

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

**AND**

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

**FOR** resource consents to construct, operate and maintain an intake, settling pond, fish bypass, canals, tailraces and associated infrastructure to enable the take, divert, use and discharge of up to 42 cubic metres of water per second from the Rakaia River via the Ashburton Community Water Trust intake at Happy Valley, and to use it for hydro-electricity generation and associated purposes.

Resource Consent Application No's:

Ashburton District Council: - LUC07/0030

Environment Canterbury: - CRC072637,  
CRC072636, CRC073863, CRC072638,  
CRC072639, CRC072640, CRC072641,  
CRC072642, CRC073862, CRC073864,  
CRC072643, CRC072644, CRC072645,  
CRC072646, CRC072647, CRC072648,  
CRC072649

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**SECOND STATEMENT OF PLANNING EVIDENCE OF JANAN DUNNING  
ON BEHALF OF ASHBURTON COMMUNITY WATER TRUST**

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## 1. QUALIFICATIONS AND EXPERIENCE

1.1 My Name is Janan Dunning. I am employed as an Environmental Planner in the Christchurch office of MWH New Zealand Limited, and have been engaged by the applicant to provide Planning evidence. I hold a Master of Science degree in Geography, and post-graduate Certificates of Proficiency in Planning Practice, Theory and Law. I have approximately seven years experience as a Planner both in Council and Consultancy roles. I am a full member of the New Zealand Planning Institute.

1.2 The evidence I will present today is within my area of expertise, except where I state that I am relying on information provided by another party. I have not knowingly omitted facts or information that might alter or detract from the opinions I express. I have read and understood the Environment Court's Code of Conduct for Expert Witnesses, and have complied with it in the preparation of my evidence.

## 2. SCOPE OF EVIDENCE

2.1 My evidence is presented on behalf of the Ashburton Community Water Trust (ACWT) in their application to Environment Canterbury (ECan) and the Ashburton District Council (ADC) to construct, operate and maintain a run-of-the-river hydro-electricity generation scheme using water from the Rakaia River. In part, these applications are being considered separately from the application to take water (CRC021091), which was heard in April 2008 in conjunction with the application to take water by Central Plains Water Trust (CPWT). My evidence today will accordingly focus on the ACWT application suite other than application CRC021091, although inevitably it is necessary to include the application in some parts of my evidence to provide context to the wider ACWT proposal.

2.2 In presenting my evidence, I will:

- identify and summarise the matters for which consent is sought;
- provide a statutory context for the consideration of the applications;
- comment on submissions received by ECan and the ADC following public notification; and
- consider the proposal in the context of the National Water Conservation Order (Rakaia) 1988, (NWCO) the relevant rules and policy provisions of the relevant Regional Plans, Ashburton District Plan and the provisions of the Resource Management Act (RMA).

### 3. SUMMARY OF THE PROPOSAL

- 3.1 The full suite of resource consent applications is attached in Appendix A.
- 3.2 The ACWT proposes a run-of-the-river hydro-electricity scheme taking water via a river intake located at Happy Valley on the south bank of the Rakaia River, approximately 5km downstream from the Rakaia Gorge bridge. The water would enter a settling pond and be directed down the Highbank canal, past the Highbank Power Station via the existing Highbank formed tailrace (to be modified), and then into the Terrace canal. Water would continue downstream to a head pond from which it would be discharged back to the river via the Barrhill Power Station tailrace approximately 3km west of Barrhill.
- 3.3 The ACWT and the CPWT lodged a joint application CRC021091 to ECan in December 2001 for consent to take water from the Rakaia River for use in the joint applicants' respective schemes. Under this application, ACWT sought approval to jointly take up to 40m<sup>3</sup>/s of water from the Rakaia River when flows permit, in accordance with the NWCO. The application to take water was lodged on the understanding that up to 40m<sup>3</sup>/s was available for allocation. On the basis of previous evidence provided to the Commissioners during the hearing of the CPWT applications, I understand that unallocated flows may be less. ACWT accepts that water may only be allocated as available, as s.217 of the Act requires the provisions of a Water Conservation Order to be upheld. However, as discussed at the water take hearing, the applicants seek consent to operate the scheme on the basis of 40m<sup>3</sup>/s as the take may include, by agreement, water allocated to other users that is not being taken at that time, or water in a higher priority band that has not been allocated. Regardless, the applicant has undertaken that water would be taken only in full compliance with the provisions of the NWCO.
- 3.4 Under the consent applied for, the proposed take would be shared between ACWT and CPWT. In this way, either ACWT or CPWT could theoretically take the full allocation when available. When sharing the take, the two schemes would co-ordinate their operations in a manner that ensures the total amount taken does not exceed the allocation.
- 3.5 The joint CPWT and ACWT application to take water was publicly notified in June 2006. All other ACWT applications to ECan were publicly notified in July 2007. The applications to the ADC were notified in May 2008.

### *Relationship with the EA / BCI Scheme*

- 3.6 Electricity Ashburton (EA) and Barrhill Chertsey Irrigation Limited (BCI) together hold the consents necessary to construct, operate and maintain a hydro-generation and irrigation scheme in the same location, and along similar lines to that proposed by ACWT. These consents were issued in March 2008. The footprints of the two schemes share considerable overlap with the EA / BCI scheme either being operated as an independent scheme in the absence of ACWT or otherwise forming the first part or 'stage' of the larger ACWT proposal. The EA / BCI scheme is confined to the Highbank or lower terrace and is limited to a take of 17m<sup>3</sup>/s. The EA / BCI scheme also has additional components to allow sluicing of settled sediments directly to the river under certain conditions.
- 3.7 It is likely that the EA / BCI scheme will be constructed and become operational before the ACWT scheme, assuming all necessary consents for the latter are granted. The Highbank Canal alignment, design and the position of the drop structures are identical to both schemes. The primary differences are in the mechanisms to take water and to discharge it to the Highbank Power Station tailrace, and the extension of the canal into the Terrace Canal.
- 3.8 It would be quite possible to modify the physical infrastructure of the EA / BCI scheme to accommodate the volume of water taken under the ACWT scheme. The principal changes would be an increase in the size of the intake and the settlement pond, an additional fish screen at the southern end of the settlement pond, and changes around the interaction with the existing Highbank Power Station infrastructure. Assuming the necessary consents are in place, these changes are primarily commercial matters to be worked through by the relevant parties.

## **4. LEGAL AND PLANNING MATTERS**

- 4.1 The legal and planning framework was outlined by Ms Appleyard in her opening submission. The Planning provisions of the NWCO, the Transitional Regional Plan (TRP), the Canterbury Regional Policy Statement (RPS), and the Proposed Natural Resources Regional Plan (NRRP) are assessed and outlined in the application document.

### *Consents Sought*

- 4.2 The applicant has applied for 17 new consents from ECan<sup>1</sup>. The consents sought under the Transitional Regional Plan (TRP) hold a discretionary status as do the discharge consents and most of the land use consents sought under the Proposed Natural Resources Regional Plan (NRRP). As a bundled suite, the applications and wider proposal is a **discretionary** activity.
- 4.3 The applicants seek a term of 35 years for all water related applications, and a lapse period of no less than 10 years to allow for the detailed design and construction of the scheme. The construction period alone is estimated to be approximately 3 years.

### *TRP*

- 4.4 The TRP was made operative in 1991 and contains a number of provisions which trigger the need for consents if not complied with. Other activities subject to s.13, 14 or 15 of the RMA that are not covered by these provisions or any other operative rule become innominate activities under s.77C of the RMA, and hold a discretionary activity status.

### *NRRP*

- 4.5 Chapters 1 to 3 of the NRRP were notified in June 2002, and hearings have since been held, decision released, and amended chapters issued in September 2007. Variation 1 includes Chapters 4 – 9, and was notified in June 2004. Hearings have commenced on these Chapters. I am not aware of any variations that directly affect the consents sought.

### *Ashburton District Plan*

- 4.6 The Ashburton District Plan was made operative in October 2001. The resource consents sought from the ADC relate to the construction, use and maintenance of the scheme, including activities undertaken in the riparian margin and riverbed. These activities also hold a **discretionary** status under the relevant rules in the Ashburton District Plan.

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<sup>1</sup> CRC072637, CRC072636, CRC073863, CRC072638, CRC072639, CRC072640, CRC072641, CRC072642, CRC073862, CRC073864, CRC072643, CRC072644, CRC072645, CRC072646, CRC072647, CRC072648, CRC072649

## *Permitted Baseline*

- 4.7 Section 104 of the Act directs that when considering an application for consent, the authority must, under section 104(1)(a) have regard to any actual and potential effects on the environment of allowing the activity, and states under 104(2):

*"When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect." [my emphasis]*

- 4.8 It is established<sup>2</sup> that the effects of existing consented activities may define the "existing" environment, and thereby contribute to the permitted baseline. The Commissioners will be aware of the consents issued to EA/BCI to carry out works in the riverbed and margins, and to sluice water and sediment into the Rakaia River within the same reach of the river, in a substantially similar scheme to that now proposed by ACWT. In fact, the two schemes substantially overlap in their location, method, purpose and design. The scale of the in-river and riparian works would be similar between the two schemes, the settlement ponds are in the same location (though different sizes), and the canals and drop structures are identical. I consider that the EA/BCI consents could be considered to establish a reasonable degree of permitted baseline when considering the effects of the ACWT proposal between the proposed river intake and the Highbank power station.

- 4.9 While consents have been granted to EA/BCI to construct, operate and maintain a hydro-generation scheme, only one of the two schemes proposed would be constructed. Consequently I do not consider any cumulative effects between the two schemes, as they would not run in parallel.

## 5. CONSULTATION

- 5.1 The applicant undertook consultation with potentially affected parties prior to and following lodgement, and has continued to consult to date.

- 5.2 The land within the scheme alignment between the river intake and Highbank power station is owned by Mark Davey Limited (MDL), Electricity Ashburton (EA) and TrustPower. MDL submitted to ECan (Submission 16518) but this submission was withdrawn on 18 December 2007. EA holds consents to develop the EA/BCI scheme, and supports the ACWT proposal, having lodged a submission to the ADC in support. The applicant has consulted with TrustPower at length, with discussion over recommended conditions of consent concluding on 5 September.

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<sup>2</sup> *Keystone Watch Group v Auckland CC* A047/02, 7 NZED 326; and *Sampson v Waikato RC* A178/02, 7 NZED 875

- 5.3 The applicant has discussed the proposal directly with the other landowners along the route between the Highbank Power Station and the proposed Barrhill Power Station. This has included meeting directly with the landowners a number of times in public meetings, and direct discussions with individual landowners. The applicant also met with Te Taumutu Runanga on site, and traversed the full alignment with them by jet boat to provide a river users perspective of the proposal, and to demonstrate the limited interaction between the proposed scheme and the river.
- 5.4 The applicant met with and discussed the proposal in detail with representatives of the Department of Conservation (DoC) and Fish and Game New Zealand (Fish & Game). The applicant met representatives from DoC and The Royal Forest and Bird Protection Society (Forest & Bird) on site and traversed the proposed canal alignment downstream from Lowe's Cutting on 15 July 2008.
- 5.5 Discussion and suggestions from all meetings and discussions have been incorporated where possible into the applicant's proposal, and are particularly evident in the mitigation measures and evidence presented today by experts in engineering, avian and terrestrial ecology, and landscape architecture.

## 6. SUBMISSIONS

- 6.1 The anticipated effects of the proposal were addressed in the applications and supporting reports prepared and lodged by ACWT, and in the further information provided following lodgement. Twenty submissions were lodged with the ADC, of which six were in support, and two were neutral. There were 18 submissions to ECan, of which one was neutral.
- 6.2 The relevant matters raised in neutral and opposing submissions are:
- *Effects on existing infrastructure, existing abstractors and river bank stability;*
  - *The adverse effects on surface water quality and aquatic habitats;*
  - *Effects on terrestrial ecology and bird life;*
  - *The effects of using water from the Rakaia to generate hydro-electricity;*
  - *Effects on amenity, landscape values, natural values, and intrinsic values;*
  - *The proposal is inconsistent with the relevant statutory provisions.*

I address these matters in the following discussion.

