented in detail on the suite of conditions that would be appropriate. I do note that the Applicant is relying heavily on the use of management plans and working parties to establish 'bottom lines' following the grant of consent. In the context of this proposal, I consider that approach to be inappropriate. There must be sufficient certainty contained within consent conditions that are both transparent and enforceable.

Section 171

14.9 Section 171 sets out matters of relevance to the determination of the notice of requirement. In relation to s.171(a), I consider the notice may be inconsistent with relevant provisions of the RPS, PSDP, WRRP, and NRRP. In relation to s.171(b), I am not confident that alternatives that may better avoid, remedy or mitigate relevant effects addressed in my evidence have been adequately considered. To that extent, it is also doubtful whether the designation is reasonably necessary under s.171(c).

Part 2

14.10 In regards to Sections 6(a), 6(b), and 6(c), Ms Lucas for the Canterbury Regional Council has found that the natural character, landscapes and indigenous vegetation of the Waimakariri and Rakaia Rivers may be compromised by many of the proposed activities. Dr Davies has noted that aggradation from abstraction may change braided character. Mr Canham and various expert anglers have addressed the relationship between natural character, landscape, riparian conditions and amenity, noting that the activities may degrade the amenity gained from those matters. Dr Olsen also concludes that the habitat for benthic invertebrates in the Waimakariri is significantly affected by the proposed take. On the basis of their conclusions, I consider that these provisions may be compromised.

14.11 With respect to Section 6(d), various expert anglers have expressed concern about effects on access to and along rivers. Mr Canham's investigations lead him to consider inadequate provision has been made for protection of access, or where some provision is offered, its terms are too vague to be sure this provision is provided for. I agree with him.

14.12 For Section 7(c), Dr Hayes has quantified effects on salmon angling amenity in the Waimakariri, and concludes that the effects of the take in combination with existing takes is significant. Dr Hayes notes insufficient information has been provided to ascertain the effects on salmon angling in the Rakaia, but that they are likely to be more significant than Dr Glova suggests. Mr Canham has also addressed the effects of the take on amenity values, and the effects of other activities including on the rivers around the Upper Waimakariri Intake, and concludes that amenity values overall will be significantly affected. I have also mentioned above the effects on amenity resulting from loss of natural character and related matters. In sum, I consider the proposal will significantly affect amenity values.

14.13 In relation to Section 7(h), Dr Hayes and Dr Olsen have undertaken modelling which suggests some effects on salmonid habitat in the Waimakariri will be adverse, including effects on benthic invertebrate habitat, and salmon passage. They conclude insufficient information has been provided regarding the effects on salmonid habitat in the Rakaia River. Mr Bejakovich has assessed proposed fish screen arrangements and concludes that they will not provide suitable protection for fish passage in the two affected rivers, particularly with regards to salmonid fry. Mr Hay considers insufficient information is available to judge effects on trout habitat in foothill rivers, while Dr Larned draws a similar conclusion in relation to lowland streams and Lake Ellesmere. However Mr Hay and Dr Larned both cite potentially significant effects that may arise. On the basis of their evidence, I consider the proposal will significantly affect salmon habitat, and that too much uncertainty exists regarding effects on trout habitat, and the adequacy of mitigation in that regard, to confirm that trout habitat will be suitably protected.

14.14 I now turn to Section 5 of the Act.

14.15 I note that providing for the social and cultural wellbeing of people and communities is a primary objective of sustainable management. The ability to recreate in open space environments, free from the constraints of everyday life, is in case a particularly significant element of social wellbeing. As evidenced by Mr Canham and the various expert anglers, the pursuit of angling is one of the most popular ways that many people use to obtain that wellbeing. For many of those people, the destinations of choice are the Waimakariri and Rakaia Rivers.

- 14.16 I consider the proposal may have significant adverse effects on these elements of social and cultural wellbeing.
- 14.17 In terms of Section 5(a), there is little indication that recreational use of waters is declining over time, with the possible exception of foothill and lowland streams which through degradation have lost their appeal to many. In respect of the Waimakariri and Rakaia Rivers, there is an ongoing demand for the recreational services they provide, and with populations in Canterbury increasing, it seems likely this demand will increase in the foreseeable future. I consider this proposal does not ensure the needs of future generations of recreational users will be met.
- 14.18 In terms of Section 5(b), I have cited in my evidence concerns about the effects of certain activities on habitat matters. Questions remain particularly with respect to the Waimakariri River, but also in respect of other waters where insufficient information has been provided, as to whether the life-supporting capacity provision will be suitably addressed.
- 14.19 In terms of Section 5(c), the technical evidence of a range of witnesses for Fish and Game indicates that the actual and potential effects of the CPW Scheme will be more than minor. Where the effects have been rigorously modelled by Fish and Game witnesses such as Dr Hayes and Dr Olsen, those results suggest effects will not be suitably avoided, remedied or mitigated. Where more uncertainty exists, such as in the cases of the Rakaia River, foothill rivers, lowland streams and Lake Ellesmere, I do not have confidence that Section 5(c) will be met.

15. CONCLUSION

- 15.1 Based on the preceding evidence, including the evidence of the various technical witnesses that I have drawn upon, I conclude that in relation to adverse effects:
- a. The proposed scheme will have significant adverse effects on Fish and Game values supported by the Waimakariri River, including the mainstem and tributaries affected by activities associated with the Upper Waimakariri intake.
 - b. The effects on the Rakaia River are likely to be less, but insufficient information has been put forward to be confident effects will be acceptable.

- c. There is even less information put forward by the applicant regarding foothill rivers and proposed mitigation of effects on those rivers.
- d. Information put forward by the applicant about potential effects on lowland streams and Lake Ellesmere has a significant margin of error, which impacts on the extent of knowledge as to the effects of the CPW Scheme on those waters.
- e. Proposed mitigation including conditions and management plans lack specificity, certainty, and, in the case of management plans, raise issues of enforceability by consent authorities.

15.2 In relation to planning matters, I find that:

- a. The appropriate activity status for assessment of these applications is non-complying.
- b. The proposed activities are inconsistent with a large number of objectives and policies in the RPS, WRRP, NRRP and District Plan.

15.3 I conclude that the CPW Scheme does not promote the sustainable management of natural and physical resources and is therefore contrary to the purpose and principles of the Act.

J Holland

May 2008