

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of resource consent applications by the  
Ashburton Community Water Trust

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

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## 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 (1<sup>st</sup> Class Hons) from Lincoln University.
- 1.3 I am currently the Environment Officer for the North Canterbury Fish and 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 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 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

- 1.6 Fish and Game lodged submissions in opposition to all consent applications by ACWT to the Canterbury Regional Council and Ashburton District Council.
- 1.7 This statement of evidence will cover:
- a. Fish and Game concerns and mitigation proposed in Mr Dunning's second statement of evidence to address those concerns.
  - b. Activity status.

- c. Relevant provisions of the Rakaia Water Conservation Order (WCO) and their application to proposed ACWT activities.
- d. Objectives and policies of relevant plans including the Regional Policy Statement (RPS), Natural Resources Regional Plan (NRRP) and Ashburton District Plan (District Plan)
- e. Assessment against relevant provisions of the Act.

1.8 This evidence has been prepared after considering the Assessment of Environmental Effects (Aqualinc/MWH, 2007), both Officer's Reports and the planning evidence of Mr Dunning for ACWT (first and second statements of evidence). I have also been informed that the applicant has recently changed their application to include a sluicing discharge as an alternative option to the mechanical deposition of material on the riverbed. While I am unaware of specific changes for instance to proposed conditions, I have attempted to address this change in my evidence at a general level.

1.9 I covered planning matters relating to the joint take application in my statement of evidence to the CPWT part of the hearing. This evidence should be read in conjunction with that evidence. To minimise repetition I refer back to that statement at appropriate points in this statement of evidence. Similarly I reference previous statements of evidence of witnesses for Fish and Game and others where I consider they address issues also raised by the ACWT proposal.

## 2. PROPOSED MITIGATION OF FISH AND GAME CONCERNS

2.1 The ACWT proposal has been summarised in evidence for the applicant. Fish and Game cited a range of concerns in their submissions. In this part of my evidence I consider mitigation put forward by the applicant in relation to the following concerns:

- a. Downstream fish passage including fish screening and bypass arrangements.
- b. Upstream fish passage including proposed fish barrier structures and bypass arrangements.
- c. Potential for fish stranding in artificial channels or natural braids as a result of various scheme activities.
- d. Activities affecting water quality.
- e. Activities with a potential effect on the safety of river users.
- f. Activities affecting natural character and landscape values.

- g. Activities which may impinge upon or preclude access to and along the riverbed for recreational users.
- h. Activities that permanently encroach into the Rakaia riverbed.

2.2 Fish and Game's submission also noted these effects should be considered as both a direct effect of the ACWT scheme, and as an effect in combination with the effects of the proposed CPWT scheme (in other words, a cumulative effect). I am unaware of any evidence tabled either by ACWT or CPWT which clarifies the cumulative effects of the two schemes operating in parallel on different sides of the river. In my view the lack of analysis of this form of cumulative effect is a significant unresolved matter.

2.3 I now summarise my understanding of the applicant's response to each concern listed above.

### 3. **DOWNSTREAM FISH PASSAGE – FISH SCREEN AND BYPASS CHANNEL ARRANGEMENTS**

3.1 The evidence of Mr Bejakovich clearly set out Fish and Game's position regarding fish screen and bypass channel arrangements. In response, Mr Dunning states that:

The screen would be designed and installed in accordance with current best practice as outlined in the NIWA publication "Fish Screening: Good Practice Guidelines for Canterbury, October 2007", NIWA Client Report CHC2007-092 (paragraph 6.83, second statement of evidence).

3.2 I support this undertaking, but note that it is not reflected in conditions proposed by Mr Dunning in relation to CRC072636. For example I note that the proposed conditions:

- a. Fail to specify a maximum approach velocity or minimum sweep velocity.
- b. Adopt minimum mesh aperture sizes which exceed the recommendations of NIWA (2007).
- c. Suggest that the fish screen will be set back a considerable distance from the river intake.

3.3 I also note that no condition is put forward requiring a certification process to be followed to ensure that the screen will be designed and implemented in accordance with the recommendations of NIWA (2007).

3.4 Mr Dunning sets out proposed bypass channel arrangements in conditions under CRC072638. Relevant conditions include:

2(b) All fish bypass water discharged to the Rakaia River shall be to an active channel of the River, or to a channel connecting directly to an active channel of the Rakaia River.

6 The consent holder shall ensure that the braid of the Rakaia River diverted to connect with the fish bypass channel is maintained in good working order at all times to ensure migrating fish will be able to return to a main braid of the river.

3.5 Mr Bejakovich discussed bypass channel requirements in paragraphs 4.26 – 4.29 of his evidence. I understand his recommendations reflect those of NIWA (2007). I do not consider that proposed conditions provide sufficient certainty that the specific design and maintenance considerations recommended by Mr Bejakovich will be suitably provided for.

#### 4. UPSTREAM FISH PASSAGE – FISH BARRIER AND ASSOCIATED MEASURES

4.1 I understand the applicant accepts that proposed discharges (particularly operational discharges, but presumably also the newly proposed sluicing discharge) create an attractant flow that poses a risk to the efficient upstream migration of adult salmon. The proposed discharge to the Highbank tailrace may reduce the effectiveness of an existing fish barrier and bypass channel. I note that Mr Dunning has proposed conditions addressing the effects of the ACWT scheme on Trustpower's responsibilities in this regard, and I expect Trustpower will respond as to the adequacy of those conditions.

4.2 The proposed Barrhill Power Station creates an additional attractant flow which requires separate mitigation, as does the newly proposed sluicing discharge.

