

**IN THE MATTER
AND
IN THE MATTER**

of the Resource Management Act 1991

of the hearing of applications by **Ashburton Community Water Trust** to Canterbury Regional Council and Ashburton District Council for resource consents in respect of the Rakaia Terrace Hydro Scheme – Intake, Canal and Power Stations. True left bank of the Rakaia River, 5km east of the Gorge Bridge to 3.2km west of Barrhill.

Statement of Evidence of Matthew William Bonis

Introduction

1. I am an Associate Planner of a planning consultancy based in Christchurch. I am a member of the New Zealand Planning Institute. I have been employed in the practice of planning and resource management for 12 years both in New Zealand and the UK.
2. My qualifications include a Bachelor of Resource and Environmental Planning, with Honours, from Massey University.
3. I began resource management practice in 1994. My first position was as a graduate planner at the New Plymouth District Council until 1997. I then worked for 18 months at a Planning Consultancy in Winchester, England, before returning to New Zealand in 2000. Subsequently, I worked for the Christchurch City Council as a senior planner until 2005, and then joined Planit RW Batty and Associates Ltd.
4. My background experience in the provision of planning assessments for large infrastructure projects includes:
 - Dibden Bay Container Port Assessment, Southampton – UK 1999.
 - AMI Stadium AEE and Application 2007.
 - Arnold River HEPS Application Review, s92 response and Applicant conditions. TrustPower, 2007.

- Electricity Ashburton, Barrhill Chertsey Scheme Intake and Primary Canal. Planning evidence on behalf of TrustPower Ltd, 2008.
5. I am familiar with the application site and surrounds, as well as the relevant consenting history that precedes this proposal.
 6. I have read, and agree to comply with, the Code of Conduct for Environment Court witnesses, and have prepared my evidence in accordance with those rules.

Summary of Evidence

7. I have been requested to present the following evidence by **TrustPower Limited ('TPL')**, in relation to their submission in opposition to the applications by **Ashburton Community Water Trust ('ACWT')**. The ACWT applications are before both the Canterbury Regional Council and Ashburton District Council for resource consents in respect of the Rakaia Terrace Hydro Scheme.
8. I have reviewed the application and supporting material, including both the May 2007 and May 2008 assessments, as well as responses by the applicant to further information requests as dated March and May 2008. I acknowledge that the arrangements for this proposal involving the application and other parties are complicated, as is the application and its further amended assessment as highlighted in the RFI responses and evidence tabled on behalf of ACWT at this hearing. As such, I consider that the proposal has created a number of challenges to submitters, including TPL and its representatives in attempting to ascertain: the exact details of the proposal; its consequential implications for the receiving environment; and the ability to impose conditions to alleviate any residual adverse effects.
9. I have considered the written evidence of the investigating officer's prepared by Environment Canterbury (Ms K Johnston), and the Ashburton District Council (Ms P Harfe) relating to these applications. I will refer to these later in this evidence. I have reviewed the provisions of the statutory documents relevant to Section 104 of the Act, albeit as narrowed to those points submitted on by TPL in relation to the scheme.
10. My assessment in this matter has relied on material from a number of experts on behalf of TrustPower Ltd, these include:
 - Dr Richard Allibone, Aquatic Ecologist – Golder Associates;
 - Mr Graham Levy, Water Resources Engineer – Beca Infrastructure; and
 - Mr Ian Lees, Production Manager – TrustPower Ltd.
11. Part II of the Act, and indeed its overall framework, provides for the integrated and sustainable management of natural and physical resources (my emphasis), and the consideration of the effects of their use, development or protection (refer sections 5, 30 and 31 of the Act), so as to enable them to meet the foreseeable needs of existing and future people and communities.

12. The current 'natural' resources and amenities of the Rakai River have evolved over the past 60 years since the Highbank HEPS was commissioned on 8 June 1945.
13. I acknowledge that the effects on these natural resources incorporate the suite of consents granted, but not given effect to, including the Barrhill Chertsey Irrigation Limited ('BCI') consents in 2001, and the EA Scheme consents in 2008. Therefore, I consider these unimplemented consents form components of the receiving environment for the purpose of this analysis.
14. Significantly, in relation to managing the effects of the proposal on the physical resources as represented by the Highbank HEPS, I note that whilst the EA Application and assessment, in my view, lacked sufficient detail so as to ascertain whether impacts on the Highbank HEPS were either significant, and / or could be mitigated, the adverse effects were largely remedied in that process by way of a comprehensive suite of consent conditions as attached to both the Canterbury Regional Council consents, and also the Ashburton District Council consent for that scheme.
15. A number of the EA Conditions have been transferred as 'possible conditions' in the s42A reports from Ms Harte and Ms Johnston as they pertain to this application. However, I wish to acknowledge that TPL representatives have met with ACWT representatives to assist in the formation of a comprehensive suite of conditions. I understand that those ACWT conditions have been circulated and appended to the Planning Evidence of Mr J Dunning on behalf of the applicants.
16. I consider that with some minor modifications that the conditions appended to Mr Dunning's report would, if affixed to a granted consent, 'ring fence' those issues of concern to TPL, with regard to the Highbank HEPS only. There may however, be outstanding issues regarding such matters as ecology and landscape, that require additional information to be forthcoming from ACWT and their respective experts, for the Panel to conclude that the proposal when considered under S104(1) and 'subject to' Part II, meets the purpose of the Act.
17. In terms of a consenting history for this area, I note that the existing consents for BCI relate to diverting and storing water for irrigation and hydro-electric purposes. However, these consents did not incorporate structures associated with irrigation water being taken or diverted from or into a canal system,

rather only its allocation for hydro generation. Despite the application for the EA scheme also incorporating water being taken from the scheme for irrigation use, the assessment and subsequent consent were provided only for infrastructure associated with the: Highbank Canal; EA turbines; and modifications to the Highbank Tailrace, and associated active channel to the Rakaia and salmon barrier.

18. I note that this application (the ACWT Scheme) also refers to irrigation as it relates to consents from ADC only (refer Application (Section 1.4.2 ADC (1))), but there is no detail, description or assessment of effects of this component of the scheme proposal. Mr Dunning for ACWT has clarified this matter, and I understand that application(s) for consent(s) necessary to give effect to the irrigation aspects of the proposal would need to be made in future, and therefore do not constitute a component of this application.
19. The existing Highbank Hydro Electric Power Scheme ('**Highbank**') constitutes a 'physical' resource of regional significance. I have limited my consideration to the actual or potential effects of the application on that physical resource, together with any subsequent flow on effects on the natural resource, such as the implications of the proposal on the salmon barrier operations and tailrace.
20. As discussed earlier, TPL have worked with ACWT representatives to, where possible, recommend conditions to assist in alleviating potential areas of concern as these relate to the Highbank HEPS. These have been attached in Mr Dunning's evidence. I understand that they have been tabled on behalf of ACWT to formally comprise as part of that application, and thereby replace Section 7 of the application 'Mitigation and Conditions'.
21. However, I echo the sentiments raised by Ms Harte for ADC in her concluding comments in section 6.13 of the ADC Officers Report, and acknowledge that there is some frustration that such a cohesive set of conditions were not notified with the application. I also note, that there remain some residual concerns in relation to the lucidity of the application and the specifics of the proposal itself.
22. TPL's concern, as with the EA Scheme, is that its existing HEPS activities would be significantly compromised as a consequence of the proposal, through:
 - Creating an environment which would result in the current compliance responsibilities attached to the operation of the Highbank and Montalto HEPS, specifically the Salmon Barrier operations, being

unable to be met; and / or

- The combined Highbank and Montalto HEPS (which contribute to the social and economic wellbeing of the region, and forms part of the existing environment) being unable to operate in the current manner, and as consented for, this is especially the case in terms of the change of water levels within the Highbank tail race.