### *Effects of the Take on Existing Abstractors*

- 6.3 Several submitters raised concerns about the effect of the proposed water take on the ability of existing abstractors to maintain access to surface water from the Rakaia River, and to maintain

reliability of supply. On the basis of the Rakaia's "first in, first served" water allocation system, the proposed ACWT take would hold the lowest priority, with existing abstractors holding priority ahead of the applicant. The only exception to this would be if the applicant agreed with an existing consent holder to take water of higher reliability.

- 6.4 I am not aware of the physical structures or construction works of the proposal encroaching or affecting the exercise of any other consents to take or divert surface water (in particular consents CRC990087, CRC990136 or CRC940050 held by A and L Maw and G Campion). I also understand that the works would not affect groundwater quality at the point of the domestic bore abstraction authorised under CRC072531, or the Creeside Water Scheme under consent CRC991415 due to the depth of these bores and the separation distance from scheme earthworks. In terms of the physical impact of the proposal on the exercise of existing consents, any effects would be minor.
- 6.5 The effect of the proposal on in-river sediment and flow regimes was addressed when the take application was heard in April 2008. The conclusions drawn at that time on the basis of qualified assessment was that the effects of the proposal on sediment and flow regimes in the river would be minor. Consequently, I am of the opinion that the proposed take would not affect the ability of abstractors to exercise existing consents.

#### *Surface Water Quantity*

- 6.6 Several submitters express concern regarding the effects of the proposal on the physical and natural environment, and the recreational values of the river. Clause 3 of the NWCO identifies the values which the Order seeks to protect, acknowledging that the Rakaia River and its tributaries include and provide for:
- (a) *An outstanding natural characteristic in the form of a braided river;*
  - (b) *Outstanding wildlife habitat above and below the Rakaia River Gorge, outstanding fisheries, and outstanding recreational, angling, and jet boating features.*
- 6.7 Clause 7 applies to the Rakaia River below the Gorge, with sub-clause (1) setting the minimum flows at the Gorge recorder site for each month of the year. These minimum flows were established to safeguard the values identified in Clause 3, leading to the inference that by complying with the minimum flows, the values of Clause 3 would be protected as anticipated by the Order. Consequently, it may therefore be further inferred that in the context of the Order any abstraction from the river downstream from the Rakaia Gorge that complies with the minimum flows would not result in adverse effects that undermine those values.

- 6.8 The proposed ACWT take would only be exercised in full accordance with the provisions of the NWCO. In the context of the Order the effect on the river's characteristics from operating the scheme would be consistent with the provision made for wildlife habitat, the trout or salmon fishery, jet boating, angling or other recreational activities. While it has been discussed by some submitters that the NWCO never anticipated the type of water use and sharing arrangements that have developed since its inception, the fact remains that the Order has set the framework within which all water users must operate.
- 6.9 The Order is not a water allocation Plan accordingly some of the considerations around matters such as the use of water that might be included in an allocation Plan are not directly relevant to the NWCO. The applicant seeks to take, use and discharge water entirely within the bounds set by the Order and provided this is established many of the more specific matters will then need to be considered under the relevant planning instruments such as the NRRP.
- 6.10 I acknowledge that the abstraction of up to 40m<sup>3</sup>/s of water from the Rakaia River could potentially result in adverse effects. The question is whether the extent and significance of those effects are minor, and whether the mitigation measures proposed are therefore adequate and acceptable in the context of the NWCO and other relevant statutory provisions. The experts on whose evidence I have relied on in my assessment advise that generally the effects would be minor, or where they are more significant can be adequately mitigated.

#### *Surface Water Quality*

- Construction Effects

- 6.11 The protection of the surface water quality of the Rakaia is specifically required by Clause 9(2) of the NWCO. Surface water quality would be most at risk during the construction phase of the scheme, through the discharge of stormwater from exposed areas, and the mobilisation of sediment during earthworks.
- 6.12 The applicant proposes to manage stormwater and sediment runoff during construction in full accordance with ECan's Erosion and Sediment Control Guidelines 2007 (E&SC). This could include a number of approaches to suit each stage of development, and the conditions encountered. Each approach would be set out in a management plan which would be certified by ECan prior to implementation. This could be required by condition of consent, and is suggested in the proposed conditions attached to this document. The applicant has prepared a Construction Effects and Mitigation report, which is attached to Mr Woods' evidence. This report sets out the principles that

would apply to the respective management plans that would be prepared to ensure any adverse construction effects are managed during the construction process.

6.13 The E&SC plan would seek to avoid or mitigate the potential for stormwater and sediment to enter surface waterways. Implementation of the plan would need to avoid or mitigate the effects from stormwater and sediment discharge to surface water, and would set out measures to minimise, intercept, hold, treat and discharge stormwater and sediment. Such measures could typically include a range of methods in combination to avoid direct surface water discharges or uncontrolled flow into any surface waterway, discharge to ground via filtration through soak ponds, or the discharge to surface water only following suitable treatment such as settlement.

6.14 Erosion and sediment control would be managed through the implementation of an Erosion and Sediment Control Plan prepared in compliance with the principles of ECan's E&SC Guidelines. The principles of the Plan are attached to Mr Woods' evidence in the Construction Effects Report.

- Works in Riverbeds and Riparian Margins

6.15 Some construction works would be necessary in the riverbed and riparian areas. These works would take place at points of interface between the scheme and the Rakaia, such as the river intake, culverted stream crossings, and operational discharge points. Works in the riparian area would be limited in extent, consisting of vegetation clearance and earthworks only as needed to provide adequate area for the construction and maintenance of the scheme. All works would be preceded by stormwater and sediment control measures which would remain in place until the completion of construction and replanting.

6.16 Various construction methods can be adopted to provide relatively dry conditions out of active flows for works at these points. Some sediment release would be expected to occur when isolating each construction area, and on completion when the scheme is commissioned. I understand from Mr Woods that the volume of sediment released at these times would be minor in the context of natural river loads, would involve only natural riverbed materials, and would be transient at most. The construction of culverts for tributary stream flows would be undertaken in dry conditions, either when streams are not flowing, or by using temporary diversions. The adoption of appropriate construction methods and timing can minimise any effects on water quality.

6.17 Other in-river works may include the formation of temporary gravel bunds to direct water away from construction areas while protection measures are put in place. The formation of bunds can be controlled by conditions of consent to ensure that they are temporary, such that natural flows over 300m<sup>3</sup>/s (the point at which bedload begins to move) destroy the bunds. This method is already

commonly used on a number of braided rivers in Canterbury, including the Rakaia River. The effects of these bunds have previously been determined as minor (BCI consents). They have only a temporary presence in the riverbed, and do not impede the passage of watercraft or flood flows.

6.18 While some of the detail surrounding the design and construction of the scheme is to be finalised, the effects on surface water quality of building the scheme could, in my opinion be suitably managed. This could be further ensured through conditions of consent and the application of certified Management Plans ensuring significant adverse effects are avoided or mitigated.

- Operational Effects on Water Quality

6.19 The operational effects on water quality would stem from water discharged from the scheme, and from the discharge and management of natural river sediments.

6.20 Clause 9 of the NWCO does not prohibit the discharge of water or contaminants to the Rakaia, but sets out standards with which discharges shall comply. The question therefore is the extent to which the proposed discharges would comply with the provisions of Clause 9 below:

- (a) *any discharge is to be substantially free from suspended solids, grease and oil;*
- (b) *after allowing for reasonable mixing of the discharge with the receiving water –*
  - (i) *the natural water temperature shall not be changed by more than 3°C.*
  - (ii) *the acidity or alkalinity of the water as measured by the pH shall be within the ranges 6.5 to 8.3, except where due to natural causes.*
  - (iii) *the waters shall not be tainted so as to make them unpalatable, nor contain toxic substances to the extent that they are unsafe for consumption by humans or by farm animals, nor shall they emit objectionable odours.*
  - (iv) *there shall be no destruction of natural aquatic life by reason of a concentration of toxic substances.*
  - (v) *the natural colour and clarity of the water shall not be changed to a conspicuous extent.*
  - (vi) *the oxygen content in solution in the water shall not be reduced below 6mg/L.*
  - (vii) *based on not fewer than 5 samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the waters shall not exceed 200 per 100ml.*

6.21 In operation, the scheme would direct water into the settling pond where most of the suspended sediment would settle out. Water flowing from the pond would therefore contain less sediment than the natural river flow. Any contaminants picked up along the canal route would most likely consist of tree or plant litter at most, particularly if the alignment is separated from pastoral grazing by stock fencing. Coarse screens at each drop structure would prevent any larger material from passing through the system, such that the final discharge would consist of little more than river water, with less suspended sediment or contaminants than would be likely in natural flows. As the scheme does not retain water in storage with the water generally passing through the scheme in approximately four hours, I understand from Mr Woods that the chemical makeup or temperature of the water is also unlikely to be significantly altered. Similarly, the colour, clarity and palatability of the receiving waters would not be significantly affected by operational discharges.

6.22 There is provision for emergency discharges to occur over a lowered stretch of the Highbank Canal wall approximately 100m long, upstream of the first drop structure. The lowered section of the canal wall would allow water to overtop over the length of the section, and flow across the adjacent river flat to the nearest river channel. I understand that this would only occur in the extremely unlikely event that a number of gates and systems simultaneously fail. The low velocity of the flow (approximately  $1\text{m}^3/\text{s}$ ), and the likelihood that any emergency discharge would be brief in duration would result in minor effects at most. The river flats are subject to flooding on occasion, and any emergency overflow event would be similar in effect.

6.23 In my opinion, since any operational discharges would fully accord with the provisions of Clause 9 of the NWCO and with the relevant regional statutory provisions, the effects of operational discharges on surface water quality would be minor. I therefore conclude that the affect on the aquatic habitat of the Rakaia, and the health and well being of trout and salmon in the river would also be minor.

- Sediment Management and Disposal

6.24 In Mr Woods' evidence he estimates that the settlement pond would capture up to 90% of the natural sediment load of water entering the scheme, calculating that approximately 80,000 tonnes of sediment on average would be captured in the pond. This sediment would either be sluiced into the river in accordance with the conditions of CRC990089 (held by BCI) or would be mechanically removed on an annual basis to the adjacent river flats, where natural river flows above  $300\text{m}^3/\text{s}$  would progressively distribute it downstream. Both methods return natural sediment to the river system to maintain sediment supply downstream. Sluicing would occur as frequently as possible, but would be constrained to after 1:00pm, only when flows exceeded  $300\text{m}^3/\text{s}$  (as required by conditions of consent CRC990088).

6.25 The alternative river-flat disposal option proposed involves placing the sediment within a designated disposal area, on un-vegetated river flats adjacent to the river. A larger area than required has been indicated in the application to allow for natural changes in river morphology. Mr Woods' calculations show that sediment would be released into the river via this disposal method whenever volumes reached or exceeded flows of  $300\text{m}^3/\text{s}$ . The natural sediment load and turbidity of the river would be high in such flows since bedload begins to move at flows above  $200\text{m}^3/\text{s}$ . The sediment deposited on the river flat would gradually be returned to the Rakaia and redistributed over a series of flood events or high flows.

- 6.26 The merits of sluicing sediment into the river was considered at length during the BCI process, and found to be an effective means of returning sediment to the river while avoiding significant adverse effects. Mr Woods has examined the differences between the activity consented to BCI and that proposed by the applicant. Mr Woods calculates that the frequency of sluicing would not increase, but the volume would be increased over a brief period during sluicing.
- 6.27 By returning the river sediment to the river by either method, the downstream sediment budget of the river would be maintained, likely avoiding significant effects from “sediment starvation” downstream. By releasing sediment to the river only when the river is in high flows and naturally turbid, the adverse effects on downstream biota would be substantially similar to those which occur during natural flood events. The effect on recreation would be minor, as recreational opportunities are naturally limited during highly turbid flows. The natural colour and clarity of the water is unlikely to be altered to a conspicuous degree as defined in NWCO Clause 9(b)(v), since natural turbidity would be high.
- 6.28 On the basis of the evidence presented by Mr Woods and Dr Rowe I understand that the effects of depositing sediment on the river flat as proposed would be minor in respect of impacts on downstream aquatic biota, water clarity, sediment supply and river morphology. Accordingly, I consider the discharge of sediment to the river would comply with Clause 9(b)(v) of the NWCO “*after reasonable mixing*”.