4.3 I note that no expert evidence has been called by the applicant, either consent authority, or any submitters on this matter. Mr Dunning refers to *evidence presented to the EA/BCI hearing by Dr. Martin Unwin of NIWA* (paragraph 6.66 of his evidence). I do not recall Dr Unwin presenting evidence to the EA/BCI hearing. However at that hearing I did table a report co-written by Dr Unwin and Dr Glova in 2000, titled *The impact of discharges from the Highbank tailrace on the Rakaia River salmon fishery. NIWA Client Report CHC00/9*.

- 4.4 This report provides a useful history of salmon salvage operations in the Highbank tailrace. It shows that there is a well-defined exponential relationship between the volume and timing of discharges from Highbank, and the number of salmon that enter the tailrace. The critical period is January/February to April, when most adult salmon migrate upriver. The number of salmon entrained doubles for every 3 cumec increase in mean discharge. Entrainment is highest when discharges remain high throughout this period, and least when discharges are low or intermittent.
- 4.5 Unwin and Glova also draw conclusions regarding mitigation options. The most effective method of avoiding entrainment would be to not operate the discharge at all during November-April. Other less effective but perhaps more practicable options are set out including a weir or drop structure at the point that the tailrace discharges into the Rakaia; a barrier further up the tailrace combined with a bypass channel that allowed fish to return to the Rakaia River of their own accord; or deliberately reducing discharge rates to induce movement back to the mainstem. In relation to the proposed discharge from the Barrhill Power Station I understand the applicant proposes some form of drop structure at the point of discharge, which if properly designed and maintained is noted by Unwin and Glova as preferable to the barrier-style mitigation adopted by Trustpower. However I also understand such a structure is more vulnerable to higher flows and may therefore be impractical in some locations.
- 4.6 Mr Dunning accepts that “a properly functioning barrier and bypass system will be necessary for the Highbank / Barrhill tailrace to minimise adverse effects on migrating salmon” (paragraph 6.84). Proposed Condition 2(a) – (c) of CRC072645 sets out proposed mitigation which I consider provides useful mitigation of this effect. However I consider there is presently insufficient information to judge whether the proposed barrier is likely to operate effectively. I also refer to Mr. Bejakovich’s evidence regarding bypass channel arrangements, and note that while a condition is proposed providing for a bypass that would ‘enable’ fish to make passage back to the river, that consideration is required as to how that bypass is designed, maintained and operated if that is to be effective at quickly attracting fish away from the barrier structure.
- 4.7 I also consider that the proposed conditions lack sufficient monitoring requirements nor do they detail what immediate actions shall be taken in the event that the barrier and/or bypass system proves ineffective. Further, I consider that a certification

condition should be added to provide the consent authority with confidence that the barrier and bypass will be designed, installed and maintained appropriately.

- 4.8 I am unaware what exclusion or bypass measures have been proposed in relation to the new sluicing discharge.

## 5. FISH STRANDING

- 5.1 The supplementary evidence of Mr Hay (paragraphs 3.1 – 3.3) discussed the risk of fish stranding. In relation to proposed ACWT activities, fish stranding may result from the diversion of river water, or works in the riverbed associated with the diversion of river water, leaving fish stranded in dewatered natural channels. Fish may also become stranded in artificial channels particularly where flows in those channels are rapidly reduced either to enable maintenance works, or in order to ensure compliance with flow restrictions. Similarly fish may become stranded in isolated pools after an abrupt change to the rate of discharges from the scheme, either in artificial channels, or in natural braids that were previously augmented by those discharges.

- 5.2 Mr Dunning has proposed a standard condition in relation to several land use consent applications to the Canterbury Regional Council, including applications CRC072644, CRC072643, CRC072647, CRC072649 and CRC072645. This condition states:

The works shall not prevent the passage of fish, or cause the stranding of fish in pools or channels.

- 5.3 I note there is no condition detailing how this risk will be suitably minimised, or requiring monitoring of affected natural braids or artificial channels to detect fish stranding. Nor has a condition been proposed detailing what action shall be undertaken in the event fish do become stranded as a result of those works.

- 5.4 I note Mr Dunning has not proposed any conditions to minimise the risk of fish stranding from the proposed taking, diverting and discharging of water. While I have discussed proposed mitigation in relation to the effects of discharges on upstream migrating salmon, it is important to note there are no specific conditions preventing fish *stranding* as a result of those discharges.

5.5 In relation to these activities, I consider conditions should also be imposed that state stranding shall not occur as a result of that activity, requiring monitoring of affected channels or braids and setting out appropriate actions in the event fish are found to be isolated as a result of scheme activities. Some examples of the types of condition that may be appropriate are conditions 5, 6, 7 and 8 of operational discharge consent CRC000132 (held by Barrhill Chertsey):

- 5 Fish that have become entrapped in the discharge channel shall, as far as is practicable, be salvaged by Barrhill Chertsey Irrigation Company or persons acting for them, and released into an active channel of the Rakaia River.
- 6 When the discharge of water has ceased a visual inspection of the discharge channel shall be carried out to determine whether fish have become entrapped. In the event that fish have become entrapped in the discharge channel as the result of a previous discharge event, the following steps shall be taken:(i) A solution to the entrapment of fish will be found.(ii) A written report outlining the solution will be provided to the Canterbury Regional Council and the North Canterbury Fish and Game Council.(iii) The necessary steps will be undertaken to enact that solution.(iv) In the event that fish entrapment reoccurs following the implementation of Conditions 6 (i), (ii) and (iii), the following Condition 6 (v) shall apply.(v) A solution, which addresses the reoccurrence of fish entrapment, shall be found and implemented.
- 7 A record shall be kept of the incidence of fish entrapment, and the North Canterbury Fish and Game Council shall be notified. Records of fish entrapment shall be forwarded to Canterbury Regional Council at the end of each irrigation season, or as requested.
- 8 In the event that water is to be discharged under this consent, the consent holder will contact the North Canterbury Fish and Game Council as soon as the consent holder becomes aware that the discharge will occur to allow North Canterbury Fish and Game staff the opportunity to monitor the effects of such discharges.