Additional Recommended Conditions

23. There are a number of conditions identified throughout this statement, that in my view could usefully be incorporated within the collated conditions tabled by Mr Dunning on behalf of ACWT. I have included these below, along with reference to the applicable consent number. It is considered that these conditions would collectively alleviate TPL's concerns with regard to those aspects of the proposed ACWT scheme that may impact on the Highbank HEPS and its associated infrastructure.

CRC072645

Prior to construction works being completed on the Highbank Canal auxiliary spillway, the consent holder is to ensure that the bypass flow enters the tailrace as close to the Highbank Salmon barrier as possible. These works shall be undertaken and be concluded in a period that does not coincide with Salmon migration season, being that period between 1 December to 31 May.

Environment Canterbury General Conditions (new advice note)

Replacement bore K36/0578 – TrustPower Limited

Prior to construction, for the purpose of ensuring that TrustPower Ltd ('TPL') operations are protected from the adverse effects from the construction and operation of the ACWT scheme, the consent holder will construct and make operational a potable water supply well in a location clear of influence or interference from any works undertaken by the consent holder in giving effect to infrastructure associated with this scheme. The purpose of this well will be to replace the function of Well K36/0578 for the purpose of supplying the Highbank Power Station with potable water to the same or better quality and quantity as currently provided. Prior to decommissioning K36/0578 this replacement, along with the associated water permit and conveyance infrastructure are to be transferred to TPL ownership.

Scope of Evidence

- 24 The purpose of this evidence is to outline the effects of the ACWT Terrace Hydro Scheme ('**The ACWT Scheme**') on the physical resources represented by the Highbank Hydro Electric Power Station ('**Highbank HEPS**').
- 25 I note that I provided Planning evidence with TrustPower Ltd, for the Electricity Ashburton / Barrhill Chertsey Irrigation Scheme ('**The EA Scheme**'). This hearing took place in front of Commissioner Paul Rogers on the 29-31 January 2008. Given that much of that evidence can be repeated at this fixture given the overlapping nature of these consents, for the sake of being concise I have appended the relevant planning status and background detail, and have summarised the EA scheme's relationship to the ACWT Scheme in the body of evidence.
- 26 In this evidence I will:
- Provide a brief background to the current Highbank operations (Attachment '**A**') and their place within this 'environment', including the existing EA Scheme consents;
 - Provide a brief synopsis of the relevant planning status (Attachment '**B**');
 - Consider of the effects of the proposal on the Highbank HEPS;
 - Consider the relevant Statutory Documents and an assessment of the status of the activities (Attachment '**C**');
 - Comment on the Investigating Officer's Reports;
 - Comment on those matters not suitably considered in the Application; and lastly
 - Provide a conclusion.

Background to current Highbank Operations

- 27 TPL is the owner and operator of the Highbank and Montalto HEPS which utilises water diverted from the Rangitata River and the Ashburton River via the 67km long Rangitata Diversion Race ('**RDR**'). I understand that the RDR was completed in 1944, and together with generating power from the Highbank HEPS also serves to irrigate some 66,700Ha of land between the Rakaia and Rangitata Rivers.
- 28 Mr Lees has provided (his evidence Section 4) a comprehensive background of the operations of the HEPS, in terms of its energy production and its key

operating periods.

29 Figure 1 outlines a synopsis of the main components of: the existing Highbank HEPS; the EA Scheme (as per the April 2008 Decision); and my understanding of this application.

Figure 1: Summary of physical infrastructure

	Highbank HEPS	Montalto HEPS	EA Proposal	ACWT Scheme
Maximum capacity	28MW	1.9MW	3.0MW	25.4MW (Barrhill: 16MW)
Rated Capacity	25.2MW	1.8MW		
Plant rated efficiency	86.67% @ 25MW (actual)	N/A		
Water consumption at peak flow	27cumecs		17cumecs	Highbank turbines: 40m ³ /s. Barrhill HEPS: 40m ³ /s. Note: 2m ³ /s fish diversion
Overall max discharge	40 cumecs		17 cumecs	82 cumecs (2 cumec fish bypass, 40 cumec Highbank, 40 cumec Barrhill).
Settling pond area	N/A	N/A	7 Ha	35Ha
Settling pond volume	N/A	N/A	200,000m ³	Not stated, but 3m max depth. Approx 900,000m ³
Sediment disposal area	N/A	N/A	N/A	Approx 75ha to a max depth of 700mm.
Storage Pond	N/A	N/A	N/A	Approx 3ha
Scheme length	67km (including RDR)		5km	14.0 km in total.
Canal Height (max)	N/A	N/A	7m	7.5m embankment height for Terrace Canal.
Canal width (max)	N/A	N/A	9m (at drop structures). Fill sections 40m in width	9m at drop structures. Fill sections 40m in width
Tailrace	700m		400m from 2 nd drop structure plus 600m	

				Highbank formed tailrace	
Highbank Barrier	Salmon	End of formed tail race. NZMS 260 K36:084	N/A	End of Highbank formed tail race. NZMS 260 K36:084	End of Highbank formed tail race. NZMS 260 K36:084
Natural tailrace	graded	850m below fish barrier. Connects Rakaia River NZMS 260 K36:086-358	N/A	850m below fish barrier. Connects Rakaia River NZMS 260 K36:086-358	850m below fish barrier. Connects Rakaia River NZMS 260 K36:086-358
Tailrace width				Increased: 10m formed; 5m unformed	Increased: 15m formed 5m unformed 40m east of current alignment.
Operating periods		Generation: 9 May to 10 September Irrigation: 10 September to 9 May			
Area irrigated		RDR: 66,700Ha	17,500Ha		

* Note: There is some scope for the Highbank HEPS to operate within the irrigation season if water is available.

- 30 I have discussed the Highbank HEPS infrastructure as it relates to the ACWT scheme within Attachment 'A'.

Planning Status

- 31 I am of the view that the proposal is to be considered a '**non-complying activity**' rather than the discretionary status as identified by Ms Johnston. I reach this view based on a breach to WQL40, as has been outlined in Attachment 'B' and specifically identified in Attachment 'C'.
- 32 I acknowledge that despite reviewing the application in its entirety, the complex nature of the applicants, consenting history, and opaque nature of the information supporting the application have meant that I have found it difficult to ascertain the exact details of the application. As such, I consider that those elements identified in Attachment 'B' (paragraph 7) are my broad views of the various aspects of the application that can be considered outside of any baseline of existing consents for the area.