#### *Terrestrial Ecology*

- 6.29 An assessment of the terrestrial ecology values of the project area was undertaken along the scheme alignment by Mr Ward and Mr Forbes, both qualified ecologists. The assessment aimed to identify the potential adverse effects of the construction and operation of the scheme on terrestrial ecology.
- 6.30 The area of the intake, sediment disposal area, settling pond, Highbank canal and the vicinity of the Highbank power station and tailrace was assessed by Mr Ward in relation to the EA / BCI scheme. Mr Ward updated his assessment to reflect the differences to the ACWT scheme now proposed (Letter Report attached in Appendix A). A separate assessment was undertaken from the Highbank tailrace salmon barrier to the vicinity of the proposed Barrhill power station by Mr Forbes.
- 6.31 Both studies found that the scheme would largely cross “*naturalised vegetation assemblages*”, being mainly mixed indigenous and exotic scrub, exotic weeds, and areas of pasture and shelter plantings. There were minor native vegetation and fauna communities identified, which were common in the area. No significant wetland sites were identified within or close to the project area.

6.32 Indigenous vegetation of some significance was noted by DoC and Forest & Bird on the site meeting, and subsequently assessed by Dr Keesing for the ADC, and Mr Forbes. The importance of this vegetation is acknowledged and is addressed in detail in Mr Forbes evidence presented today. Mr Forbes in conjunction with Mr Compton-Moen recommends a number of mitigation measures to address the indigenous vegetation that would be lost or damaged as a result of the scheme construction. This includes a detailed planting plan designed to ensure that the indigenous vegetation affected by the proposal is safeguarded, or where it cannot be protected is replaced and protected to a greater extent than presently occurs naturally. This includes special measures to provide for the rare plants in the vicinity of the scheme, and to improve the ecological value of the affected area through approximately 4.5 hectares of indigenous rehabilitation planting.

#### *Avian Ecology*

6.33 Dr Hale was engaged by the applicant to undertake a desktop and anecdotal study of avifauna in the scheme area. This was supported by visiting and walking over the key areas of the site. These areas included the intake, sediment disposal area and area of the possible sluice channel, the discharges at the Highbank and Barrhill Power Station tailraces, and the canal alignment along the terrace. Due to Dr Hale's unavailability, her evidence has been supported and presented by her colleague Dr Jolly, who reviewed Dr Hales evidence, and has also visited the site.

6.34 Dr Hale concluded that significant effects on birdlife in the area as a result of construction activities were unlikely, as most of the scheme would be out of the river and generally would not involve areas where birds were likely to nest. Further, Dr Hale concluded that the effect of taking 40m<sup>3</sup>/s of water from the river is likely to be minor on in-river and riparian birdlife, though noted potential for increased predation. However, Dr Hale did note that the effect of depositing sediment on the river flat as proposed would, in her opinion affect the naturalness and intactness of this part of the river for birdlife, and favoured sluicing as a less intrusive means of sediment disposal.

6.35 Dr Hale concluded that, overall, the scheme would have a minor effect on the avian ecology of the river provided that adequate measures (such as identifying nesting sites prior to construction, and enforcing appropriate setbacks from nesting areas) are undertaken to protect nesting riverbed birds, and that works in the riverbed or riverbed sediment placement activities are avoided during the crucial nesting period between 1 September and 1 February each year. Dr Jolly has gone further, suggesting that this period extend from 1 August. The applicant has advised that the scheme could generally operate outside the riverbed during that period, and therefore avoid significantly affecting nesting river birds.

### *Aquatic Ecology*

- 6.36 Dr Rowe has provided evidence in respect of the effects of the proposal on the river's aquatic ecology. From Dr Rowe's evidence I understand that the adverse effects of the discharge of sediment on the aquatic ecology of the river is unlikely to significantly affect the most abundant species which, by the nature of the environment they live in, are tolerant of relatively high levels of suspended sediment.
- 6.37 Dr Rowe notes that the cross-section of species currently in the river reflects the nature of the natural sediment regime, and concludes that returning sediment to the river during high flows resulting in a moderate increase in suspended solids would be unlikely to adversely affect the diversity of native or introduced fish species. However, Dr Rowe also recommends that the effects of sediment disposal be closely monitored to ensure that the effects of sediment disposal are observed, and the disposal method can be reviewed if needed. I agree with Dr Rowe's recommendation, and have drafted a recommended condition, attached in Appendix B.

### *Groundwater*

- *Construction Effects*

- 6.38 Groundwater quality would be most at risk during construction when excavations expose groundwater to contamination, primarily from construction activities or stormwater contact. Excavations around the river intake, control infrastructure, the canal invert into the Highbank tailrace, and in deep excavations below the drop structures may extend into groundwater.
- 6.39 Dewatering is proposed to lower groundwater around the deeper excavations to significantly reduce the likelihood of contacting or exposing groundwater. De-watering is a permitted activity subject to conditions under NRRP Rule WQN17, with which the activity would comply. Groundwater levels would return once dewatering ceased.
- 6.40 As an additional safeguard, stormwater and sediment control measures in accordance with ECan's *Erosion and Sediment Control Guidelines 2007* would be put in place before starting excavation and retained until works were complete. These measures would reduce the potential for groundwater contamination by stormwater through the use of, for example cut-off drains, bypasses or soakage areas. I understand such measures would ensure that effects on groundwater from deep excavations would be largely avoided or would be minor.

- *Operational Effects*

6.41 Once operational, the scheme is very unlikely to affect groundwater quality. As discussed by Mr Woods, seepage from the canals, settling pond and head pond would be minimal. Any seepage that occurs would enter deep gravels and be substantially filtered before being drawn into any water supply, or surface watercourse.

*Landscape Values and Natural Character*

6.42 In his assessment of the landscape of the Rakaia River along the scheme alignment, Mr Compton-Moen identified the landscape in this locality as a “*visual amenity landscape of some value*”. The Ashburton District Plan refers to the wildlife and recreational values of the river as being outstanding, and these attributes are also recognised by the NWCO. Mr Compton-Moen noted that the proposed scheme is primarily located on agricultural land beside the river, and has a limited impact on the landscape values and natural character associated with the riverbed, the margins and their recreational attributes. He also noted that, subject to the successful implementation of the mitigation measures proposed, the effects on the existing landscape character, natural character, landscape values and visually sensitive receivers would be minor.

6.43 On the basis of Mr Compton-Moen’s assessment and evidence, I accept that the adverse effects on landscape values, natural character and visual amenity would be temporary, would consist primarily of effects over the construction and rehabilitation period, and as long as adequate mitigation measures are applied, would be minor.

*General Amenity Effects*

- Noise

6.44 The Ashburton District Plan sets noise standards in the rural zone, with the upper limit defined as 30 – 40dBA (night / day) as measured at the notional boundary of a residential dwelling.

6.45 There is one residential dwelling in the vicinity of the Highbank Canal, which is owned by Electricity Ashburton and is currently occupied by Mr Mark Davey and family. There are several residential dwellings on the top of the primary terrace as close as 100m to the proposed canal alignment between chainage 11,000 to 14000. The residents of these dwellings are likely to be exposed to construction noise over the construction period, particularly during works to form the upper sections of canal and the head pond.

- 6.46 The applicant proposes a noise management plan to be submitted to the ADC for certification prior to the commencement of construction activities. The noise management plan would include measures to mitigate noise during construction works such that compliance with the appropriate noise standards could be achieved. The principles underpinning the noise management plan are contained in the Construction Effects Report appended to Mr Woods' evidence. By applying appropriate construction practices and methods, timing, staging and attenuation measures, the effect of noise on residential occupiers nearby would be minimised. Noise attenuation measures would be agreed to with each landowner prior to the commencement of works. Should it be found that despite the implementation of these measures the District Plan noise standards at the notional boundary of any dwelling would be exceeded, the applicant would need to seek resource consent from the ADC in respect of this matter.
- 6.47 Operational noise would be minor. The District Plan's noise standards are applicable at the notional boundary of residential dwellings, which are separated by significant horizontal and vertical distances from the three generation plants on the scheme. In addition, the terrace face itself forms an effective noise attenuation barrier which would further mitigate any noise produced from generation activities. Noise produced by canal water would be minor, particularly in the context of the setting, proximity of the Rakaia, and the separation distances involved. Noise from spilling water down the spillway would be more significant as noted by Mr Woods, though spilling would be extremely infrequent and brief in duration such that the effects are considered minor.
- Dust
- 6.48 During construction, earthworks and stockpiled aggregates may provide a source of dust, particularly during strong wind conditions. Once the scheme is operational however, dust generation would be limited to vehicle movements on unsealed roads, occasional minor works in the river bed, or during the infrequent maintenance of the settling pond and sediment disposal area. I understand that dust generated by operational activities may be no more than expected from traffic movements on unsealed rural roads in the District, or agricultural activities in exposed soils such as ploughing.
- 6.49 Separation distances, topography and existing vegetation (such as plantation pines) would generally limit the extent of effects beyond the site boundary. The adjacent landowners on the low river terrace may be affected to varying degrees in farming activities, as may TrustPower's operations at Highbank, and Transpower's assets.
- 6.50 The degree of dust effect should be determined by whether it is *objectionable or offensive* beyond the boundaries of the site following any mitigation measures that would be applied by a contractor. This test should be considered in the context of the setting. Most of the site lies adjacent to the

Rakaia riverbed, much of which consists of dry, open river gravels with significant silt deposits, the riverbed being a natural source of dust in the area. The construction works and temporary stock piles are likely to contribute to dust to a comparatively minor degree, particularly as standard dust suppression measures (such as dampening) would be applied by any contractor engaged to undertake works. During high wind conditions, it is likely that construction works would cease as natural dust conditions would make it very difficult to continue.

6.51 The effect of dust on the assets and operations of TrustPower and Transpower would need to be addressed through appropriate application of dust mitigation techniques, and this is addressed through the recommended conditions of consent appended to this report.

6.52 The residential dwellings on the terrace top downstream from chainage 11,000 are likely to be exposed to some degree of nuisance dust during works. If adequate mitigation measures are in place, I understand that the amount of dust generated would be minimal, and consequently the effects would be minor. The applicant proposes to prepare and implement a Dust Management Plan, to be certified by ECan prior to the commencement of works, to guide the management of dust generation and application of mitigation measures. The principles underpinning the Dust Management Plan are attached in Part 2.8 of the Construction Effects Report appended to Mr Woods' evidence.

- Access

6.53 Access to the upper part of the site is gained via a private road owned by Electricity Ashburton, extending from the cattle-stop at the northern end of Barkers Road. The only legal road to this part of the site is the unformed Happy Valley Road to the west. There is no public access at this point via any formed legal road. TrustPower have rights of access to the Highbank power station site via the private road. While there is no public right of access across TrustPower's property, I understand members of the public do access the riverbed via the tailrace access track, though without formal TrustPower permission. I understand access is tolerated by TrustPower.

6.54 There is no intention by the applicant to limit the existing legal public access to or along the river as a result of the proposal. No permanent closure of any public roads as a consequence of the scheme is proposed. I understand that any road closures that do occur would be temporary, and only as required only to ensure public safety during construction.

6.55 The proposed canal would cross the northern tip of the legal Happy Valley Road approximately 50m before it terminates at the terrace edge, which lies approximately 7m above the riparian margin at this point. A licence to occupy Happy Valley Road has been issued to EAL by the ADC to permit the

canal to be built across the road on the proviso that a suitable bridge is provided to maintain access. It is likely that this bridge would be in place already if the EA/BCI scheme is constructed first, but should it be necessary the applicant would seek a licence to occupy the necessary portion of the road from the ADC prior to the commencement of works.

6.56 Access to the mid section of the scheme would be obtained via Lowe's Cutting, at around chainage 8500m. This would involve the construction of a bridge over the canal to maintain access to the Rakaia River via Lowes Cutting. Lowes Cutting provides access to an unformed public road along the true right bank of the river, though most of this appears to be in the riverbed. The applicant may form a temporary haul road from Rakaia Barrhill Methven Road, to serve the head pond and terrace top area during construction, and would be disestablished following the completion of works.