5.6 I also note and support Mr Hay's constructive suggestion (see his supplementary evidence) that a maximum permissible rate of change should be stipulated on larger discharges to avoid abrupt changes to flow rate. An example of the type of condition that would give some effect to this suggestion is Condition 5 of sluicing discharge consent CRC990089:

- 5 The discharge of water and sediment via the sluice channel shall be gradually reduced to allow time for fish to find their way back to a flowing braid of the Rakaia River.

## 6. ACTIVITIES AFFECTING WATER QUALITY

- 6.1 There is also general acceptance that the water quality in discharges should be suitably high so as to meet appropriate standards.
- 6.2 Mr Dunning (paragraph 6.89) considers that *full compliance with the provisions of the NWCO* should appropriately minimise water quality issues arising from discharges. Mr Dunning has indicated the operational discharges (CRC072640) and fish bypass discharge (CRC072638) will be of equivalent or better water quality than the receiving waters in the Rakaia River. However in both cases proposed conditions reflect only the standards set out in s.107(1)(c)-(g) of the Act. To ensure compliance with the terms of the Order, I consider conditions should be imposed on applications CRC072640 and CRC072638 requiring compliance with all standards in Clause 9(2) of the WCO.
- 6.3 No water quality conditions are proposed for the emergency discharge (CRC072639). If this discharge were classified as an emergency work under s.330 of the Act, then it would effectively be a permitted activity at the time it were undertaken (although retrospective consent would have to be sought under s.331 of the Act). Accordingly it may be that emergency discharges do not have to comply with Order provisions. If this scenario does not apply, then strictly speaking the discharge ought to comply with Clause 9(2) provisions, although it is difficult to foresee how that could be provided for in practice.
- 6.4 The discharge of cross-drainage water and sediment into unnamed streams (CRC072641) may not need to meet Clause 9(2) standards, because the receiving waters are not within the scope of the Order. However I consider it is inappropriate to specify no water quality standards at all, as this provides no certainty that adverse effects will be suitably addressed.
- 6.5 Mr Dunning has proposed that stormwater discharges (CRC073864) shall meet the provisions of Clause 9(2) of the WCO, but only after reasonable mixing. This overlooks the fact that Clause 9(2)(a) requires that the discharge shall be substantially free of suspended solids – in other words, this part of Clause 9(2) relates to the quality of the discharge, not the quality of receiving water after a zone of reasonable mixing.

- 6.6 There are no water quality standards proposed for the deposition of material onto the Rakaia River in a manner that may enter water (CRC072642). I note that proposed Condition 9 suggests material will be placed in a manner that will only become 'mobilised' when flows exceed 300 cumecs. I question the ability of the applicant to provide such precision on such an active river as the Rakaia.
- 6.7 I am unsure what if any standards are proposed in relation to the new sluicing discharge, except I assume condition 6(a) still applies, which suggests discharges will not occur unless flows exceed 300 cumecs. Paragraphs 4.22 – 4.32 of my initial statement set out existing parameters that apply to the Barrhill Chertsey sluicing discharge permit. That consent contains a range of more specific measures than (I assume) are presently provided for by the applicant.
- 6.8 Other activities associated with the construction, operation and maintenance of the proposed scheme may also increase suspended solid levels, and change natural colour and clarity, in natural waters. For example, earthworks on land adjacent to the river will expose bare soils to being washed into the river during rain events. To minimise effects of these activities Mr Dunning has adopted a management plan style approach designed to be consistent with the Canterbury Regional Council, 2007 "Erosion and Sediment Control Guidelines for the Canterbury Region" Report No. R06/23 ("CRC06/23"). While management plans are accepted as a practical means of seeking compliance with resource consent conditions, I do not consider they are an adequate substitute for effects-based consent conditions.
- 6.9 With the exception of the emergency discharge and the discharges to unnamed streams, I consider conditions should be imposed all discharges requiring compliance with WCO Clause 9(2) standards. Calculations should also be provided to define the reasonable mixing zone (relevant to Clause 9(2)(b) provisions). These conditions should be complemented by suitable monitoring conditions, in addition to management plan conditions.

## **7. ACTIVITIES WITH A POTENTIAL EFFECT ON THE SAFETY OF RIVER USERS**

- 7.1 Risks to river users exist from rapid increases in operational discharges and from the new sluicing discharge, and from physical entrapment at the intake.

- 7.2 Mr Dunning has proposed signage and an audible warning to minimise risks from operational discharges (CRC072640, Conditions 7 and 8) and the emergency discharge (CRC072639, Condition 7). I am not certain what has been proposed in relation to the new sluicing discharge. These are positive initiatives from a risk management perspective, although Mr Canham has noted that a proliferation of such signage can act as a “fear-based disincentive” to recreational use (paragraph 4.47 of his evidence). I note that Condition 2 of an existing consent held by BCIC (CRC000132) requires a visual check of the reach below the discharge point be undertaken prior to discharge, and any practical opportunity be taken to warn potentially affected riverbed users in person. I consider this additional mitigation to be important, as it would avoid the risk of hearing impaired river users (for example, older salmon anglers) being surprised by a sudden discharge.
- 7.3 The risk that intakes pose to recreational river users has been subject to some discussion in the CPWT part of this hearing. Having reviewed Mr Dunning’s initial and second statements of evidence I fail to find any reference to what ACWT propose in relation to their intake to address safety concerns.