Consideration of the effects of the proposal on the Highbank HEPS

- 33 As outlined by Mr Lees, TPL is concerned with being an environmentally responsible good corporate citizen, and has set out an Environmental Management System to underpin its environmental performance (Section 3). Mr Lees, has provided a useful critique of the ACWT proposal in relation to both the Highbank HEPS infrastructure, as well as the corresponding TPL EMS principles, and I will acknowledge and comment on these within this evidence.
- 34 For the purpose of providing a synopsis of TPL's main concerns I wish to focus on that part of the ACWT proposal that relates to the construction and operation of the canal, amended tailrace and fish screen, subsequent discharge to the Rakaia River, as well as the construction and sediment discharge aspects of the proposal. I note in this respect that I understand that the take application has already been considered in relation to the wider Central Plains Water ('CPW') Hearing. My focus in this evidence therefore is generally limited to the effects of the following:
- Discharges to the Highbank HEPS Tailrace;
 - Highbank fish screen, canal and tailrace operation and fish bypass channel;
 - Stability and tailrace widening;
 - Continued well operation;
 - Recreation, and amenity values;
 - Construction effects, dust, vibration and access; and
 - Hydro electric generation.

Discharges to the Highbank HEPS Tailrace

- 35 I understand that under 'normal conditions' the proposal will result in a total flow at the Highbank tailrace of no more than 28m³/s of the 40m³/s (or 35.5 m³/s) taken at the Happy Valley intake (AEE Section 2.6.1). The AEE then states that flows could be up to 40m³/s during maintenance periods for the Terrace Canal and Barrhill Power Station, "*which may require upgrading of the existing Highbank Power Station tailrace and fish barrier structure*". However, I understand from ACWT's representatives that in such situations the discharge in the Highbank Tailrace would not exceed 17m³/s, as was consented for the EA scheme.
- 36 An auxiliary spillway is also provided before the Salmon bypass to allow for

discharges from any emergency closing of the terrace canal intake gates, where it may be possible that up to 80m³/s of water would be flowing down the Highbank tailrace. In such an instance, I understand from ACWT's representatives that 23m³/s would flow across the emergency spillway, ensuring that no more than 57m³/s (being the existing Highbank / EA schemes) would flow through the existing Highbank Salmon barrier.

- 37 Given the complexity of various water takes, canal volumes as subject to the WCO order limits, and the likely discharge volumes in the Terrace Canal, the lower Highbank tailrace discharge (as important in terms of Salmon entrapment and the functioning of the barrier) are not specified in detail in the application and its accompanying assessment. However, an examination of paragraphs 39 to 48 of Mr Neil Borrie's evidence for ACWT would seem to indicate that flows could be, on average, some 20% of the consented Highbank/EA volume that would pass through the salmon barrier and into the Tailrace. It is however likely that there will be considerable variation in the lower tailrace flows on a daily, monthly and yearly basis, and also emergency flows which could provide up to 40m³/s into the Tailrace before the emergency spillway comes into effect.

Highbank Salmon screen, canal and tailrace operation and bypass channel

Salmon Bypass Channel

- 38 Resource consent CRC011251 provides for TPL to deposit material, and to excavate and disturb the bed of the Rakaia River to maintain and extend riverbank protection works within 1km upstream and downstream of the Highbank HEPS. The EA consent CRC080361 (Condition #7) provides the same requirement. The primary purpose of this requirement is to ensure that the Salmon bypass channel can be maintained to an 'active' branch of the Rakaia River to ensure that salmon can return to the main stem when migrating upstream. As outlined by Mr Allibone, Aquatic Ecologist (Golder Associates) in paragraph 4.5 of his statement, the Salmon Bypass Channel as located downstream of the Highbank HEPS Salmon Barrier, is to provide a Salmon bypass for Salmon that have entered the Highbank Tailrace and have been impeded at the existing Salmon barrier.

- 39 There are three aspects of the proposed ACWT scheme that could impact on the stability and maintenance the Salmon bypass channel, these are:
- (a). Changes to the geomorphology of the tailrace and active channel given channel widening, river and discharge fluctuations (as outlined by Mr Allibone (refer 6.7 of his evidence)); and
 - (b). Increased sedimentation in the southern (true left) braids as a consequence of the annual ACWT sediment disposal from the settlement ponds leading a strengthening flow pattern on to the northern banks (true right) leading to the need for increased intervention and maintenance costs in maintaining the Salmon bypass channel; and
 - (c). During the construction of the Highbank Canal auxiliary spillway, the active channel's confluence with the tailrace should be reinstated to ensure that the bypass flow enters the tailrace as close to the Salmon barrier as possible.
- 40 The matter subject to (b) above, is outlined in some detail by Mr Graham Levy (Annexure '4' to Mr Lees evidence), and I concur with his findings in this matter. I do acknowledge that Mr Levy has highlighted that it would be difficult to establish a direct causal link between the ACWT sediment disposal procedures and the sedimentation of the Rakaia southern braids (river left). However equally, I am unsure as to how Mr Dunning for ACWT can state with certainty at his paragraph 6.69 that there will be no effects on geomorphology.
- 41 In terms of that matter raised in (c), I understand from Dr Allibone that reinstatement of the active channel to be located as close to the Salmon barrier as possible would improve the effectiveness of the Salmon bypass into an active channel of the Rakaia river.
- 42 Mr Dunning has formally lodged with his evidence an equivalent requisite condition to apply to ACWT, should consent be granted, (Appendix B, CRC072640, Condition #6, #7, & #9). I agree with that stipulation on ACWT's activities in relation to the Highbank tailrace and Salmon bypass, as this would ensure 'back to back' requirements on TPL, EA and ACWT regardless of the eventual phasing and extent of the EA/ACWT Scheme as developed, and that in the event of modifications there is a consistent requirement between the HEPS infrastructure consent holders to maintain the Salmon Bypass Channel.

43 I am also in agreement with the ACWT recommended Condition CRC072649 #8, that the maximum height to which sediment from the settlement pond may be placed on the adjacent Rakaia River bed be 0.5m. I reach this view on the advice from Mr Levy, and consider that this would assist in sediment transport from the disposal area.

44 It is considered that an additional condition would usefully be added to CRC072645 to provide for the reinstatement of the active channel of the Highbank tailrace as identified by Dr Allibone. Such a condition could be drafted as:

Prior to construction works being completed on the Highbank Canal auxiliary spillway, the active channel's confluence with the tailrace is to be reinstated to ensure that the bypass flow enters the tailrace as close to the Salmon barrier as possible. These works shall be undertaken and be concluded in a period that does not coincide with Salmon migration season, being that period between 1 December to 31 May.

Highbank Salmon screen, canal and tailrace operation

45 Resource Consent CRC011249 provides numerous conditions on TPL regarding the Salmon screen and bypass channel. Similar requirements were stipulated for EA through consent conditions associated with CRC080361, including requirements for the grading of the unformed tailrace to avoid Salmon stranding as a consequence of fluctuating flows.