6.57 Access to all private land and assets would be provided for and maintained in agreement with individual landowners. This includes access to assets and property of Transpower and TrustPower, which would be maintained in all respects, including adequate provision for TrustPower to access the Highbank tailrace area with heavy vehicles and earth moving machinery for maintenance purposes. Stock bridges would be provided on private property where necessary.

- Hazardous Substances

6.58 No bulk storage of hazardous substances is proposed. Should bulk storage of, for example fuel be required during construction, the applicant would need to obtain the necessary resource consents at that time. Hazardous substances that would be on the site during construction would likely consist of fuels and lubricants normally necessary for the operation of mechanical plant. The transfer of such substances can be controlled through best practice, and through standard conditions requiring separation from watercourses, and the maintenance of spill kits and contingency plans. The applicant has proposed a Hazardous Substances Management Plan as part of the Construction Effects Report.

## **SPECIFIC SUBMISSIONS**

6.59 Most of the matters raised in submissions have been addressed in the general discussion above. However, some matters are specific to certain submitters, and I specifically address these submissions as follows.

*TrustPower Limited and Rangitata Diversion Race Management Ltd (RDRML) Infrastructure and Operations*

- 6.60 RDRML (of which TrustPower is a shareholder) holds resource consents to operate the Highbank Power Station and the Rangitata Diversion Race (RDR). Most of the physical infrastructure that could be affected by the proposal is operated by TrustPower. This includes the Highbank Power Station, tailrace, domestic water supply well, the tailrace access road, and river protection structures.
- 6.61 Under the proposal, access to TrustPower's land and assets would be maintained at all times. The tailrace access road would be realigned, and replaced during works to widen the tailrace. The road realignment would avoid disturbing the existing landfill site downstream of the Highbank power station. Water would be conveyed past the Highbank power station via a buried pipeline, or a canal invert, depending on agreement with TrustPower. If the canal option is selected, the applicant would provide a bridge across the canal to the requirements of TrustPower, to maintain downstream infrastructure and river protection. All works that could affect the infrastructure or operations of TrustPower and / or the RDR would proceed only with the prior agreement of, and in consultation with those parties. A replacement water supply well would be established and proven in terms of quality and reliability, or a reliable alternative water supply found before decommissioning the existing well (already consented as a part of the EA / BCI process).
- 6.62 The current standard of riverbank protection near the Highbank power station would be maintained or enhanced. From a practical perspective, the applicant would need to maintain stability and flood protection through this reach as their own infrastructure would be more vulnerable to the river than TrustPower's, which is further landward. The applicant would not undertake any works or activity that could adversely affect infrastructure or operations without prior agreement from TrustPower and / or the RDR as appropriate. The construction and operation of the proposed scheme would fully take into account the needs of TrustPower and the RDR, including the exercise of any existing RDRML consents. In my view therefore the proposal could be built, operated and maintained without adversely affecting the exercise of existing consents.
- 6.63 TrustPower operate a fish barrier at the downstream end of the formed Highbank tailrace to prevent migrating salmon from becoming trapped (entrained) in the tailrace. A bypass channel connects the unformed tailrace downstream of the barrier to a main braid of the Rakaia River, allowing fish to return to the mainstem.
- 6.64 The barrier consists of seven screens across the width of the tailrace, excluding migrating salmon from the tailrace. The screens can open under excessive hydraulic loads to protect them from

damage, and remain open until manually closed. Salmon can potentially bypass the open screens and enter the formed tailrace during this time. RDRML / TrustPower are required by consent conditions to manually salvage fish that become trapped in the tailrace. The numbers of salmon attracted to the barrier during migration are shown to increase as tailwater volumes increase, so it follows that the risk of entrainment also increases should the screens open.

- 6.65 I understand that the current barrier and channel system has been designed around a maximum discharge rate of approximately 40m<sup>3</sup>/s. The EA/BCI scheme also holds consent to discharge an additional 17m<sup>3</sup>/s to the tailrace from the EA/BCI scheme. To accommodate the additional volumes, EA/BCI will widen the tailrace canal and the fish barrier to accommodate the extra flow, and maintain the current effectiveness of the barrier.
- 6.66 As discussed in Mr Woods' evidence however, under the ACWT proposal the volume of water discharged through the barrier would at most be no more than currently consented, as up to 40m<sup>3</sup>/s would be diverted into the Terrace Canal most of the time. Further, it is likely that the volume of water discharged through the barrier would be less, correspondingly reducing the attractiveness of the discharge to salmon, the likelihood of the barrier failing, and the likelihood of salmon entrainment. This conclusions draws on the evidence presented to the EA/BCI hearing by Dr. Martin Unwin of NIWA. On this basis, it is my view that the proposal would not adversely effect or restrain TrustPower or RDRML in relation to the operation and maintenance of the salmon barrier.
- 6.67 The ability of TrustPower to comply with the conditions of consent around their Highbank operation will not be affected by the proposal. While there could be a concern that diverting water discharged from Highbank into the Terrace Canal instead of discharging it to the river will mean TrustPower is not meeting their consent conditions, the consent was issued to enable the discharge to occur, but does not require that the discharge occurs. In addition, the NWCO sets minimum flow volumes for the river downstream of the Rakaia Gorge, which does not take into account the additional flow from the RDR. If the scheme is to operate within the provisions of the NWCO, then it could be assumed the NWCO values will be observed, and, in the context of the Order, the effects on the aquatic habitat of the river safeguarded. Discharging the water further downstream, if consented, will not affect compliance with the NWCO, or the ability of RDRML and TrustPower to comply with the conditions of consent CRC011249. Similarly, the quality of discharges from the tailrace would be maintained, tailrace erosion avoided and the stability of all structures involved ensured through appropriate engineering practices.
- 6.68 The submitter also expresses concern that in diverting up to 40m<sup>3</sup>/s of water into the scheme via the proposed intake upstream of Highbank, the position of braids in the Rakaia River may be affected. The concern was that a significant change in braid position from that currently expected could

impact on the submitter's responsibility under consent CRC011249, which requires a connection to be maintained between the salmon barrier and a main braid to allow salmon to return to the river. Currently the main braid follows the southern bank near the proposed intake, crosses to the northern side downstream, then back toward the southern bank approximately 1km upstream from the Highbank tailrace.

- 6.69 Bearing in mind that braided rivers are inherently dynamic, the location of the proposed intake would make use of a historically stable braid, and is unlikely to require significant diversion works as a result. Consequently, I understand that significant changes to this historically stable pattern are unlikely, and that the submitter is unlikely to be disadvantaged by changes to river morphology as a direct result of the proposal.
- 6.70 The applicant accepts that construction activities may have an adverse effect on the operations and assets of the Highbank Hydro Electric Power Scheme, including potential limitations on generation during tailrace widening, hydraulic effects from changes in tailwater levels, and noise, dust and vibration effects. These matters should be addressed through commercial agreements rather than through a consent process.
- 6.71 A suite of conditions around very similar issues was agreed in relation to the EA/ BCI proposal, and the applicant proposes substantially similar conditions, which are attached as Appendix B. These conditions were drafted in close consultation with TrustPower in relation to the proposed works around the EA/BCI project, which is substantially similar to the first section of the ACWT proposal. Minor amendments have been made to reflect the differences between the two schemes, and these were forwarded to TrustPower for comment initially on 10 June, then more comprehensively on 14 August 2008. The applicant met with TrustPower on 5 September to discuss the proposed conditions, and generally reached agreement at that time. This is reflected in the recommended conditions attached to my evidence.

*Transpower New Zealand Limited*

- 6.72 Transpower lodged a submission regarding the effect of construction on access to Transpower assets, the structural stability of Tower 522 on the Benmore-Haywards A transmission line, the effect of construction dust on their assets, and in concern over the maintenance of separation distances between construction plant, buildings and restorative vegetation. These are the same matters to those on which Transpower submitted in respect of the EA/BCI scheme, which were addressed to Transpower's satisfaction through the adoption of consent conditions.

6.73 The applicant has been in discussion with Transpower prior to this hearing. As a result of those discussions, the applicant proposes a set of conditions very similar to those agreed with EA/BCI. I understand Transpower has accepted these conditions as adequate. In respect of dust generation affecting the integrity of the transmission line during construction, the applicant has undertaken to prepare a dust management plan in consultation with Transpower that will incorporate mitigation measures to minimise dust generation in general, and which will apply in proximity to Transpower assets such that the effects of dust will be minor. I understand that Transpower's concerns have been suitably addressed.

*Department of Conservation*

6.74 DoC raised general points about the policy context of the proposal. They indicate in their submission that the proposal does not achieve the purpose of the Act in terms of Part II, and is contrary to various clauses of sections 5, 6 and 7 of the Act. I address this in my analysis of Part II later in my evidence. DoC also raised concerns regarding the effects on water quality and compliance with the water quality provisions of the WCO. I believe these matters have been addressed and can now be set aside.

6.75 Much of the information identified by DoC as missing from the application has been subsequently provided via further information requested by the ADC. This includes terrestrial ecology, landscape and natural character assessments, and a description of the extent of physical works.

6.76 DoC highlighted the value of the Rakaia River habitat to aquatic, avian and terrestrial fauna and flora. The provisions of the NWCO were drafted to protect the identified values. The applicant has designed the scheme to operate in full compliance with the provisions of the NWCO.

6.77 Dr Hale concluded in her evidence that, subject to mitigation and avoidance measures, the scheme would generally have only minor effects on bird species.

6.78 Mr Forbes identified significant stands of indigenous vegetation within the construction footprint, and has suggested mitigation measures to address and offset the loss of this vegetation. Meetings on site with DoC were beneficial for both the department and the applicant, and DoC provided comment and input into the proposed planting plan and landscape and terrestrial ecology mitigation measures.

6.79 The applicant proposes the provision of a fish screen at the intake to the Highbank Canal that will be consistent in all respects with the fish screen approved for the EA/BCI scheme in early 2008,

and with the publication *"Fish Screening: Good Practice Guidelines for Canterbury"*. Fish screening and fish passage will be provided for in the scheme to the appropriate standard.

*Fish and Game New Zealand*

- 6.80 The submitter is concerned that the current proposal does not include applications to use Rakaia water for irrigation purposes, and suggests that this process be put on hold until such applications are lodged. I understand that this stems from the wording of the take application, which indicates the water would be sought for hydro-generation and irrigation purposes. The applications before the Commissioners however are to use the water for hydro-generation only – should any party wish to use water taken under these consents (if granted) for irrigation in the future, the necessary consents would need to be sought at that time. In my opinion the Commissioners can only consider at this time the applications currently before them, and cannot take into account activities which may or may not develop in the future. The applicant does not seek consent to use Rakaia water for irrigation purposes.
- 6.81 The submitter raises concerns about encroachment into the riverbed as a result of the applicant's intention to re-plant vegetation in the riparian margins. 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.
- 6.82 The submitter also considers that the proposal is not consistent with the provisions of Part II of the Act, which I consider later in my evidence.
- Salmon Barrier and Fish Screens
- 6.83 Fish that enter the scheme through the river intake would be prevented from entering the canal by a fish screen at the start of the Highbank canal, and would return to a main braid of the Rakaia River via a fish bypass channel. 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. The bypass associated with the screen would be supplied at all times via a diversion of up to 2m<sup>3</sup>/s. The bypass channel would be graded to ensure that should the river intake be closed, flows would avoid stranding fish in pools.
- 6.84 The submitter expresses concern water taken under the ACWT scheme would increase discharge volumes from the Highbank tailrace, which in turn could attract greater numbers of salmon to the tailwater during migration. These concerns are valid however I understand that under this proposal, the volume of water discharged via the Highbank tailrace barrier would be significantly less. Lower

volumes are less likely to attract migrating salmon, or result in delay or entrainment. A properly functioning barrier and bypass system will be necessary for the Highbank / Barrhill tailrace to minimise adverse effects on migrating salmon.

- Other Matters

6.85 Other matters raised in Fish & Game's submission include the effects on flow and sediment regimes, aquatic ecology, natural character and landscape values, river access and safety, game bird habitat, and consistency with statutory provisions. Several of these matters have been discussed in the consideration of previous evidence.