## **8. ACTIVITIES AFFECTING NATURAL CHARACTER AND LANDSCAPE VALUES**

- 8.1 Many of the activities for which consent is sought may impact on the natural character and landscape values of the affected environments.
- 8.2 As noted by Mr Canham (for Fish and Game at the CPWT hearing) enjoyment of natural character is an important aspect of the recreational experience in a riverbed environment. Protection of natural character may also assist in protecting water quality (another variable affecting amenity as well as ecological values), for instance through stabilising erosion-prone slopes.
- 8.3 Mr Canham also noted that the repeated and extensive use of heavy machinery in the riverbed may reduce a recreational user’s enjoyment and appreciation of the natural character of the river. Diversions artificially change the pattern of flows with potential effects on braided character. The ACWT scheme also includes the option of depositing sediment on the riverbed, which in addition to increasing heavy machinery use in the riverbed, is itself also likely to detract from the natural character and landscape value of the riverbed in the affected area. Any changes to the landscape, such as from the creation of the canal itself, and the increased number of artificial

structures or artificial deposits of sediment visible from the riverbed, and the removal of vegetation, may also have more than minor adverse effects on the natural character and landscape values of the affected area.

- 8.4 I note there appears to be some difference of opinion between the landscape experts called by the applicant and the Selwyn District Council, with the opinion of Dr Clemens for the latter being that the proposal does not appropriately mitigate some effects. I also understand from the evidence of indigenous vegetation expert Dr Keesing that he doubts the viability and the effectiveness of proposed mitigation plantings.

## **9. ACTIVITIES WHICH MAY IMPINGE UPON OR PRECLUDE ACCESS**

- 9.1 An appendix to Mr Canham's evidence details public access opportunities to the Rakaia Riverbed. I note that the Lowes Cutting access point represents the only complete legal access route to the Rakaia River from the south bank within the affected area. I also note that this is the only access point to the river from the south bank between Barrhill and the Gorge Bridge.
- 9.2 I understand that most salmon angling lies are found on the main river channels, rather than in side braids. It is therefore important to note that protecting access *to* the riverbed has little value if users face artificial obstacles to progressing *across or along* the riverbed to their chosen destination.
- 9.3 Several of the activities for which consent is sought may adversely affect public access to, along and across the river. For example, the applicants intend to create a wide canal which travels adjacent to the river for a considerable distance. The applicants also intend to use a large area of the riverbed to deposit sediment which could potentially make access difficult across the affected portion of riverbed. The discharge or diversion of water may also create impassable obstacles to recreational users seeking access across the riverbed to the main river channel.
- 9.4 Mr Dunning notes that canal crossings over legal roads will be bridged, so that in the long term there should be no loss of public access to the riverbed. However it appears temporary closures of legal roads may occur during construction. To minimise the effects of temporary closures on public access I suggest that a condition is imposed on relevant consents limiting closures to periods of low recreational

demand. I note that Dr Hayes defined the full salmon angling season as being October – May, accordingly any closure outside of that period would have a minimal effect on salmon angling amenity. I also suggest a limit be imposed on the duration of closure to further ensure the amenity of recreational users is not unduly compromised.

9.5 Mr Dunning notes that *the sediment deposit areas on the riverbed would take into account the need to retain public access along the riverbed* (paragraph 6.87). However I have not found any proposed conditions that would provide for this undertaking.

9.6 Mr Dunning does not appear to address the potential loss of access *across or along* the riverbed as a result of artificial channels, or artificial alterations to the pattern of natural channels. As previously noted there is little to be gained from bridging the canal if anglers cannot get much further than the edge of the river before reaching an artificially maintained channel that cannot safely be forded by vehicle or crossed by foot. I note there are no conditions proposed in relation to such channels that would ensure they are designed, maintained and operated in a manner that ensures public access will be practically and safely possible across them (at least at some recognisable point).

## **10. ACTIVITIES THAT REPRESENT A PERMANENT ENCROACHMENT INTO THE RIVERBED**

10.1 Activities that may effectively result in the conversion of riverbed into 'land' include flood protection works that encroach beyond the existing line of stopbanks and/or plantings (where they are considered to define the 'riverbank'), and any parts of the proposed canal route that extend into riverbed areas. Such activities may affect the braided character and other aspects of the natural character of the riverbed by artificially constraining its width.

10.2 Mr Dunning notes that *the planting proposed would reinstate riparian vegetation disturbed in the construction of the scheme, and there is no intention to reclaim riverbed areas, or undertake any other planting that would encroach into the riverbed* (paragraph 6.81).

- 10.3 In relation to proposed plantings, proposed Condition 8(a) of CRC072643 states that *Works and any planting undertaken shall not decrease the flood carrying capacity of the Rakaia River or encroach into any active channel*. I note that this condition does not expressly preclude encroachment into the riverbed, but rather into any active channel.
- 10.4 I disagree with Mr Dunning on the matter of the applicant's intention to reclaim riverbed, as consent application CRC072643 expressly provides for *the reclamation or drainage of the riverbed*. However I do acknowledge proposed condition 9 of this application, which states *works shall not cause the riverbank to advance beyond the position of the river bank as exists at the issue of this consent*. I suggest a plan of the riverbank (such as in the form of aerial photographs) should be provided detailing the existing position of the riverbed, and linked to this condition, to provide greater certainty that this condition will be adhered to. This plan should also outline where plantings or other works shall occur in relation to the existing river bank.