46 In order to meet the resource consent obligations held by TPL for the RDR and the Highbank and Montalto HEPS, TrustPower has installed a salmon barrier and return channel to exclude mature Salmon from the existing Highbank tailrace, and the ability to reconnect to an active stem of the Rakaia within 1km of the Highbank HEPS. TrustPower has invested considerable resources into the design and implementation of the Salmon barrier, including the grading of the lower tailrace which was not a requirement of consent. As outlined by Mr Lees, TrustPower has installed cleaning apparatus and undertakes regular monitoring and cleaning of the existing Salmon barrier to avoid 'popping' of the debris screens, as well as ensuring connection of the bypass channel is maintained to an active stem of the Rakaia.

47 There is an excellent ongoing record of the success of the operation of the fish screen to avoid Salmon fatalities.

- 48 My understanding of the modifications to the Highbank Tailrace and Salmon barrier as a consequence of the ACWT scheme, beyond those already consented to in the area are set out in Attachment 'B' of this evidence.
- 49 As outlined by Dr Allibone, it is likely that given the reduced mean discharges through the Salmon Barrier (refer my paragraph 36) would likely decrease, consequentially so would the attraction of the Highbank tailrace to Salmon (refer Dr All bone's paragraph 6.8). Also in combination with the widened tailrace and additional panels to be added to the existing Salmon barrier, provided that there is a requirement for ongoing maintenance and cleaning, there should be a reduction in the incidences of the Salmon barrier 'popping' and requiring restoration.
- 50 However, given the paucity of assessment and frequency associated with both emergency flows (where flows in the Highbank Tailrace could well be of some 40m³/s), and the fluctuation of flows concurrent with the Terrace Canal intake, it is considered prudent that the existing TPL and EA consent requirements with regard to maintenance of the Salmon barrier (from 'popping'), Salmon salvage, and tailrace grading should apply to the suite of consents that may be granted to the ACWT proposal. In this, I note that Mr Dunning has in his tabled conditions provided for such, (refer CRC072640 #2, #5(b), #6 & #9, and CRC072645) and note that I consider that such conditions would be necessary to offset any adverse effects of the ACWT scheme on the existing Salmon bypass infrastructure associated with the existing Highbank HEPS.
- 51 Such conditions if imposed by Environment Canterbury would therefore explicitly ensure that ACWT (as with EA if that consent was exercised first) be responsible for:
- Ongoing monitoring of the fish screen;
 - Barrier cleaning and maintenance costs from those periods when only the ACWT scheme is in operation;
 - Regrading of the lower tailrace post widening, and ongoing maintenance costs;
 - Regrading and stabilisation of the Highbank tailrace in the event of emergency flows from the ACWT scheme;
 - The Engineering and Annual Work Plan to be certified by Environment Canterbury to ensure that works associated with the fish screen , widening of the lower tail race, and bypass channel would not disrupt TrustPower's

generation operations, being 9 May to 10 September;

- Acknowledgement and provision of works / money to the costs of barrier and bypass maintenance with TrustPower when both Power stations are operating; and
- Fish rescues from the Highbank canal.

Stability and tailrace widening

52 I understand that the Highbank formed tailrace is proposed to be widened by some 15m (subject to detailed design) to accommodate the combined RDR (Highbank HEPS) and Highbank Canal flows. The unformed tailrace is to be widened by some 5m. Both of which will require the removal of considerable stabilised embankments, scrub and plantation pines.

53 I also note that Mr Steven Woods for ACWT (paragraph 4.12 of his evidence) states that a 300m section of the unformed tailrace would need to be moved some 40m to the east (towards the Rakaia River) to accommodate the Terrace Canal.

54 I consider that there is a paucity of information in the application and its assessment as to the likely geotechnical consequences of such on the stability and consequential implications of the Highbank HEPS infrastructure as a result of these works

55 As has been noted by Mr Lees, the current river course, protection and river training works have been stable for a period exceeding 15 years. There is concern that the construction works associated with the ACWT proposal in the vicinity of the Highbank HEPS, including widening and realignment works associated with the Canal and tailrace infrastructure could destabilise the existing Rakaia River terrace, and significantly the delicate and costly infrastructure associated with the Highbank HEPS.

56 Construction vibration and geological displacement effects from the proposal could include:

- Excavation effects for the canal and tailrace;
- Bridge construction effects; and
- Terrace edge instability through vegetation loss and loss of soil stability due to widening.

I note that ACWT have formally advised that they will be relinquishing that aspect of the application as it related to a 'pipeline' conveyance for the Highbank canal within close proximity to the Highbank HEPS. As such geotechnical aspects associated with such works and infrastructure has not been considered as part of this evidence.

57 As stated, the assessment accompanying the application provides little in the way of a geotechnical assessment of the issues raised above, except outlining a requirement (Section 7) for:

"A land use consent to place and maintain river bank protection structures in the bed and banks of the Rakaia River". It is therefore considered that consent has been sought for protection works 'as necessary', but does not provide any details of the effects of such works.

58 I consider that as a minimum:

- as part of the overall scheme detailed design, all slopes are to be designed to meet factors of safety given in the NZSOLD dam safety guidelines (2000);
- any Landscape Management Plan clearly outline the need to require rehabilitation and replanting of works areas within 12mths of construction works being completed to ensure long term stability of disturbed land areas, in particular the terrace edge and along the widened and / or realigned Highbank tailrace;
- certification of the detailed design assessment should be provided by Environment Canterbury, and that a copy of this certification should be forwarded to TPL, prior to works commencing;
- there should be specification of a minimum distance where the use of roller compactors and heavy earthmoving vehicles and machinery should not occur in close proximity to the HEPS; and
- supervised by TPL staff, ACWT develop and implement a monitoring and technical review procedure to outline ACWT's responsibility to undertake vibration checks and deformation surveys of the Highbank HEPS before, during and after the construction period; cease construction activities should any change in datum measures occur; and where the machinery has been affected reinstate at their cost full operating conditions.

59 I note that, perhaps as a consequence of the EA consenting process and

associated conditions that the matters specified above have been included in the cohesive set of conditions appended to Mr Dunning's evidence, including the requirement for Design Report from a Rivers Engineer to confirm, prior to works commencing that the river protection works associated with the scheme will maintain and monitor river protection, to no less than current standards throughout construction activities and commissioning (refer ACWT recommended Condition No.40 Ashburton District Council Conditions).

- 60 I am of the view that these matters, in conjunction with a detailed geotechnical examination of the ACWT proposal would more appropriately be provided in the application, However, I consider that these measures as enforced through conditions, would ensure that those stability and geotechnical aspects of importance to TPL would be instigated to avoid and mitigate those adverse effects of the proposal on the Highbank HEPS.