6.86 I agree with the submitter that if works are undertaken without appropriate mitigation measures, there would be potential for significant adverse effects on surface water quality from sediment runoff. With the implementation of the erosion and sediment control measures proposed however, I understand the effects of construction activities on receiving water quality would be minor. Placing sediment on the riverbed so it would mobilise only in flows over 300m<sup>3</sup>/s as described by Mr Woods would be unlikely to significantly affect surface water quality as at this volume, I understand the bedload of the river is mobile, and the natural turbidity is high. Consequently, sediment appropriately placed on the riverbed for disposal would not noticeably deteriorate the quality of the surface water.

6.87 River user safety has been addressed through recommended conditions of consent requiring the placement of warning signs at key angler access points warning of sudden river level rises, and the use of audible warnings immediately prior to the release of water. Other than for temporary public safety, the existing degree of public access to and along the river would not be reduced as a result of the scheme, with key crossing points across the canal alignment provided for by bridges open to the public. The sediment deposit areas on the riverbed would take into account the need to retain public access along the riverbed. Access to the settling pond and head pond to control game birds, particularly Canada Geese is a matter for Fish & Game to discuss directly with private owners. The existing level of public access to and along the Rakaia would not be permanently affected or diminished by the proposal.

6.88 The submitter also considers there will be adverse effects on the natural and landscape character of the area, and that amenity values would be affected by the clearance of vegetation, the visibility of structures, and the visual changes to the setting. Mr Compton-Moen addresses these concerns in detail in his evidence. On the basis of Mr Compton-Moen's expert opinion, I understand that with the successful re-vegetation proposed, the long term effects would be minor in the context of the existing physical, cultural and landscape setting.

6.89 With the application of appropriate sediment and erosion control measures and construction practices, appropriate design and implementation of fish screens, barriers and bypass channels, carefully controlled sediment disposal methods, and full compliance with the provisions of the NWCO, the effects of the scheme on fish and bird habitat, public access and the quality of the environment would be minor.

*The Royal Forest & Bird Protection Society*

6.90 Several matters were raised by the submitter in relation to the ecology of the site. Many of these matters have been addressed in Dr Hale's, Mr Forbes' and Mr Compton-Moen's evidence. Further, many of the concerns are addressed and mitigated through the proposed conditions of consent attached to my evidence.

6.91 Meetings on site with Forest & Bird were beneficial for both the society and the applicant. Forest & Bird have had the opportunity to comment and input into the proposed planting plan and landscape and terrestrial ecology mitigation measures. Forest & Bird have indicated a willingness to assist the applicant with seed and cutting collection from the terrace area, and to assist with propagation of plants to provide for the mitigation planting proposed. This has been well received by the applicant. The society has indicated a desire to see a full survey of the site prior to the determination of these applications. The applicant has volunteered a full survey carried out by qualified parties prior to the commencement of works, the information from which would feed directly into the landscape management plan proposed.

- New Zealand Historic Places Trust (NZHPT)

6.92 Comment was received from the NZHPT seeking to uphold Section 6(f) of the Act as a matter of national importance to ensure *"the protection of historic heritage from inappropriate subdivision, use and development"*. The submission notes the voluntary adoption of an accidental discovery condition by the applicant, and requests that an advice note (included in the submission) is attached to the consent. The applicant is happy to do so, and the advice note is included in the conditions of consent volunteered by the applicant. The submission also notes an archaeological assessment was carried out in relation to the EA/BCI proposal, and has been adopted by the applicant. The submitter incorrectly notes that the report "does not represent the views of Te Runanga o Ngai Tahu, Arowhenua or Taumutu. The report was commissioned as a direct result of a request by the Runanga, and was completed by an archaeologist of Ngai Tahu's choice. On the basis of this report, both runanga provided EA/BCI with affected party approval.

## 7. KEY PROVISIONS, OBJECTIVES AND POLICIES

### National Policy Statements

- 7.1 Mr Small has presented evidence considering Central Government policies that promote renewable energy. In the context of his assessment, the ACWT proposal is consistent with the intent of these policies in that it proposes the use of a renewable resource in an efficient manner by taking water from the Rakaia in a sustainable manner and quantity, uses it to generate electricity through three power stations, and returns the water and sediment to the river where it is available for the aquatic health of the river and to downstream users.
- 7.2 The proposal is also consistent with the direction of the recently released National Policy Statement (NPS) *Proposed National Policy Statement for Renewable Electricity Generation*. The NPS sets a proposed objective and several policies to enable the management of renewable electricity generation under the RMA. The overall objective of the NPS is to recognise the national significance of renewable electricity generation by promoting the development, upgrading, maintenance and operation of new and existing generating activities such that 90 per cent of New Zealand's electricity will be generated from renewable sources by 2025.
- 7.3 The ACWT proposal is consistent with Policy 1 as it represents renewable generation at a regional scale that would avoid the discharge of green-house gas and enhance the security of supply at a local and regional level.
- 7.4 Policy 2 calls for decision makers to acknowledge the practical constraints in developing and operating new generation activities, with Policy 3 requiring decision makers to have regard to the reversibility of the scheme. In this instance, the scheme would represent a "reversible" generation activity as it is a run-of-the river scheme which could be "disconnected" from the river, and disestablished.

### Regional Policy Documents

- 7.5 I consider the key policy provisions to be the NWCO, the RPS, and the NRRP.

### *National Water Conservation Order*

- 7.6 The provisions of the NWCO limit the amount of water that can be taken from the Rakaia River by setting minimum flow rates and allocation limits. Water quantity provisions are included in the NWCO in Clause 7, with which the proposed take would comply.

7.7 As set out above, clause 9 requires that any discharges into the river must maintain the quality of the receiving water, and that no discharge can be allowed if it would breach the following standards:

- (c) *any discharge is to be substantially free from suspended solids, grease and oil;*
- (d) *after allowing for reasonable mixing of the discharge with the receiving water –*
  - (vii) *the natural water temperature shall not be changed by more than 3°C.*
  - (viii) *the acidity or alkalinity of the water as measured by the pH shall be within the ranges 6.5 to 8.3, except where due to natural causes.*
  - (ix) *the waters shall not be tainted so as to make them unpalatable, nor contain toxic substances to the extent that they are unsafe for consumption by humans or by farm animals, nor shall they emit objectionable odours.*
  - (x) *there shall be no destruction of natural aquatic life by reason of a concentration of toxic substances.*
  - (xi) *the natural colour and clarity of the water shall not be changed to a conspicuous extent.*
  - (xii) *the oxygen content in solution in the water shall not be reduced below 6mg/L.*
  - (vii) *based on not fewer than 5 samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the waters shall not exceed 200 per 100ml.*

The discharges proposed would consist simply of river water. The water would enter the scheme via the settling pond where most sediment (up to 95%) would settle out of suspension. Consequently, in most circumstances water from the pond is likely to have a lower turbidity than the natural river water. Since the canals would be lined to minimise sediment uplift, the quality of the water discharged back to the river via the Barrhill power station would be similar or better than the receiving water. I understand that water quality in the river would be maintained or improved by the scheme, thereby meeting the provisions of Clause 9.

7.8 Clause 10 explicitly states that the provisions of s.21(1)<sup>3</sup> of the Act relating to the use of water for domestic needs, the needs of animals and for, or in connection with fire fighting purposes are not limited by the NWCO. The proposed take, exercised in accordance with the minimum flows set by the NWCO, would not limit the ability of people or their communities to provide for themselves in respect of these matters.

#### *Regional Policy Statement*

7.9 The RPS was prepared in accordance with the Act and is the principal plan setting out the overall resource management framework for the Canterbury Region. In my opinion, the following provisions are relevant to the consideration of the applications:

RPS Chapter	Objective	Policy
Chapter 6 – Tangata Whenua		
Chapter 7 – Soils and Land Use	Objective 1(b)	Policy 2(b)
Chapter 8 – Landscape, Ecology and Heritage	Objectives 3 & 4	Policies 4 & 5

<sup>3</sup> Now sections 14(3)(b) and (e), *Restrictions relating to water*

Chapter 9 – Water	Objectives 1, 2 & 3	Policies 3,8 & 9
Chapter 10 – Beds of Rivers and Lakes and their Margins	Objectives 1, 2 & 3	Policies 1(c), 4, 5 & 6
Chapter 14 – Energy	Objective 1	Policy 1, 2 & 3

- 7.10 I consider the provisions relating to the water quality of the Rakaia River key to the consideration of the proposal. The provisions of the RPS seek to maintain or enhance the quality of surface water to maintain it as suitable for contact recreation, aquatic life, stock consumption, and amenity and iwi values. These provisions do not prohibit changes to water quality but require that any changes that do occur are minor in effect.
- 7.11 The relationship of iwi with the river is safeguarded through observing and operating within the restraints of the NWCO. In addition, the applicant has undertaken consultation with local iwi, who have raised no formal objections. The proposal is consistent with the provisions of Chapter 6.
- 7.12 Chapter 7 provides direction for the management of soils and land use. Objective 1(b) applies to this proposal, and is supported by Policy 2(b), which calls for activities that have the potential to result in adverse offsite effects from soil erosion to be mitigated. The construction methods and mitigation measures proposed by the applicant actively avoid the sedimentation of waterways, and will reinstate and re-vegetate disturbed land. Consequently the quality of land resources along the route, much of which is farm land, would be safeguarded. I consider the proposal would be consistent with the intent of these provisions.
- 7.13 Objectives 3 and 4 of Chapter 8 are relevant to matters of landscape, ecology and heritage, and are supported by policies 4 and 5. As described in the ecology evidence submitted by Mr Forbes, the scheme alignment is generally free of significant indigenous vegetation, habitat or heritage interests other than those areas identified downstream of Lowes Cutting. Objective 3 seeks the protection or enhancement of indigenous biodiversity, threatened and unusual species, and habitat. While some loss of indigenous vegetation is unavoidable in building the scheme, the objective would be met through the mitigation measures and additional planting proposed by Mr Forbes and Mr Compton-Moen. The intent of Policy 4 is also met, since the measures involve the identification and the enhancement and protection of these communities in the long term.
- 7.14 The assessment of avifauna habitat carried out by Dr Hale determined that adverse effects on river bird habitats in the riverbed and margins would be largely unaffected by the scheme, as the scheme largely avoids the riverbed, and where it interacts with the river would be timed to avoid impacting on river birds. Consequently, in my opinion the proposal would be consistent with these provisions.

7.15 The intent of Objective 4 and Policy 5 is achieved through ensuring through consultation that no historical or cultural heritage sites would be affected by the proposal, and by volunteering an accidental discovery condition.

7.16 Chapter 9 through Objective 1 and Policy 3 addresses the demand for water in Canterbury for different and often competing uses. Policy 3 in particular promotes the efficient use of water resources. Objective 2 seeks to enable *“present and future generations to gain cultural, social, recreational, economic and other benefits from use of land where it affects the flows and levels of Canterbury’s water bodies”*, and sets out matters which must be safeguarded while achieving these ends. This objective is supported by Policy 8, which states that:

*“Land use should not have the effect of reducing levels and flows to below those necessary to achieve Objective 2 or set as part of a water flow regime for a water body having particular regard to existing uses of that water body.”*

I understand the scheme will operate wholly within the provisions of the NWCO, and consequently would consider that the proposal is consistent with this policy, and the provisions of Objective 2.

7.17 Objective 3 seeks to enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from Canterbury’s water quality, and is supported by Policy 9 which relates to discharges to water. I understand that the scheme will not adversely affect the quality of the water in the Rakaia, either through interaction with the river, or discharges to it. I understand that the discharge of water and sediment would be similar to natural river conditions, returning only natural river water and sediment to the river. The quality of water discharged from the scheme would be similar to or better than natural water in river. In returning scheme water, and in operating within provisions of the NWCO, the quality of the river environment and the habitat for trout and salmon would be safeguarded. Consequently, I consider the proposal is consistent with the objectives and policies of Chapter 9.

7.18 Chapter 10 provides a policy framework to safeguard the beds and margins of rivers. Objective 1 seeks the protection and enhancement (where appropriate) of a number of matters, most relevant of which are natural character, significant natural features and landscapes, natural habitat, amenity and recreation values. Policy 1 promotes the identification and protection of conservation values, and Policy 1(c) in particular provides for land use activities to be undertaken in a way that avoids adversely affecting those values. Objective 2 is supported by Policies 4 and 5, and promotes the maintenance of the flood carrying capacity of rivers. Objective 3 and Policy 6 require activities to avoid adversely affecting the stability or performance of essential structures.