## 11. ASSESSMENT OF ACTIVITY STATUS

- 11.1 Mr Dunning, Ms Harte and Ms Johnston appear to agree that the activities for which consent are sought should be classified as discretionary activities.
- 11.2 For this to be the case, I consider that conditions should be put forward by the applicant ensuring that the activities comply with relevant conditions of applicable rules. For example, I note discretionary activity status for scheme discharges (with the possible exceptions noted earlier in my submission) is dependent upon full compliance with Clause 9(2) provisions of the WCO. Similarly conditions on abstractions and diversions must ensure compliance with Clause 7 provisions. In the absence of such conditions being put forward, I consider these activities would default to a more restrictive status.

## 12. NATIONAL WATER CONSERVATION (RAKAIA RIVER) ORDER 1988

- 12.1 My initial statement of evidence provided a background to the development of the WCO, as well as detailed discussion of relevant clauses. That discussion is applicable to the proposed taking and diverting of water by ACWT, as well as relevant discharges, and potential encroachment issues. I also noted some potential errors in relation to regional council databases of abstractions and diversions that

should be subject to WCO restrictions. As far as I am aware no further information has been tabled by either the applicant or the regional council on this matter.

12.2 In this section of my evidence I briefly revisit key aspects of that statement.

### **Clause 3 – Outstanding characteristics and features**

12.3 As noted in my initial statement, 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**

12.4 Clause 7 is relevant to the joint application by CPW/ACWT to take water and in my view also to the proposed diversion of water where that diversion takes water out of the riverbed for any distance.

12.5 In my initial statement I noted that the clause repeated throughout Clause 7, *the flow in the river shall not be reduced by abstraction or diversion*, imposes restraints on both abstractions and diversions. There appears to be general consensus that the water taken for hydroelectricity generation by ACWT would constitute an 'abstraction', and accordingly must comply with Clause 7 restrictions.

12.6 In my initial statement I considered that any diversion which took water out of the riverbed for any distance should be subject to Clause 7 restrictions. The ACWT take provides for a 2 cumec fish bypass component which clearly takes water out of the riverbed before discharging it back further downriver. Therefore in my view this diversion should similarly be included within the total allocation block, and subject to minimum flow and flow-sharing provisions of Clause 7.

12.7 I note the matter of how diversions should be treated under Clause 7 is not expressly considered by Mr Dunning in either his first or second statement of evidence.

**Clause 9 – Water rights and general authorisations**

- 12.8 I consider Clause 9(1) may be relevant to any land use activities which encroach into the river. Earlier in this evidence I have analysed conditions put forward by Mr Dunning and in response I have put forward additional matters that I consider should be addressed by conditions.
- 12.9 Previously in this statement I considered Clause 9(2) to be relevant to all discharges, with the possible exception of the emergency discharge and the discharge of cross-drainage water to unnamed streams.
- 12.10 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”.
- 12.11 As previously noted in this submission, Mr Dunning has suggested that operational and fish bypass discharges will fully comply with these provisions, but he has not proposed conditions to this effect. Mr Dunning has proposed a condition in relation to proposed stormwater discharges consistent with Clause 9(2)(b), but the proposed condition does not require that the discharge be “substantially free of suspended solids, grease and oil” as required by Clause 9(2)(a).
- 12.12 In relation to the discharge of materials onto the riverbed in a manner that may enter water, I have previously noted a proposed condition that the material would not be mobilised unless flows exceed 300 cumecs. I questioned the practicality of achieving this condition. In my initial statement of evidence (see paragraphs 4.22 – 4.32) I concluded that any sluicing discharge into the Rakaia River would fail to comply with Clause 9(2)(a) given such discharges would not be substantially free of suspended solids. I draw the same conclusion here. The only course of action that would ensure compliance is to deposit the material in an area sufficiently removed from active channels (for instance, out of the riverbed) that it would be impossible for the discharged material to enter the Rakaia River. I am unaware of any consideration having been given to this alternative discharge location.

### 13. REGIONAL POLICY STATEMENT 1998 (RPS)

#### Chapter 7 – Soils and Land Use

- 13.1 Objective 1(b) seeks to prevent soil erosion (as far as practicable). This is supported by Policy 2(b), which states activities should be avoided where they have the potential to result in significant off-site effects, including sedimentation of waterbodies, unless those effects can be offset by mitigation undertaken elsewhere.
- 13.2 The scale and location of proposed earthworks creates considerable potential for sedimentation of the Rakaia River. Ms Johnston (paragraph 271) is not confident that proposed mitigation will ensure consistency with these provisions. I share this uncertainty.

#### Chapter 8 – Landscape, Ecology and Heritage

- 13.3 Objective 2 seeks protection or enhancement of those natural features and landscapes that contribute to Canterbury’s character and identity, including associated ecological, cultural, recreational and amenity values. Policy 3 states those features and landscapes that meet relevant criteria in sub-chapter 20.4(1) should be protected from the adverse effects of activities including clearance of indigenous vegetation, earthworks, alteration to landforms, tree planting, or the erection of structures.
- 13.4 Objective 3(iii) seeks protection or enhancement of indigenous flora and fauna that contributes to the region’s natural character. This is supported by Policy 4 which states areas of indigenous flora and fauna that meet relevant criteria in sub-chapter 20.4(1) should be protected.
- 13.5 I note from the evidence of Ms Lucas (for the Canterbury Regional Council at the CPWT hearing) that the affected reach of the Rakaia River comprises part of a Regionally Outstanding Landscape called “Lower Rakaia River and Gorge” in the Canterbury Regional Landscape Study (Vol. 1, 1993; p.42). This landscape falls within the category “Low Altitude Plains Landscapes” which are described as including *Broad, open landscapes with little topographical relief, traversed by wide, braided river beds with associated terraces...* (ibid, p.39).