Continued Well Operation

- 61 Resource consent CRC011250 provides for TPL to take and use groundwater from a well (K36.0578) on the TrustPower site for domestic use at the Highbank HEPS. This well lies within the proposed alignment of the canal and hence will need to be decommissioned and capped.
- 62 Mr Dunning has stated at paragraph 6.61 of his evidence that a replacement well (noting that a replacement has been consented for EA) would need to be established and proven in terms of quality and reliability, before the existing Highbank well is decommissioned.
- 63 It is suggested that in the absence of a cohesive assessment and associated conditions regarding a replacement water source (such as was obtained under CRC080161 – bore location K36/0578 as it relates to the EA suite of consents), that an additional advice note be added to the Environment Canterbury General Conditions, should consent be granted, that would state:

Replacement bore K36/0578 – TrustPower Limited

Prior to construction, for the purpose of ensuring that TrustPower Ltd ('TPL') operations are protected from the adverse effects from the construction and operation of the ACWT scheme, the consent holder will construct and make operational a potable water supply well in a location clear of influence or interference from any works undertaken by the consent holder in giving effect

to infrastructure associated with this scheme. The purpose of this well will be to replace the function of Well K36/0578 for the purpose of supplying the Highbank Power Station with potable water to the same or better quality and quantity as currently provided. Prior to decommissioning K36/0578 this replacement, along with the associated water permit and conveyance infrastructure are to be transferred to TPL ownership.

Recreation and Amenity values

- 64 These impacts are connected with the successful ongoing operation of the fish screen; amenity impacts on river corridor users and the provision of ongoing access to recreational opportunities.
- 65 Issues of the ongoing sustainability of the scheme in relation to the habitat and passage of Salmon are dealt with above, and in my view subject to the conditions recommended by the applicant's representative (Mr Dunning) should adequately resolve these issues.
- 66 In relation to access opportunities, I note that the application is devoid of any consideration of the ongoing safety and or accessibility restrictions that may be necessary for the successful operation of the ACWT proposal. At present, TrustPower as landowners provide continued access from the end of Happy Valley Road to the end of the lower tail race, with this area being one of the more accessible fishing areas of this section of the Rakaia River, noting that large areas of the Tailrace are security fenced to avoid public access.
- 67 Should TrustPower (or ACWT) be concerned as to the potential safety repercussions of the EA proposed canal and tailrace structure to an extent as to limit the current extent of public access, this would in my view constitute a significant adverse effect from the proposal. This matter has not in my view been adequately addressed at this Hearing by the applicant, although Mr Dunning has stated that there is no intention to restrict access (para 8.9), although I do not share his view that this issue is beyond the scope of the Commissioners to consider. However, I consider that the identification of public safety measures as have been identified (Mr Dunning para 8.9) including the pro-offered 'Public Safety Design Plan (ADC recommended conditions), bridge safety barrier design for the Highbank HEPS access road (ADC Conditions – Construction Management Plan (e)) and warning signs / audible alarms (CRC072639 Condition #7), if accepted, would assist to offset such concerns.

- 68 The visual impact of the canal and tailrace so close to the existing switchyards and HEPS will, in my view result in significant modification of the character and amenity of the receiving environment. I acknowledge that I am not qualified to provide a qualitative assessment of the extent of such impact from construction and subsequent operational activities, nor that the existing environment represents a pristine natural character. I acknowledge Mr Compton-Moen's evidence on behalf of ACWT; and also that with the exception of the 35ha storage / settlement pond, sediment disposal area, and modifications to the tailrace, that the Highbank (as distinct from the terrace) section of this scheme is largely as subject to the EA consents.
- 69 Assessment matters as listed in 6.7.2.2 of the ADP provide some guidance as to the assessment of the visual implications of the proposal. Of relevance are:
- a) The extent to which the utility will cause;
 - Any obscuring of landforms or natural features;
 - Any adverse effects on the natural landscape pattern, including the loss of underlying landform pattern(sic);
 - Any adverse effects on the openness and spaciousness of the landscape and apparent naturalness of the landscape.
 - g) a summary of alternative sites and routes that have been considered and the reasons as to why they have been discounted;
 - m) in areas of significant nature conservation values ...; and the beds of lakes and rivers, stream and wetlands, the relevant assessment matters for activities in Rural zones.
- 70 The visual impact from this infrastructure adjacent to the Highbank HEPS in my view, given the assessment matters above, will lead to a change in natural character and amenity of the receiving environment, and in particular noticeable physical infrastructural elements within the Highbank HEPS locality.
- 71 I note and agree with Ms P Harte (her Section 6.4) that *"the visual impact of the canal and bridge at this point are in my opinion likely to be more than minor although not necessary adverse"*. Whilst, some rehabilitation and restoration is proposed for the scheme, this in my view will not in itself alleviate the change in natural character and appearance as a consequence of the scale and visual dominance of the proposal.
- 72 However, taken in context with the existing Highbank HEPS infrastructure and the relevant EA consents providing for greater modification within the vicinity

of the Highbank HEPS, I consider that such landscape effects would be no more than minor. I note that the effective imposition of the Landscape Management Plan as recommended by Mr Dunning for the suite of ADC conditions, if accepted, would assist in reducing the prominence of the ACWT infrastructure.

Construction, dust and vibration effects and access

- 73 I understand from the assessment accompanying the application that that section of the canal to connect to the Highbank Tailrace, some 400m downstream of the last drop structure will be located within 20m of the existing Rakaia Riverbank. The construction period will last some 4 years, with presumably additional time needed for testing and commissioning.
- 74 Parts of the Highbank canal will be located well within the riparian margin. The canal edge will come as close as 5m to the existing switchyard, with the bridge crossing the canal to be located some 2m from the switchyard.
- 75 The existing formed tailrace is proposed to be widened by an additional 15m to the true right of the Channel. It is not clear in the application as to the resulting ground and excavation volumes needed, but it is noted that in relation to the 10m widening associated with the EA scheme that this resulted in the clearance of some 7,000m² of vegetation, including mature trees. As has been stated I am unable to locate any assessment in relation to excavation volumes or vegetation clearance associated with the unformed tailrace realignment, apart from Mr Woods for ACWT expressing in his evidence that some 6 million cubic metres of earthworks will need to be moved (paragraph 7.1).
- 76 Mr Lees has detailed in his evidence the likely implications of vibration and dust (commencing para 5.24) on the existing Highbank HEPS operations. Including the sensitive calibration of the Highbank HEPS, and the break-down in the safe and reliable functioning of the machinery should displacement occur.
- 77 It is considered that as a minimum, the consent holder's engineers certify:
- Within the Construction Management Plan, and ongoing monitoring requirements, that the levels of vibration proposed will not have any effect on the HEPS or equipment; and

- Within the Detailed Design, that the structural stability of the Highbank terrace and associated infrastructure, including the tailrace is not detrimentally affected by the operation and construction of the Scheme. Specifically the requirement for the applicant to undertake ongoing deformation surveys for the Highbank HEPS, and adherence to specified vibration standards (Dunning recommended ADC conditions 35, and 38 respectively), is critical to TPL's level of comfort that adverse effects from the scheme on its infrastructure can be avoided.

Mr Dunning for the applicant has incorporated recommended conditions for such, as part of his evidence.

78 In relation to dust nuisance, I have concerns that the application proposes to manage dust nuisance 'outside of the site boundary' noting that the Highbank HEPS is effectively inside the scheme envelope, and as detailed by Mr Lees, dusty environments can cause generation fouling, including impacts on existing switchgear and electronics. I acknowledge that once the scheme is operational, vegetation re-established on canal embankments and excess stockpiles removed or vegetated there will be no potential for excess dust to be generated.