- 7.19 The scheme would primarily be located outside the riverbed and margins, mainly within farmland and scrubland. Most of the land within the bed and margins was found to have limited ecological value, and since works undertaken in these areas would be limited and subject to proposed conditions and mitigation measures, the effects would be minor. On this basis, I consider that the proposal would be consistent with these provisions.
- 7.20 Chapter 14 provides policy direction on Energy. Relevant to this proposal is Objective 1 supported by Policies 1 and 2, which promote a reduction of reliance on non-sustainable energy sources, preferring energy efficiently sourced from renewable sources, consistent with the sustainable management of natural and physical resources. In my opinion the proposal is consistent with these provisions. Policy 3 protects existing hydro-electric infrastructure, and as the scheme would operate alongside the existing Highbank scheme, the proposal is consistent with this policy also.
- 7.21 Overall, I consider that the scheme could be constructed and operated in a manner consistent with the relevant provisions of the RPS.

*Proposed Natural Resources Regional Plan*

- 7.22 The NRRP was notified in 2004 and most is currently being heard. While it is not yet an operative document, it is necessary to consider the proposal in respect of its provisions. Chapters 4 and 5 contain provisions seeking to safeguard Canterbury's water quality and quantity respectively. As a regional document, the NRRP must be consistent with national policy statements, and ensure that the provisions of the NWCO are not diminished by the provisions of the NRRP.

- NRRP Rules

- 7.23 Rule WQL56 of Chapter 4 – *Water Quality* applies to the proposed discharges where water and potentially some sediment is returned to the river. Of particular note is condition 4(b) which requires that outside of reasonable mixing, any discharge to the Rakaia River shall not result in the degradation of the quality of the receiving water to standards below those specified in the NWCO. As I have noted previously, I understand that the discharges proposed would not adversely affect water quality.
- 7.24 The relevant rule relating to the proposed use of water for hydro generation purposes is contained in Chapter 5 – *Water Quantity*. Rule WQN30 – *Using of water for hydro-electricity generation* provides for hydro generation as a discretionary activity, with ECan retaining full discretion. Under this Rule, ECan's discretion includes:

- *The effect on the values of rivers set out in Objective WQN1;*
- *The effect on the minimum flow regime;*

- *The effect on the allocation regime and the reliability of supply;*
- *The effect on existing takes and uses and on the reasonably foreseeable needs of future generations;*
- *Provisions for ensuring efficient use.*

7.25 These matters have been addressed by the applicant in the AEE and additional information, and have been discussed in evidence presented today. The scheme would be consistent with the values set out in Objective WQN1, would not adversely affect the minimum flow regime provided through the NWCO, and as the take would have the lowest priority, would not affect the existing allocation regime or reliability of supply to other users. Most of these matters are simply addressed by operating within the provisions of the NWCO. Using the Rakaia water to generate hydro-electricity through three generation stations before returning it to the river would represent an efficient use of water, and would maintain water in the river for the reasonably foreseeable needs of future generations.

- NRRP Objectives and Policies

In my opinion the following provisions are relevant:

<b>NRRP Chapter</b>	<b>Objective</b>	<b>Policy</b>
Chapter 3 – Air Quality	AQL1	Policy AQL6
Chapter 4 – Water Quality	WQL1.1(3) WQL2	Policy WQL1, WQL5, WQL6, WQL7, WQL8, WQL10
Chapter 5 – Water Quantity	WQN1, WQN4, WQN5	Policy WQN14, WQN16 and WQN17
Chapter 6 – Beds and Margins of Lakes and Rivers	BLR1, BLR2	BLR1, BLR2

- Chapter 3 – Air Quality

7.26 Objective AQL1 addresses localised discharges to air. It seeks the avoidance of significant adverse effects on the physical environment and iwi values. It is supported by Policy AQL6 which seeks the control of dust nuisance beyond the boundary of the site where it is generated through avoiding or mitigating adverse effects on sensitive receivers. The proposal is consistent with these provisions as, through implementing a dust management plan to be certified by ECan, the applicant will avoid generating dust where possible, and will otherwise mitigate dust effects through various methods (limited exposure, limited stockpiling, compaction, dampening, progressive re-vegetation etc.).

7.27 Dust from the site would not be corrosive, generate objectionable odours or result in any of the other effects listed in NRRP Objective AQL1. The activity would in fact be consistent with NRRP Objective AQL1 and Policy AQL6. The use of standard mitigation measures, the physical nature of the setting, and the relatively short duration of dust generating activities in any one location would limit off-site effects. In my opinion the proposal would be consistent with the Air Quality provisions.

- Chapter 4 – Water Quality

7.28 Objective WQL1.1(3) applies to the maintenance of water quality in rivers affected by a change in flow regime by human activity. The objective requires that the existing instream values are safeguarded. This is supported by Policy WQL1, which applies to point source discharges. The policy considers the zone of mixing, the capacity of receiving waters, barriers to fish migration, sedimentation, and Ngai Tahu values. Once operational, the scheme would discharge water taken from the Rakaia River, returning it to the river below the Highbank and Barrhill power stations. It would follow then that any adverse effects on water quality and associated habitats at, or downstream from the point of discharge would be minor. If the quality of the water discharged from the scheme was the same or better than the quality of the water taken into the system, the discharges from the scheme would be consistent with these provisions.

7.29 The Rakaia River's instream values are protected by the provisions of the NWCO. The use of water for hydro generation purposes would not significantly deteriorate the quality of the water taken for generation, and would not result in significant changes to the quality of the river or instream environment.

7.30 Policy WQL5 addresses the management of riparian margins, seeking to improve or maintain the quality of the adjacent waterbody. In this instance, with the implementation of erosion and sediment control measures, the relatively low gradient of the adjacent land, and the general separation of the construction area from the Rakaia River, the water quality would be maintained.

7.31 Objective WQL2 seeks to maintain the quality of groundwater in unconfined or semi-confined aquifers such as underlay the scheme location. The application of measures such as dewatering and appropriate sediment and erosion controls can adequately avoid groundwater contamination from construction activities if carried out appropriately. The objective is supported by policies WQL6 – 8 and WQL10, all of which seek to protect groundwater quality. The proposal would be consistent with these matters in light of the management of construction effects proposed. In my opinion the proposal would be consistent with the above provisions.

- Chapter 5 – Water Quantity

7.32 Objective WQN1 seeks to enable present and future generations to use water resources to *"gain cultural, social, recreational, economic and other benefits"* while safeguarding in-stream values. The supporting policies apply to the natural state and high naturalness waterbodies identified in the policies. The Rakaia River is not one of the waterbodies listed, as it protected by the NWCO flow

regime. Simply through observing the provisions of the Order, objectives (a) to (h) of WQN1 would be met. The proposal would be consistent with Objective WQN1.

7.33 The key provision of this chapter is Objective WQN4:

▪ *Allocation of the Available Water Resource:*

(1) *The available water is allocated in ways that enables communities to maximise their social, economic and cultural wellbeing, and their health and safety.*

(2) *Allocation regimes are established that identify at least one allocation block within which the reliability of supply of water does not become a factor that limits the long-term economic viability of uses that are dependent on that block of water.*

7.34 The explanation to this objective notes the reliance of people and communities on access to water resources, and requires ECan to take the wider community benefits of access to surface water resources into consideration.

7.35 Clause 1 of policy WQN14 notes that the flow regimes of water conservation orders shall be applied on rivers where these regimes are in place, with Policy WQN16 requiring that abstraction be measured and recorded.

7.36 The informal allocation regime on the Rakaia (the NWCO and priority banding) provides the community with access to the water resource, and allows the use of water for community benefit as long as the values identified in the NWCO are protected. The proposed water take would observe the limits of the NWCO, and could include the measurement, recording and co-ordination of abstracted flows as conditions of consent. Consequently I consider that the take would be consistent with objective WQN4 and the relevant associated policies.

7.37 Objective WQN5 requires water use to be efficient *“in terms of resource availability and the use of water”*. This is supported by Policy WQN17, the relevant provisions of which are;

(1) *Ensure that the instantaneous rate of abstraction, the return period and the annual volume of water permits for taking, diverting and using of water are no more than reasonable for the intended end use, and thereby avoid significant wastage of water and avoid or limit the adverse effect on water quality*  
.....

(7) *Promote the use of water audits for agricultural, industrial, hydro electricity and community water supply activities to identify areas for improvements in water use efficiency.*

7.38 The volume of the proposed take is not unreasonable in respect of allocation understood to be available, the proposed use (hydro-generation) and the return of the water to the river. Any effect of the operation on water quality would be minor. The water take and its use would be monitored and

recorded to ensure that the resource is taken and used efficiently and in accordance with any applicable restrictions. Clause (7) clearly anticipates the use of the water for hydro-generation, and promotes its efficiency. The proposed water take would be used to the social and economic benefit of the wider community before being returned to the river without significant adverse effects on the river's values, achieving the intent of Objective WQN5 and supporting policies.

7.39 In my opinion, the proposal to abstract water from the Rakaia River, use it to generate electricity and return it to the river is consistent with the relevant objectives and policies of Chapters 4 and 5 of the NRRP.

- Chapter 6 – Beds and Margins of Lakes and Rivers

7.40 Objective BLR1 is a key objective in the consideration of this application. It addresses activities within the beds and margins of rivers, with an emphasis on the protection of flood carrying capacities, the stability of banks and structures, outstanding natural features and landscapes, indigenous vegetation and habitat, sediment transport regimes, and the habitat of salmon and trout. It also promotes the maintenance and enhancement of amenity values, the minimisation of weed spread, and provision for iwi values.

7.41 Several of these matters have been addressed in earlier evidence, or in discussion around other objectives or policies. In each case I have found the proposal consistent with the relevant matters. The achievement of objective BLR1 is generally not compromised by this proposal, largely since the majority of the scheme lies outside the bed and margins of the Rakaia. Flood carrying capacity and riverbed and bank stability would not be compromised, and there would be minimal loss or degradation of indigenous vegetation, trout or salmon habitat. The spread of pest plants in the riverbed via construction works can be minimised through good practice, and required through conditions of consent. The relationship of iwi with the river is provided for by observing the provisions of the NWCO.

7.42 In Mr Compton-Moen's evidence he examined the effects of the proposal on the natural character, features and landscapes of the site and the vicinity, and visual and landscape amenity, and concluded that while there is likely to be a significant short term effect during construction, and until re-vegetated areas mature, the long term effect on these values would be minor. While amenity values would not be maintained in the short term during and immediately following construction, the operation of the scheme is unlikely to significantly affect amenity values long term through effects such as noise and dust.

- 7.43 Objectives (d) and (e) relate to the preservation of natural character and the protection of outstanding natural features and landscapes. These matters have also been dealt with by Mr Compton-Moen, and I consider them further in my assessment of Part II of the RMA. Overall, I consider that the proposal is not inconsistent with the provisions of Objective BLR1, or supporting policy BLR1.
- 7.44 Objective BLR2 seeks to avoid disruption to indigenous bird breeding areas, fauna and vegetation habitat. This is supported by Policy BLR2 which promotes the avoidance of activities that disturb nesting sites, damage areas of significant fauna or flora, or conflict with other activities *"to the extent practicable"*. This objective and policy are achieved in part since the scheme is largely outside the riverbed, and only interfaces with it on a limited basis at key locations. Regardless, some adverse effect of the scheme on bird breeding, indigenous vegetation and fauna, and recreational activities are to some extent unavoidable. To achieve the intent of this policy, activities in the beds and margins of riverbeds need to *"avoid to the extent practicable"* adverse effects on these aspects of the environment. No significant indigenous vegetation was observed in the riverbed.
- 7.45 The proposal would avoid adverse effects as disruption to the riverbed and margins would be largely avoided. Most disruption would occur during the construction period. Once the scheme was operational disruption would stem only from the maintenance of the river intake, discharge points, and sediment disposal on the river-flat. Dr Hale concluded that direct adverse effects on birds and nesting areas on the river bed could be avoided. I understand however that adverse effects could be further reduced through sediment alternative methods or locations of sediment disposal.
- 7.46 Overall, I find the proposal to be generally consistent with the relevant objectives and policies of the NRRP.