- 13.6 The criteria in 20.4(1) include whether a natural feature or landscape is identified as being regionally outstanding in that study. This suggests the above provisions are applicable to the affected reach of the river and affected terraces.
- 13.7 Ms Johnston (paragraph 274) considers the AEE provides insufficient information on these matters to justify the claim that the intent of these provisions has been upheld. More specifically I share Ms Harte's concern (p.46) regarding the lack of a thorough survey of indigenous vegetation in the footprint of the scheme. I also share Ms Harte's doubts (p.48) about the effectiveness of proposed plantings.
- 13.8 Therefore I consider the proposal may be inconsistent with these provisions.

## **Chapter 9 - Water**

- 13.9 Objective 1 is to achieve sufficient quantities of water in the water bodies to enable various benefits, whilst providing for a range of matters.
- 13.10 I referred to Objective 1 in paragraphs 10.9 – 10.10 of my previous statement of evidence. With reference to the proposed joint Rakaia take, I noted Dr Hayes conclusion that insufficient information has been provided to ensure sufficient recreational benefits will continue to be achieved from the Rakaia River, or that amenity values will be provided for.
- 13.11 While ACWT had the opportunity to table new information on these matters, I understand no new information has been provided detailing the effect of the take on recreational or amenity values. Therefore I have no reason to change my initial opinion, which was that insufficient information exists from which to determine consistency with this Objective.
- 13.12 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.

- 13.13** Objective 3 is supported by a number of relevant policies including Policies 9, 11 and 12. Policy 9 relates to point and non-point source discharges, and states that matters (a) to (h) shall be achieved by setting water quality conditions and standards using various methods, including as conditions on resource consents. Policy 11 promotes land use practices which maintain and where appropriate enhance water quality. The explanation of this policy states that favourable practices include retaining and enhancing riparian vegetation. Policy 12 states activities that could result in a release of hazardous substances should not be located in areas where water resources are vulnerable to contamination unless adequate precautions are taken to avoid contamination.
- 13.14** I have previously noted that proposed conditions setting standards on the quality of discharges (where they have been proposed) do not provide certainty that WCO standards shall be met. I also consider that conditions should be imposed requiring water quality monitoring. The potential for sluicing discharges to occur simultaneously from the ACWT and CPWT schemes may raise significant issues for habitat and amenity values, which could potentially be dealt with by a condition precluding both discharges from occurring on the same fresh event. In relation to proposed land use activities within or adjacent to the riverbed, I have noted that while the management plan conditions proposed by Mr Dunning are useful, they do not in my view provide sufficient certainty that effects will be adequately minimised.

## **Chapter 10 - Beds of Rivers and Lakes and their Margins**

- 13.15** 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.
- 13.16** Objective 1 is supported by Policies 1, 2 and 3. 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. The term 'conservation values' is described as including (among other values) significant natural features and landscapes, amenity and recreational values, and significant habitats of trout and salmon. Specific adverse effects listed in Policy 1 that should be

avoided or mitigated include (among other effects) on natural character or significant landscape values, the unimpeded passage of trout and salmon, and amenity and recreation values. Policy 2 states these areas should be enhanced where this will result in long-term improvement of their values without adverse effects on other matters. Policy 3 seeks to retain and promote riparian vegetation, particularly indigenous vegetation, to realise benefits for water quality, conservation and amenity values.

- 13.17 As previously explained in relation to Chapter 8 provisions, a range of activities in (and adjacent to) the Rakaia riverbed may cause significant adverse effects on natural features and landscapes, and on remnants of native riparian vegetation. I have previously noted that opinions of landscape and indigenous experts vary as to the acceptability of proposed mitigation and avoidance measures, so accordingly I consider the proposal may be contrary to these provisions from those perspectives.
- 13.18 In addition to noting the relationship between enjoyment of natural features and landscapes and amenity values, I discuss the importance of maintaining public access in relation to Objective 4 and Policy 7 of this chapter (below).
- 13.19 I have also discussed the potential and actual effects on fish migration from various proposed activities in the riverbed. In their present form I do not consider conditions suitably address the significant adverse effects that may be imposed on migration upstream of adult salmonids, migration downstream of adult and juvenile salmonids, and also as result of inducing fish stranding. Accordingly I consider the proposal is also contrary to these provisions from a salmonid habitat perspective.
- 13.20 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.
- 13.21 I consider proposed works and artificial channels may create significant impediments to public access across or along the riverbed. Insufficient information has been provided to enable ready understanding of this potential effect. I also consider temporary closures of legal access routes to the riverbank would significantly affect access if not timed appropriately to avoid peak use periods (such as the salmon

angling season). Accordingly I am of the opinion the proposal is likely to be contrary to these provisions.

## **14. NATURAL RESOURCES REGIONAL PLAN**

### **Chapter 1 - Overview**

- 14.1 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.
- 14.2 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.
- 14.3 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.
- 14.4 The matter of consent duration was also covered in my evidence to the recent Electricity Ashburton hearing. At that hearing I accepted the recommendation of the reporting officer that an expiry date matching that of existing consents held by BCIC would appropriately enabling future decision-making on these closely related schemes to occur in an integrated manner. This may also be a consideration for determining the consent duration for the ACWT applications.