79 In relation to suggested dust mitigation it is considered that conditions should specify:

- A liaison person who is able to deal with complaints;
- An effective complaints procedure, that ensures that concerns can be dealt with, including stating activities undertaken to mitigate dust nuisance;
- Specify a minimum distance of stockpiled material from the Highbank HEPS, and transport speeds for stock pile transfer adjacent to the HEPS;
- All finished canal batters to be planted with grasses, or other appropriate vegetation as soon as practicable, which is normally undertaken at the end of each earthworks season to address silt control; and
- ACWT provide internal cleaning services as supervised by TPL while construction or stockpiling occurs within close proximity to the HEPS.

80 Mr Dunning for the applicant has incorporated recommended conditions for

such as part of his evidence which can be found within the Environment Canterbury General Conditions #4 'Dust Management Plan', as well as controls under Mr Dunning's recommended conditions for CRC073862. The Dust Management Plan is also referred to as an advice note attached to the ADC conditions.

81 Current access to the Highbank HEPS is provided from Happy Valley Road which runs down the escarpment from the upper terrace, and down towards the lower terrace before running some two km to the Highbank Tailrace fish screen. Access during construction will need to be maintained for Highbank HEPS staff to ensure ongoing HEPS operation, tailrace and fish screen inspections and cleaning, and the transport of necessary machinery. As a minimum, access will need to be maintained to accommodate 2 to 30 tonne excavators which are currently utilised for fish barrier repairs and rock protection works.

82 Mr Lees (para 5.33) has identified the conditions necessary to ensure that access to this standard can be maintained to the Highbank HEPS. I note, and concur with those recommended conditions (Condition 50(e) within the ADC conditions from ACWT) which incorporate the following:

- Details, timing and locations of works will occur within Happy Valley Road and adjacent to the Highbank HEPS and associated tailrace;
- Temporary site access arrangements for Highbank HEPS activities, including access to the fish screen and lower tailrace, to a standard that will accommodate the range of 2 to 30 tonne excavators.

83 Lastly, I note and agree with Mr Lees' comments (para 5.29 – 5.32) that a condition is necessary to ensure that tail water levels are maintained to levels acceptable to TPL, given the potential for cavitation effects or conversely the loss of head associated with the existing Highbank HEPS. I note that this has been recommended by Mr Dunning on behalf of ACWT, and has been included as CRC072646, Condition No. 20 within his Appendix B. I concur with the requirement for this condition to be affixed to any consent granted for the scheme.

Hydro-Generation

84 The scheme purports to provide an efficient use of resources, as pursuant to Section 7(b) of the Act, as consent CRC072637 will use water for hydro-generation.

85 At face value, given the additional 15.9MW generation capacity this would indeed be case; however I acknowledge that the scheme would likely detract at times from the existing Highbank operations which currently can provide up to 28MW due a potential loss of head in the formed tailrace.

86 I do consider though that given the significance and scope of the proposal that the application does not provide a sufficient quantitative assessment to enable a determination of the magnitude or significance of potential effects arising from either the irrigation or hydro-electric generation effects of the proposal. As such, I can only ascribe a limited benefit to the generational aspects of the proposal.

Relevant Statutory Documents

87 Part II of the Resource Management Act 1991, sets out its purpose and principles. The overall purpose of the Act is set out in s.5; s.6 sets out those matters of national importance; s.7 of the Act lists other matters; and s.8 requires account to be taken on the principles of the Treaty of Waitangi.

88 In order to give effect to the Act, Regional Council functions are required to achieve integrated management of the natural and physical resources of the region. District Councils are to similarly achieve the integrated management of the effects of the use, development or protection of land and associated natural and physical resources of the district (s.30(1)(a) and s.31(1)(a) respectively.

89 I consider that the relevant statutory documents to be considered include:

- The National Water Conservation (Rakaia River) Order 1988 ('**NWCO**')
- The Transitional Regional Plan ('**TRP**');
- The Proposed Natural Resources Regional Plan ('**NRRP**')
- The Canterbury Regional Policy Statement ('**RPS**')
- The Ashburton District Plan ('**ADP**')

90 The **Rakaia NWCO**, section 9(2), contains provisions for water quality for any discharges into the Rakaia River. The order also identifies the river and its tributaries as providing for an outstanding natural characteristic in the form, below the gorge, of fisheries, recreational and, angling and jet boating features. Section 104(1)(g) requires the consent authority to have regard to NWCO matters in considering the application.

- 91 In relation to water quality, I acknowledge the comments raised by Ms Johnston (her para 154) consider that the application provides only limited information as to the actual and potential effects of the proposed works on water quality and ecosystems. In particular, during sediment discharge from the disposal area, there is little certainty as to sediment loadings and the management of geomorphologic changes, particularly in association with the Highbank HEPS Salmon Bypass channel and tailrace. However, as stated earlier, subject to those requirements identified by Mr Levy, as have now been put forward as conditions by ACWT, I consider the effects on water quality would be no more than minor.
- 92 In relation to the fisheries, recreational and amenity aspects of the proposal, I consider that the lower end of the Highbank Canal section of the proposal, including the canal and tailrace adjacent to the Highbank HEPS will have the potential to cause considerable disruption and effects on this aspect of the NWCO, as has been discussed in the proceeding assessment in terms of recreation and amenity values. However, it is considered given the existing consenting history for this area, and the extent of landscaping suggested that the prominence of such infrastructure would be reduced within the context of the existing environment.
- 93 The **Transitional Regional Plan** (pursuant to s366 of the Act) is a compilation of documents in existence when the RMA came into being in 1991. In the main, these documents consist of then existing bylaws (Soil Conservation and Rivers Control Act 1941), together with instruments produced under the Soil and Water Conservation Act 1967. Whilst there are many regional rules as such, there are few statements of policies in this document, and given that the NRRP was prepared after the RMA was enacted and has gone some way through the statutory process to make the document operative, I have given no weight to the TRP.
- 94 Turning to the **Regional Policy Statement**, Chapter 3 acknowledges that the Canterbury Plains is traversed by braided rivers, some of which are of international importance. Chapter 9 of the RPS also acknowledges that there are braided rivers having high water quality or high natural character and recreational use potential, such that "...may be desirable to sustain the natural characteristics of these water bodies." (emphasis added). A number of water bodies are identified as being possible candidates for such treatment, but the existing Water Conservation Order on the Rakaia River is

explicitly acknowledged. That order was confirmed with the RDR operation in place at its current level.