#### **ASHBURTON DISTRICT PLAN**

- 7.47 The Ashburton District Plan (District Plan) was made operative on 8 October 2001. The site lies within the Rural B zone of the District Plan. The District Plan has been prepared such that it is not be inconsistent with the relevant Regional provisions.
- District Plan Rules
- 7.48 Part 6.7 of the District Plan contains the Utilities Rules, which take precedence over any other rules that may apply to utilities. The proposed scheme falls within the definition of a utility under the District Plan, as it consists of *"facilities, structures and works necessary for, incidental to and associated with providing the generation and transmission of energy"*. As the scheme is not

specifically listed as a permitted, controlled or discretionary activity, it falls to be considered as a discretionary activity under Rule 6.7.1.4(e).

- District Plan Objectives and Policies

7.49 The relevant objectives and policies are attached to my evidence as Appendix C In my opinion the following provisions apply to the consideration of this proposal:

District Plan Section	Objective	Policy
Utilities – Section 3.9	3.9.3.1 – Objective 1	3.9.3.2(1),(2) & (6)
	3.9.3.7 – Objective 3	3.9.3.8(3), (4), (5) & (7)
Natural Environment – Section 3.1	3.1.3.1 – Objectives 1-3	3.1.3.2(4), (6), (10), (17), (26)
Landscape Values – Section 3.1	3.1.3.5 – Objectives 5 & 6	

- Utilities

7.50 Objective 1 (Part 3.9.3.1) seeks to ensure utilities have minimal effect on amenity and the surrounding environment. This is supported by Policy 3.9.3.2(1), with 3.9.3.2(2) seeking to protect outstanding and significant landscapes, amongst other things, from visually and environmentally incompatible utilities.

7.51 The most significant visual and environmental effects would be likely during the construction period. Many of these matters have been addressed earlier in evidence presented by Mr Compton-Moen and myself. The applicant has proposed measures to control and mitigate the extent, duration and significance of the anticipated effects. Further certainty can be provided by conditions of consent. It would be expected however that following the construction period, much of the area disturbed by works would return to prior form, such that overall the construction would have only a minor long-term effect on habitat or vegetation. The studies carried out by Mr Ward, Mr Forbes and Dr Hale confirm that the effects of the scheme on the quality of the habitat in the surrounding area would be minor, or would be adequately avoided, remedied or mitigated.

7.52 Mr Compton-Moen concluded that as the river intake structure, settling pond, Highbank Canal and drop structures, and infrastructure around the Highbank Power Station are all well screened from off-site positions, the visual effects would largely be contained by existing riverside vegetation, re-vegetation of disturbed areas and the scale of the setting. The ACWT infrastructure around the Highbank Power Station would be established in the context of an already industrial setting, would not be seen from public off-site locations, and would not be visually intrusive. On this basis I conclude that the minor effects of the scheme on the natural and physical environment and visual amenity would be consistent with Objective 1.

- 7.53 The start of the Terrace Canal would also be screened by existing vegetation, though to a diminishing degree as it climbs the terrace face. This section of the scheme would rely on the successful reestablishment of vegetation to replace that lost through construction, and visually to mitigate the visual impact. Mr Compton-Moen concludes that as long as the re-vegetation programme is successful and is maintained, the effect on visual amenity would be minor. I accept the expert opinion of Mr Compton-Moen in this respect, and consider that the effects of the proposal would be minor in the long term.
- 7.54 Accordingly, I consider the proposal to be generally consistent with Objective 1 and supporting policies.
- 7.55 Objective 3 seeks to enable the efficient establishment, use and maintenance of utilities that are necessary for the well-being of the community. I consider hydro-generation utilities to fall within that category. The supporting policies relate to recognising and providing for established utilities, considering the co-location of infrastructure, balancing the effects of a utility with the benefits to the community, and encouraging efficient utilities that are compatible with their physical settings.
- 7.56 The scheme design takes into account the existing Highbank Power Station and related infrastructure. The ACWT scheme would be established and operated within Highbank's operational constraints to ensure it continues to operate to the fullest extent. I understand that the long term function and efficiency of Highbank would not be compromised, and note that any works undertaken that would affect TrustPower land or assets could only be undertaken with their prior approval. The scheme also avoids adverse effects on other assets and infrastructure owned by other submitters.
- 7.57 The ACWT scheme would significantly overlap with the EA/BCI scheme. If the EA/BCI scheme was commissioned first then it is envisaged that the two operators would share common infrastructure and, in effect, combine the two schemes. This would be achieved while upholding the conditions of consents issued to EA/BCI which would further allow for efficiencies through co-located infrastructure. Similar efficiencies are also achieved through the proposal to combine the discharge of the RDRML and TrustPower operation with the EA/BCI / ACWT scheme.
- 7.58 Mr Compton-Moen has assessed the compatibility of the scheme's structures with the physical setting and the natural landscape as appropriate, subject to mitigation measures, and found that the effect long term would be minor. In the context of Mr Compton-Moen's conclusions, I consider that the proposal is consistent with Utilities Objective 3 and supporting policies.

- Nature Conservation Values

7.59 Nature conservation Objectives 1 and 2 seek to protect indigenous biodiversity and ecosystems within Ashburton District, and the remaining natural character of the District's rivers, margins and wetlands. The relevant supporting policies aim to avoid, remedy or mitigate adverse effects on ecology and habitat values, indigenous vegetation, natural character and significant nature conservation values. These values and their maintenance have been discussed in evidence presented by Mr Forbes, Mr Compton-Moen and Dr Hale, who concluded that the scheme would not result in significant adverse effects on these aspects of the physical environment. This is particularly since the scheme would largely be removed from the Rakaia River, and would be subject to a suite of measures and consent conditions that would avoid, mitigate or remedy adverse effects on ecological and habitat values. On the basis of these conclusions, I consider that the proposal is consistent with these objectives and policies.

- Landscape Values

7.60 The District Plan contains objectives relating to the protection of the character and values of the outstanding and significant landscapes in the District, and the natural character of rivers and their margins. Outstanding natural landscapes are identified in Appendix 10 of the District Plan. No areas below the Rakaia Gorge are identified. The policies contained in Part 3.1.3.6 supporting the landscape objectives relate to the District's High Country, and are not relevant to this proposal. Consequently, the proposal is not inconsistent with the landscape provisions.

7.61 Having assessed the objectives and policies of the relevant sections, I am of the opinion that the proposal is consistent with the relevant objectives and policies of the Ashburton District Plan.

## **8. OFFICERS REPORTS**

8.1 Comprehensive reports have been prepared in accordance with s.42A RMA by representatives of ECan and the ADC. These were received by the applicant in early September. I note that both reports appear to draw heavily on the context provided by the approval of the EA/BCI scheme earlier this year. Both reports accurately describe the proposal.

### **ECan Report**

8.2 The report for ECan was prepared by Ms Keri Johnston. I agree with Ms Johnston's statutory assessment and her identification of the relevant objectives and policies. Ms Johnston accurately notes that the consent applications before the Commissioners are related to the use of water for

hydro-generation, and for the construction, operation and maintenance of the scheme. She also notes that the proposed hydro-generation use is consistent with s.7(b) and (j) of the RMA.

- 8.3 Ms Johnston notes throughout her report that, in the main the application and supporting documentation address the anticipated effects, makes an accurate assessment of those effects, and offers appropriate and effective mitigation measures to ensure that the environmental effects would be minor. Generally, where Ms Johnston seeks further information or assessment, she has provided a suite of recommended consent conditions that she concludes, if applied would adequately address the effects of the proposal anyway, and ensure the effects would be minor.
- 8.4 The applicant has recommended an alternative suite of conditions (Appendix B) that comprehensively addresses the likely effects of the proposal. This suite of conditions is particularly recommended as it includes a number of conditions agreed to with key stakeholders, landowners and affected parties. However, the condition set largely incorporates all the conditions proposed by Ms Johnston.
- 8.5 Ms Johnston finds most of the issues are adequately addressed by the applicant, and that other matters can be appropriately addressed through the consent conditions she recommends. However, and somewhat contradictory to her conclusions in paragraph 329 that the adverse effects of the proposal can be *"adequately avoided, remedied or mitigated"*, Ms Johnston finds she is unable to recommend granting the applications unless the matters raised in her report are addressed. The matters raised by Ms Johnston include concerns regarding the effects of the discharges from the modified Highbank tailrace, and the proposed Barrhill power station. Ms Johnston is concerned that the effects on the Rakaia's flow regime and on river users have not been considered.
- 8.6 Mr Borrie has satisfactorily addressed this in his evidence, and Mr Borrie, Mr Woods and Dr Rowe address the effects on and of suspended sediment, river flow regimes, discharges and aquatic ecology. The effects of the proposal on the Highbank tailrace discharge are addressed by Mr Woods, who also provides information on dust mitigation, erosion and sediment control, and stormwater management through the Construction Effects Report appended to his evidence. This assessment shows that the effects of the activity would be minor, and that the proposal is consistent with the relevant regional objectives and policies. I would consider that the information and assessment Ms Johnston seeks has now been provided in full, such that she may now be able to make a recommendation as to the grant of consent.

## ADC Report

- 8.7 The report for the ADC was prepared by Ms Patricia Harte, with expert opinion on terrestrial ecology and landscape effects provided by Dr Vaughn Keesing and Mr John Clemens respectively. Ms Harte accurately summarises the proposal, and identifies the relevant objectives and policies. I would clarify however that no consents for irrigation activities have been sought by the applicant.
- 8.8 While Ms Harte raises some concerns around the completeness of the proposal, I consider that many of the information "gaps" identified by Ms Harte have been adequately addressed in evidence presented for the applicant. Overall, Ms Harte's report appears relatively positive aside from significant concerns centred around the opinions of Dr Keesing and Mr Clemens.
- 8.9 In respect of the minor matters Ms Harte raises, I would make the following comments:

- *Recreational access;*

Ms Harte is concerned that existing public recreational access to the Rakaia River may be diminished by the scheme, particularly where the proposed canal would cross public roads or existing informal accesses. I would note that all existing public access would be retained and provided for by the applicant. Any closure of access across private land is at the discretion of the landowner, and in my opinion is beyond the scope of the Commissioners to consider.

- *Public safety;*

Matters of public safety during the construction and operation of the scheme are addressed under other legislation to which the applicant must adhere. All reasonable measures to ensure public safety would be undertaken as necessary by the applicant or their agents. This would include the provision of signage at key river access locations or near the intake, fencing and audible warnings prior to discharges.

- *Land stability;*

The detailed design of the proposal would need to take into consideration all aspects of engineering that are necessary for a scheme of this nature. This includes the design and review being undertaken by appropriately qualified people, and adequate measures taken as necessary to ensure land stability at all times.

- *TPL and landowner access;*

The applicant has consulted with private landowners affected by the scheme to ensure the proposal is fully understood and to as far as possible take into account any landowner concerns in the

resource consent process. This process has also allowed the applicant to identify as far as possible any particular access and existing infrastructure issues.

- *Ability to grant consents without landowner approval;*

The RMA does not require all landowners to agree to a proposal before consent for that proposal can be issued – such matters are often addressed through the notification process, but do not prevent the issue of consent. Even if consent is granted, a resource consent does not in itself infer rights for the applicant over the private property of others. The applicant has actively engaged with landowners during consultation with the aim of addressing any matters of concern and accepts that it will need to address access in more detail prior to constructing the scheme.

- *Roading / traffic effects;*

No aspect of the proposal requires resource consent to use public roads where there is a public right of passage. Traffic effects similar to those discussed by Ms Harte could occur from a permitted activity, or activities allowed by consent in other locations in the District. I consider this is only peripheral to the Commissioners consideration, though in any event would expect any traffic effects to be intermittent and temporary.

### **Terrestrial Ecology**

8.10 Ms Harte has correctly relied on the opinions of Dr Keesing in respect of the potential effects on terrestrial ecology. Dr Keesing raised significant concerns regarding the approach and recommendations of Mr Forbes. I note that Mr Forbes has spent some time on the site undertaking his investigations, but other than the drive-through site visit on which I accompanied Dr Keesing, I am unaware of any site investigations carried out by Dr Keesing.