### **Chapter 4 - Water Quality**

- 14.5 Provisions relevant to the ACWT proposal include Objective WQL1.1 and supporting policies, of which Policies WQL1 and WQL5 are particularly relevant.
- 14.6 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. I

note this provision is not linked to a specific schedule of water bodies with natural state water quality. Given the lack of discharges to the Rakaia River and the lack of intensive land use in the upper catchment, it is possible that this part of Objective WQL1.1 is applicable to proposed discharges into the Rakaia.

- 14.7 If the Rakaia is not considered to have natural state water quality, Objective WQL1.1(1)(b) and WQL1.1(2) applies. These provisions state 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. 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.
- 14.8 I have previously noted the inconsistent or partial inclusion of WCO Clause 9(2) water quality standards in proposed conditions of discharge permits. If those standards are considered sufficiently robust to provide for Objective WQL1 matters, then those provisions should be reflected, in full, on relevant discharge permits.
- 14.9 Policy WQL1 covers point source discharges to water. 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. Particularly in respect of the proposed discharge of sediment to the river or riverbed, I note the applicant has not considered the option of partial or complete discharging settling pond material to land (outside of the riverbed). Accordingly I consider insufficient information has been put forward to provide for the intent of Policy WQL1.
- 14.10 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.
- 14.11 I have previously noted that the applicant has not defined mixing zones for any of the proposed discharges. I have also noted that proposed conditions in relation to discharges do not give full effect to Clause 9(2) of the WCO. Therefore I consider the discharges to be contrary to these parts of Policy WQL1.

14.12 Policy WQL5 relates to management of riparian margins. In particular it seeks to ensure that activities minimise the discharge of sediment to water and do not increase erosion (WQL5(1)(a)). As previously noted, while Mr Dunning has proposed adherence to best practice guidelines, there is little proposed by way of monitoring or the setting of water quality standards to ensure these activities suitably minimise sediment discharges. Accordingly I remain uncertain as to whether the intent of this Policy will be met.

## Chapter 5 - Water Quantity

14.13 Objective WQN1 is similar to Chapter 9, Objective 1 of the RPS which I have addressed earlier in this statement of evidence. 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.

14.14 The applicant has relied upon compliance with WCO Clause 7 provisions in order to ensure consistency with this Objective. However, as previously noted, I am uncertain that sufficient conditions have been put forward to ensure this compliance will be achieved, for instance in relation to the fish bypass diversion. There are also outstanding uncertainties in relation to how much water is available under the provisions of the Order. Finally as previously noted little information has been put forward by the applicant to be confident that matters such as salmon angling, or other matters will be suitably provided for simply by complying with the WCO Clause 7 restrictions. Accordingly I remain of the opinion that insufficient information has been provided to conclude that the proposed takes and diversions out of the riverbed will be consistent with this Objective.

14.15 Policy WQN16 requires measuring and recording of water abstraction. Mr Dunning states that the applicant *could include the measurement, recording and co-ordination of abstracted flows as conditions of consent*. This 'suggestion' must suitably be provided for to ensure consistency with this policy, and indeed with Clause 7 of the WCO (particularly given that the water permit would be held jointly with another consent holder).

## Chapter 6 – Beds and Margins of Lakes and Rivers

- 14.16 Objective BLR1 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.
- 14.17 Policy BLR1 seeks to control activities in the beds, and within 7.5 metres of the bed, to ensure achievement of Objective BLR1.
- 14.18 I have previously discussed outstanding issues in relation to activities in the bed and margins of the Rakaia River in relation to relevant provisions of Chapter 10 of the RPS. In relation to natural character and landscape matters, I noted there is some disagreement between experts as to the acceptability of proposed mitigation, and accordingly the proposal may be inconsistent with this aspect of these provisions. In relation to amenity values, I consider the proposal is unlikely to be consistent with these provisions given potential access losses along and across the riverbed. Temporary losses of access across legal routes to the riverbank may also be inconsistent with these provisions if not suitably timed to avoid peak use periods. I also noted the evidence of Mr Canham who noted the potential degradation of amenity values as a result of heavy machinery use and general degradation of the natural character of the area. In relation to effects on trout and salmon habitat, I have outlined the significant risks to migration, and the risk of fish stranding, which if not suitably addressed by conditions would also lead to those activities being inconsistent with these provisions.
- 14.19 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 suggests that activities of the kind envisaged by ACWT in the bed of the Rakaia River is likely to cause conflict with recreational users. To that extent, I consider proposed activities may not be consistent with this objective and policy.

## 15. ASHBURTON DISTRICT PLAN (DISTRICT PLAN)

### Natural Environment – Section 3.1.3

- 15.1 Objectives 1 – 3 seek to maintain indigenous vegetation (Objective 1), preserve the natural character of rivers and their margins (Objective 2), and manage land to maintain and where possible enhance water quality (Objective 3).
- 15.2 A number of policies supporting these objectives are also relevant to the ACWT proposal. For instance, Policies 3, 4 and 5 deal with areas of significant nature conservation value). I note the lower Rakaia River is considered to be such an area courtesy of its inclusion in Appendix 2 of the District Plan. The intent of these policies is to avoid significant adverse effects on values associated with those areas, and remedy or mitigate other effects. Policy 6 has a more general application in seeking to avoid, remedy or mitigate adverse effects on natural character and functions of land and water ecosystems in the District. The intent of Policies 14, 15 and 17 is to protect indigenous vegetation (Policies 14 and 15) and the natural character and nature conservation values of rivers and their margins (Policy 17) by avoiding, remedying or mitigating the effects of activities including vegetation clearance and earthworks. Policy 26 requires consideration of effects on water quality and quantity in District waters.
- 15.3 I have previously discussed natural character, landscape and indigenous vegetation matters in relation to Chapters 8 and 10 of the RPS and Chapter 6 of the NRRP. I have noted that significant discrepancies exist between the opinions of various landscape and vegetation experts. Accordingly I consider the proposal may be inconsistent with these district plan provisions.
- 15.4 Water quality issues were previously discussed in relation to Chapter 9 of the RPS and Chapters 4 and 5 of the NRRP. In relation to water quality issues I have noted that undertakings to comply with WCO Clause 9(2) provisions are not reflected in consent conditions. I have also observed that insufficient monitoring has been proposed. Accordingly I am not presently confident that the intent of water quality provisions of the District Plan will be provided for.