- 95 Chapter 8, refers to significant matters for Canterbury's landscape, ecology and heritage. Of relevance to this application are Objectives 3 and 4, specifically in relation Policies 4 and 5 which uphold the intent of these stated objectives. I consider that Policy 4 is largely met by the proposal in relation to that area adjacent to Highbank on the basis of the absence of significant indigenous vegetation.
- 96 Chapter 9, Issue 1, Objective 1, Policy 3 recognise and deal with different facets of competing and / or strategic demands for water resources and the need for a balanced consideration of such factors to take place. Policy 3 relates to promoting "*efficiency in the use of water*". Issue 2, Objective 2 and Policy 8 seeks to identify the impacts that land use can have on water flows and levels, specifically identifying the need to protect outstanding features and landscapes from inappropriate development, and the significant habitat of trout and salmon. Lastly, Issue 3, Objective 3, Policy 9 addresses the management of point and non-point discharges, this of relevance in relation to the dewatering, construction and sediment disposal from the 'in river' settlement area.
- 97 As stated in paragraph 81 above, I consider that the application did not contain adequate information to assess consistency with the water quality objectives of this Chapter, but these could be remedied through appropriate conditions for sediment control management, as have now been provided by the applicant. I wish to refer specifically to those conditions provided by Mr Dunning being CRC072640 #2, #5(b), #6 & #9, and CRC072645 in the context of that material provided by Mr Lees and Dr Allibone in relation to the operation and maintenance of the Salmon bypass, Salmon barrier works, and the Highbank tailrace grading. I consider based on the requirement for these to be complied with that the proposal will not be inconsistent with the objectives and policies as these relate to the habitat of trout and salmon, or amenity.
- 98 Chapter 10 deals with the beds of rivers and margins. Policy 1(c) is intended to promote the identification of areas within the beds or margins of rivers that have important conservation values, and avoid adverse effects on the environmental qualities listed. The Ashburton District Plan identifies the proposal site as a Group 1 area of Significant Conservation Value. The current

application is considered to be largely consistent with the qualities listed in Policy 1, as it relates to the Highbank HEPS area which contains vegetation with little or no terrestrial ecosystem values (gorse, pines and willow). As stated, based on the imposition of relevant conditions, I consider the proposal to not be inconsistent with those values associated with the protection of trout and salmon habitat and their unimpeded passage.

99 Chapter 13 deals with the maintenance and improvement of air quality. With appropriate conditions regarding dust management within proximity to the Highbank HEPS, I acknowledge that the proposal would meet the relevant objective 2 in relation to dust nuisance during construction.

100 Chapter 14 deals with Energy. Whilst it is considered that the proposal would be largely consistent with Policies 1 and 2, I wish to highlight Policy 3 as a relevant matter to be considered. Policy 3 states:

"To enable existing hydro-electric infrastructure in the region to be maintained, upgraded and enhanced provided appropriate regional plan rules and consent conditions relation to the protection of water quality and quantity are met." (my emphasis).

101 The existing conditions and infrastructure that relate to the Highbank HEPS, including the prevention of salmon entrapment at the tailrace, and the graded lower tailrace are therefore a component of the policy environment, against which this proposal need be considered. It is my view that it is not sufficient for the Council to fulfil its responsibilities in considering this consent pursuant to s.104 on the basis that any effects which could derogate from the operation of the existing Highbank HEPS would need to be worked through with TrustPower as landowner prior to consent being given effect to by way of a commercial agreement. Specifically the Council will need to consider the implications on the existing Highbank infrastructure, and as subject to conditions, whether the proposal is likely to derogate from its consented activities.

102 Chapters 1 to 3 of the **Natural Resources Regional Plan** were notified on 1 June 2002, and Chapters 4 to 7 were notified on 3 July 2004. It is also noted that the NRRP was notified subsequent to the suite of consents issued to BCI for works.

- 103 Chapter 3 contains issues, objectives and policies related to air quality. Issue AQL1 relates to localised air quality issues, and of relevance to this proposal dust nuisance. I consider that the proposal which includes the excavation for earthworks, spoil stock piles, sediment disposal from the storage lake, and earthworks for cut to construct the canals, process borrow areas for aggregates and to dispose of materials does not address dust nuisance in a sufficient manner in the assessment. Given the extent of excavation, fine soil and the creation of significant stockpiles, there is a real likelihood of dust nuisance occurring in a manner that would contravene Policy AQL6 which requires the avoidance of dust nuisance. I note that the applicant has however incorporated the requirements of CRC073862 and a 'Dust Management Plan' as a component of the Environment Canterbury General Conditions.
- 104 The premise within the application that dust nuisance will be managed within the "site" of the proposal (refer AEE 6.2.2) seems to conclude that any dust nuisance within the 'site', presumably the scheme boundary would be acceptable. I disagree with this conclusion, on the basis that the Council still needs to consider the adverse effects of dust nuisance on individual landowners where affected party approvals have not been obtained (Section 104(3)(b)). However, I note that based on the proffered conditions affixed to CRC073862 and a 'Dust Management Plan' as stated above, I consider that this matter would be addressed in a more targeted fashion recognising landowners, including the Highbank HEPS that are located within the scheme 'site', in a manner I believe would be consistent with Policy AQL6. Mr Lees has addressed the adverse effects of dust nuisance on the operation of the Highbank HEPS in his statement.
- 105 Chapter 4 of the NRRP outlines issues, objectives and policies that relate to water quality. Specifically of relevance, is Objective WQ1 – Water quality outcomes for rivers and lakes, as supported by Policies WQL1 to WQL5. I do not have sufficient information to conclude that the application is consistent with these policies and objectives. It is considered that the application is devoid of an appropriately quantified assessment, given the scale and potential impacts of the proposal for the applicant to conclude consistency with the policies, on the basis of a lodged condition. However, should the applicant provide further detail as to the management of siltation and sediment control during construction, sediment discharge from the 'in river'

disposal area, as well as an appropriate earthworks and sediment control management plan this matter could, be satisfactorily dealt with. I have already noted, that conditions can be applied to ensure that the applicants maintain the respective Salmon channel and tailrace, as a consequence of any additional sediment loadings related to the ACWT Scheme.

106 Chapter 5 of the NRRP sets out objectives, policies and rules in relation to water quantity. Based on the material provided in the application I consider that:

- The proposal which is only to operate when the Rakaia River has significant flow is consistent with WQN1 which seeks to retain river flows in their natural state;
- The canal is lined which will provide an efficient use of water (WQN17).

107 Chapter 6 sets out issues, objectives and policies for the management of the use of beds and margins of lakes and rivers. Of specific relevance to the Highbank HEPS operations, I conclude that the proposal would not be inconsistent with Objective BLR1(e), (g) or (j) despite the extent of 'clutter' to accommodate the necessary infrastructure adjacent to the existing switchyards and tailrace, recognising the outstanding natural features (being the river terrace) and amenity values would be maintained, giving the existing consenting environment for the area and the extent of replanting proposed. In the case of (j) 'the quality of downstream and adjacent trout and salmon habitat' I have concluded that subject to conditions, that this habitat would likely be maintained.

108 In terms of the **Ashburton District Plan**, which was made operative on 8 October 2001, the relevant aspects include a focus upon the integrated management of the effects of the use, development or protection of land and associated natural and physical resources of the district. In dealing with the pertinent resource management issues, I address these as:

(a) Rural Water

(b) Utilities;

(c) Amenity and nature conservation.

Rural Water

109 In terms of 'Rural Water' I note that the ADP identifies the importance of the

District's rural irrigation and stockwater supply network (page 5-14). It also states the importance of the RDR and the associated Hydro Electric Power Stations (being Highbank and Manalito). Of note is Objective 8 which identifies the importance of the rural irrigation system.