8.11 The site assessment carried out by Mr Forbes is described in detail in his reports and evidence, and it is on this and his professional experience and knowledge that he bases his expert opinion. I have no expertise in this field and rely entirely on Mr Forbes' opinion. I have no reason to believe that this is deficient in any way, and accept his recommendation that the mitigation measures he proposes will be adequate to achieve long term a net environmental gain in respect of the quality and area of indigenous habitat.

### **Landscape Effects**

8.12 Ms Harte has also relied on the opinions of Mr Clemens in regard to the effects on landscape. Mr Clemens notes that the mitigation measures proposed by Mr Compton-Moen will result in effects

that are generally minor, and even recommends some additional measures. He then considers that the effects on natural character would be significant regardless of those measures.

- 8.13 In Mr Compton-Moen's expert opinion, the effects of the proposal will generally be minor along most of the scheme because of the limited vantage points, the "out of river" position of the scheme, its physical composition, and the existing influence of the Highbank Power Station. The scheme would have most effects along the Terrace Canal, and Mr Compton-Moen considers this can be adequately mitigated in the long term. I again have no expertise in this field, and accordingly I accept Mr Compton-Moen's opinion and recommended mitigation measures.
- 8.14 In considering the opinions of Dr Keesing and Mr Clemens, I would raise to the Commissioner's attention that the land on which the proposal would be located lies entirely within Rural B zoned private land (i.e. is not within a site of significant nature conservation value). I note that the District Plan provides for a number of land use activities within such zones, and that subject to compliance with Site Standards, forestry activities are a permitted activity. The only Site Standard that would apply to forestry activities in *this* instance may be rule 7.6.5.1.16 *General Indigenous Vegetation Clearance*. This rule allows for the clearance of up to 5000m<sup>2</sup> of indigenous vegetation in a five year period. Even if this rule applies (due to the scattered nature of indigenous vegetation over the terrace it is difficult to determine the actual area it covers), in my interpretation, a landowner could plant up to 5000m<sup>2</sup> of plantation forest on the terrace face every five years *as of right* despite the presence of the species noted, as the District Plan does not currently appear to otherwise protect this vegetation. In light of this, the extensive planting proposed by the applicant would in fact substantially enhance the quality and quantity of the indigenous vegetation and habitat along the Terrace Canal (over time), not only by enhancing and protecting plant populations, but by precluding permitted forestry activities.
- 8.15 Ms Harte bases her assessment of the objectives and policies on the advice she has received from Dr Keesing and Mr Clemens, and finds the proposal inconsistent with these matters. I have based my policy assessment on the basis of the expert opinions of Mr Forbes and Mr Compton-Moen, and find the proposal to be consistent for the reasons discussed in Part 7 of my report.
- 8.16 The applicant has recommended an alternative suite of conditions from those of Ms Harte's (Appendix B) that draws heavily on the conditions issued on consents to EA, and includes a number of conditions agreed to with key stakeholders, landowners and affected parties. These conditions incorporate those proposed by Ms Harte.

## 9 OTHER MATTERS

### Alternatives

- 9.1 The Fourth Schedule of the RMA states that *“Where it is likely that an activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity”* should be included in an assessment of the environmental effects. Alternative locations for the take and hydro scheme were considered prior to lodging applications for consent. The proposed site was selected as it represents the best practicable option available to maximise the economic and operational benefits, maximise the efficiency of use for hydro generation, and minimise the scale, nature and degree of adverse effects on the environment.

## 10. THE RESOURCE MANAGEMENT ACT 1991

### Part II

- 10.1 An analysis of Part II is necessary to assess whether the proposal meets the purpose of the RMA. Part II includes:
- *Section 5: Purpose;*
  - *Section 6: Matters of National Importance;*
  - *Section 7: Other Matters;*
  - *Section 8: Treaty of Waitangi.*

Section 5 contains the single purpose of the RMA. In undertaking this analysis, I note that Sections 6 – 8 are subordinate to Section 5. Accordingly, I have considered s.6 – 8 first and then returned to s.5 to come to an overall conclusion.

### Section 6

- 10.2 Section 6 identifies matters of national importance to be recognised and provided for in achieving the purpose of the Act.
- 10.3 Section 6(a) requires the preservation of the natural character of coastal and river margins to be recognised and provided for. The preservation of natural character is not to be achieved at all costs, but within the context of the appropriate “use and development” of physical resources. The preservation of natural character is subordinate to the promotion of sustainable management, and the requirement to *“recognise and provide for”* is not an absolute imperative that overrides other

objectives of the RMA. Section 6(a) is limited in its application to rivers and their margins, defined as including the riparian zone.

- 10.4 The natural character of a river would arguably be affected if the river and / or riparian zone were impacted in some way. It must be assumed to some degree therefore that the natural character of the river would be safeguarded in this case by observing the NWCO provisions that have been put in place for that very purpose. That aside, almost all of the scheme would occur outside of the river, and would consequently have very little effect on the river in terms of this section. The “protection” of the river from “inappropriate” use and development therefore may be achieved in this case.
- 10.5 Section 6(b) provides for the protection of outstanding natural features. The scheme would operate wholly within the parameters of the NWCO, so in meeting those provisions it must therefore *“recognise and provide for”* the outstanding values of the river. The “use” of the water would take place primarily landward of the riparian margin, largely avoiding direct infrastructure impacts on the outstanding natural features of the river. There is some potential however for adverse effects at points where the scheme contacts the river, such as the intake and discharge points. By implementing sympathetic design, the impacts of these scheme components could be mitigated such that the effects would be minor. This could be guided by conditions of consent.
- 10.6 Section 6(c) provides for the protection of areas of significant indigenous vegetation and the habitats of indigenous fauna. Mr Forbes located some areas of significant indigenous vegetation that would be lost should the scheme be constructed. It was noted that much of the indigenous vegetation is currently of limited value, and is competing with uncontrolled noxious weeds, and stock grazing in parts. In applying the mitigation measures and the planting and management regime proposed however, I understand that in the long-term a net environmental benefit in terms of indigenous biodiversity and habitat would be realised.
- 10.7 Section 6(d) provides for the *“maintenance and enhancement of public access to and along . . . rivers”*; and aside from possible temporary closure of some areas of riverbed and margins during construction, I understand that existing legal public access to and along the river would be maintained, recognised and provided for.
- 10.8 Section 6(e) requires the relationship of Maori with ancestral lands, water, sites, wahi tapu and other taonga to be recognised and provided for. The applicant has undertaken consultation with local runanga, and has actively engaged in discussions. No sites of cultural or heritage interest were noted on the Ashburton District Plan Planning Maps. An archaeological assessment was previously carried out by Electricity Ashburton over the upper part of the area upstream of the Highbank Power Station, at the request of Ngai Tahu. This report was made available to the

applicant, and has previously been provided to the District Council, and confirms there are no items or locations of interest to local runanga. The applicant has recognised and provided for their obligations under this section of the RMA.

## Section 7

- 10.9 Section 7 identifies matters to which particular regard shall be had in exercising functions and powers under the Act.
- 10.10 Section 7(b) requires regard to be had to the efficient use of resources. The discretionary status afforded to the consents applied for suggests the use of the water resource is anticipated by statute, at least in part, and could therefore be considered efficient and appropriate. In my view the proposal to use water that is "surplus" (in the sense that abstraction to NWCO levels provides for the health and quality of the river) while protecting the values of the river, the community and the environment represents an efficient use of the resource. Such use for hydro-generation purposes could be achieved sustainably, achieving the primary purpose of the Act.
- 10.11 Sections 7(c), (d), (f) and (h) are inter-related. By safeguarding the quality of the environment (7(f)), amenity values can be maintained (7(c)), the intrinsic values of ecosystems safeguarded (7(d)), and the habitat of salmon and trout protected (7(h)). By adhering to the provisions of the NWCO, the mitigation measures proposed, and using the water for hydro purposes before returning it to the river, the quality of the wider Rakaia River environment could be suitably maintained. In turn, the quality of the surface water, river and riparian environments, and the habitat and wellbeing of salmon and trout would be safeguarded. Conditions of consent could be imposed in respect of design criteria to minimise adverse effects on amenity, environmental and ecosystem quality, and aquatic habitat. In my opinion, the scheme could be undertaken in a manner that achieves an appropriate environmental outcome, having regard to the matters above.
- 10.12 Section 7(g) refers to the finite characteristics of natural and physical resources, tying in with s.7(j), which requires consideration of the benefits derived from the use and development of renewable resources. The water from the Rakaia is considered a renewable resource, and would be used in the ACWT scheme in a non-consumptive manner. The benefits of generating electricity through sustainable means include the potential displacement of future reliance on non-renewable generation, with follow-on implications for climate change (s.7(i)). This ties back to the proposed NPS on renewable electricity generation, in the context of which the scheme could be considered to be reversible, and a reliable source of locally generated energy.

10.13 In my opinion the proposal sits comfortably in the context of section 7 of the Act.

### Section 8

10.14 The applicant has taken into account the principles of the Treaty of Waitangi through consultation undertaken with local runanga, and in adopting an accidental discovery condition should items of potential spiritual or cultural value be disturbed or discovered during works. Further, the applications to take and use the water in the manner proposed have been publicly notified, with notice served directly on all affected runanga. One submission to ECan was received from Ngai Tahu-Mamoe Fisher People Inc., opposed on the basis of rights of access to the water resource.

### Section 5

10.15 The primary purpose of the Act is to *enable* the use and development of natural and physical resources in a sustainable manner, as long as social, economic, cultural and environmental matters are not adversely affected to more than a minor degree.

10.16 Weight and proportion are key in determining whether the purpose of the Act is achieved in this instance. The proposal sits comfortably in the context of the district and regional statutory plans, and the relevant rules, objectives and policies. It complies with the provisions of the NWCO, and goes some way toward achieving the intent of national renewable energy policies. The cost is likely to be reflected in the effect on the physical environment, on the community and on individuals enjoyment of the setting. A long term view should be taken of the effects, bearing in mind that the RMA is not a “no effects” statute, but anticipates some degree of effect in using and developing natural resources.

10.17 In this instance, the applicant has undertaken to adopt a number of mitigation measures, management plans, and conditions of consent to provide adequate comfort in the degree of effect and the quality of the environmental outcome. Taking available water from the Rakaia in accordance with the NWCO, and using it to generate electricity before returning it to the river could, in my opinion achieve the environmentally sustainable and efficient use of the renewable water resources of the Rakaia. This would achieve the purpose of s.5 if it is undertaken in a manner that sustains the life supporting capacity of the air, water, soil and associated ecosystems while avoiding, remedying or mitigating significant adverse effects.

## Section 104B

- 10.18 Section 104B applies as the application suite holds a discretionary status, such that the applications may be granted or refused, and if granted may include conditions.

## Section 107

- 10.19 Section 107 applies in relation to the determination of the discharge applications, prohibiting the granting of an application if it would contravene s.15 or 15A in respect of discharges of water and / or sediment to water or land. The key to this section is avoiding the effects noted in clauses 1(c) to (g) *"after reasonable mixing"*. These effects are very similar to those in Clause 9 of the NWCO. Discharges that will contravene s.15 or 15A can be granted under s.107(2) if the Commissioners are satisfied the discharges are temporary, or are associated with necessary maintenance work. However, in this instance the construction phase discharges would be to land, or to water following treatment. Operational discharges are unlikely to contain sediment or contaminants that are elevated above levels in the natural river. Consequently, I am of the opinion that the discharge consents sought would comply with s.15 and 15A and can therefore be granted.

## 11. CONCLUSION

- 11.1 I have reviewed the information submitted with the application and in response to further information requested by the ADC, and prepared by the expert witnesses who have presented to this hearing. On the basis of this information, I consider that the adverse effects of taking, diverting, using and discharging Rakaia River water in the proposed scheme would be minor provided that all construction, maintenance and operations are carried out within the parameters of the NWCO, and in accordance with the recommended mitigation measures, management plans and procedures.
- 11.2 In my opinion, the proposal could be carried out in a manner that would not contravene the relevant objectives and policies of the relevant statutory plans and documents. I am satisfied that granting the consents applied for would be consistent with the provisions of Part II of the Act and would achieve the purpose of the Act subject to conditions imposed under s.108.

Dated: 15 September 2008

**Janan Dunning, Environmental Planner**  
**MWH New Zealand Limited**

## Appendix A: Terrestrial Ecology – Letter Report Addendum

## Appendix B: Recommended Conditions of Consent