### **Utilities – Section 3.9.3**

- 15.5** Objective 1 is that utilities have minimal adverse effects on amenity and their surrounding environment. This is supported by two relevant policies. Policy 1 seeks to avoid, remedy or mitigate adverse effects from the construction, operation and maintenance of utilities on visual amenities and the quality of the environment. Policy 2 seeks to protect outstanding and significant landscapes and indigenous vegetation from utilities that are visually and environmentally incompatible.
- 15.6** Landscape and indigenous vegetation matters were addressed above in relation to Section 3.1.3 provisions. Effects on amenity values and the quality of the environment in general were addressed under Chapters 8, 9 and 10 of the RPS, and Chapters 4, 5 and 6 of the NRRP. I concluded that the construction, operation and maintenance of the ACWT scheme may have potentially significant adverse effects on amenity values, including natural character and access to, across and along the riverbed. I also concur with Ms Harte's interpretation of amenity to include effects on salmonid habitat. I have previously noted the significant adverse effects that may arise from migration interruptions caused by the taking and discharging of water, and the risk of fish stranding induced by scheme operations. Accordingly I consider the proposed ACWT scheme is inconsistent with these provisions of the District Plan.

## **16. STATUTORY CONSIDERATIONS**

### **Section 104**

- 16.1** 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, operation and maintenance of the ACWT Scheme. In particular I have concerns regarding effects on salmonid habitat including interruption of fish migration and the risk of fish stranding. I am also concerned about the significance of effects on amenity values, including temporary losses of access to the riverbank, more permanent restrictions on access across and along the riverbed, and public safety issues arising from operational, emergency and sluicing discharges and the intake area. I also consider effects on the quality of the environment, particularly water quality, have not been adequately addressed. There is a degree of uncertainty about some of the effects including effects on landscape, natural character and indigenous vegetation, which may also constitute significant adverse effects.

- 16.2 In relation to section 104(1)(b), I consider that the proposal in its current form is inconsistent with a number of objectives and policies of the RPS, NRRP and District Plan.
- 16.3 In relation to section 104(3)(c)(i), I consider 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, and all qualifying abstractions and diversions must be subject to Clause 7 restrictions. Based on the evidence to date, there is also uncertainty regarding whether the proposed discharges will meet water quality parameters.

### **Section 105**

- 16.4 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, and in the case of the newly proposed sluicing discharge, possible alternatives including a discharge of material to other receiving environments (out of the river bed).

### **Section 107**

- 16.5 Section 107(1) sets out matters that preclude granting of discharge permits ((d) and (g) being the relevant matters). Given the nature of proposed operational and fish bypass discharges I expect they should readily comply with these provisions. However in respect of other discharges I find that insufficient information has been provided regarding the adequacy of proposed mitigation to be confident of compliance under this section of the Act.

**Section 108**

16.6 I have referred to Mr Dunning's proposed suite of conditions, and have noted where in my view further conditions are required to ensure adverse effects are suitably addressed. Overall I find that proposed conditions are not sufficiently rigorous in terms of ensuring effects will be minimised to an acceptable level, do not suitably ensure compliance with WCO provisions, lack sufficient monitoring, and in some cases fail to set out actions that will be taken in the event effects are detected.

**Part 2**

16.7 In regards to Sections 6(a), 6(b), and 6(c), I am not confident that the natural character, landscapes and indigenous vegetation of the Rakaia River will not be compromised by many of the proposed activities.

16.8 With respect to Section 6(d), I find that the proposed operation of discharges and artificial channels does not suitably provide for public access across or along the riverbed. I consider this matter has been totally overlooked by the applicant and accordingly no information is available to assist in determining the scale of this effect, and options for avoiding or mitigating it. I also consider insufficient consideration has been given to timing temporary closures of access to the riverbank in order to minimise effects on access during key use periods, although I consider this effect can be mitigated by appropriately limiting the timing and duration of temporary closures.

16.9 For Section 7(c), I remain of the opinion that insufficient information has been provided to ascertain the effects of the proposed diversion and abstraction on salmon angling amenity in the Rakaia. I also consider the effects on amenity resulting from loss of natural character may be significant, and that significant risks to health may be posed by significant discharges from the scheme. In sum I am unable to draw a firm conclusion that the proposal is either consistent or inconsistent with section 7(c).

16.10 In relation to Section 7(h), I consider the potential adverse effects on salmonid passage, and risk of fish stranding to be significant. I have suggested the nature of consent conditions that may enable the proposal to be not inconsistent with section 7(h).

16.11 The lack of information regarding cumulative effects (in conjunction with the proposed CPWT scheme) further reinforces my opinion that the proposal is likely to be inconsistent with relevant sections of the Act.

16.12 On the basis of this analysis I consider that the proposal in its present form will not meet the purpose of the Act.

**J Holland**

**September 2008**