- 110 Whilst it is not clear whether the application incorporated the diversion of water for the purposes of irrigation, it is understood that the Applicants will advise the Panel that infrastructure and works associated with any irrigation aspects of the proposal do not form part of this application.

Utilities

- 111 In terms of Utilities, I note that Objective 1 (3.9.3.1), Policy 1, seeks to avoid adverse environment effects arising from utilities, including their construction effects. Objective 3 (3.9.3.7) seeks to provide for the efficient establishment of utilities, where its supporting Policy 3 (3.9.3.8) seeks to:

"recognise the presence and function of established utilises and their locational and operational requirement when assessing the suitability of new surrounding activities, to ensure the long-term efficient function of that utility."

Policy 7 seeks to ensure that utilities adopt structures which are compatible with the natural landscape and towns.

- 112 It is acknowledged that the scale and form of the proposal is significantly more substantial than that which could be anticipated within the Rural zone. I consider that post construction, the intake and upper canal could largely be absorbed into this environment, principally through being screened by existing terraces from significant public viewpoints, and that the ADP does not include the affected area as being within an 'Outstanding Natural Landscape' (Appendix 10 identifies the upper Rakaia as being so listed). However, the 35Ha storage lake, as well as the lower end of the scheme (both the Highbank and Terrace Canal), as raised earlier, would contain substantial infrastructure which would lead to a change in the character and amenity of the landscape.
- 113 Despite the absence of information contained in the application in relation to the fish screen, fish pass and geotechnical and vibration effects on the existing Highbank HEPS, it is considered that subject to the conditions proffered by the applicant at this Hearing that the proposal as it currently stands would not be inconsistent to Policy 3 (3.9.3.8).

Amenity and Natural Values

- 114 Objectives 1 and 2 and Policy 17 of the ADP are relevant in terms of a consideration of the impacts of the proposal on natural values. Of relevance, Appendix 2 (Schedule of areas of significant nature conservation value) lists the affected areas as a site of Special wildlife significance and as wetlands of ecological and representative interest. Site 67 (page A-46), which relates to the affected area, identifies the lower Rakaia river as being the largest braided river in New Zealand with outstanding value for wildlife. The application identifies that there are in general little in the way of significant conservation values in the affected area, and that careful phasing of construction and a revegetation and rehabilitation plan would return the natural form of the river corridor and would not be to the detriment of natural conservation values in the area.
- 115 I note that this matter has been discussed in some detail by Dr Vaughan Keesing as attached to the statement of Ms Harte for ADC. It is considered that after a review of the evidence of Mr Adam Forbes on behalf of ACWT, that it is clear that there are a number of residual 'opposing views' in relation to this matter that still require resolution. On that basis, I am unable to form a clear view on this matter with regard to the conservation values of the area.
- 116 In terms of amenity values, I note that Objective 4 (5.1.3.13) of the Rural Areas Section of the ADP requires the maintenance and enhancement of visual character and the recreational attributes of the rural environment. I consider that at the lower end of the Highbank canal component of the scheme would result in a number of effects that will result in visual modification of the area, and correspondingly could lead to a decrease in both visual amenity, and the amenity of people currently utilising the area in terms of its recreational values.
- 117 I have acknowledged that whilst not incorporated within the application, that conditions relating to public safety, bridge design and warning signs, would subsequently address my concerns relating to public recreational safety in and around the canal and tail race structures in a manner consistent with Objective 4 (5.1.3.13) and its supporting policies 1 and 6 (5.1.3.14)

Comment on Officer's Reports

- 118 I consider that both Ms Harte and Ms Johnston have provided a comprehensive assessment of the proposal, based on what is acknowledged

in both reports as being a deficient assessment of the suite of actual or potential effects that could be generated by the proposal. This is best identified in the lack of clarity in particular, with regard to terrestrial ecology and landscape matters, and the exact nature and frequency of takes and discharges, as well as a deficient application for the use and storage of hazardous substances, and yet a number of proffered 'General Conditions' relating to their on site management.

119 As stated at the beginning of this evidence, TPL shares the view that there is little clarity as to the exact specifications of what is proposed, and the accompanying assessment of such. I am however, of the view that the conditions proffered by the applicant's representative Mr Dunning, do at a minimum, provide a way in which those concerns to TPL with regard to the physical infrastructure of the Highbank HEPS can be avoided or remedied. I acknowledge that this may not be enough to satisfy those requirements necessary for the granting of the proposal as a whole.

120 I acknowledge that both Council Planners have attempted to provide a pragmatic response to the lack of quantitative assessment, through the recommendation of prescriptive conditions that 'may' mitigate adverse effects in the absence of a clearer understanding of the likely impacts of the proposal. However, Ms Harte explicitly recommends that the application be declined.

121 Both reporting officers have correctly in my view, outlined that there are a number of outstanding matters in relation to the TrustPower physical infrastructure invested in the Highbank HEPS and the successful ongoing mitigation of its effects, particularly in relation to the fish screen and channel. Ms Harte correctly identifies that the existing HEPS is a well established and significant asset, which contribute to the social and economic wellbeing of the Canterbury Region (Section 6.14).

122 I also agree with Ms Harte's statement that any agreed conditions between TPL and the applicant "*would normally (preferably) have been worked through prior to the application being notified, or at least prior to the hearing, so that other parties, including ADC, could have the benefit of knowing what is proposed.*" Despite this obvious deficiency, TPL representatives have worked through with ACWT a set of agreed conditions (as have been tabled by Mr Dunning), which if implemented subject to consent, would 'ring fence' those concerns of TPL as these relate the Highbank HEPS only. I echo Mr Harte's

comments, especially in light of the cohesive conditions granted with the EA consent in April that this process should have been managed by ACWT in a more transparent, pre-emptive and efficient manner.

123 I do however wish to agree with the Council Officers however, that unless the applicant can overcome the deficiencies identified with regards to those matters outside of those related to the Highbank HEPS there may well be grounds for the refusal of consent.

124 From a planning perspective, it is my opinion that the consent conditions should address RMA effects, and that the consent authority needs to make sure that this is indeed the case to meet the requirements pursuant to Section 104 of the Act. It is not appropriate, in my view, for a consent authority to rely on any commercial agreements between parties to manage 'environmental effects', nor assume that outstanding matters will be "sorted out" between affected parties or by conditions where these relate to relevant adverse effects under the RMA that in the Council's view have not been adequately addressed by the application, or its assessment .

Conclusion

125 It is my overall view the applicant has demonstrated, as subject to the conditions provided, that the proposed mitigation is sufficient to avoid adverse effects on the existing Highbank HEPS. Specifically in terms of a nexus that the effects of this proposal will not:

- Create an environment which would result in the current compliance responsibilities attached to the operation of the Highbank and Montalto HEPS, specifically the Salmon Barrier operations, being unable to be met; and that
- The combined Highbank and Montalto HEPS which contributes to the social and economic wellbeing of the region, and forms part of the existing environment would be unable to operate in the current manner, and as consented for.

126 I base this conclusion on my analysis of the relevant planning documents to be considered in this case as these apply specifically to the Highbank HEPS and surrounds, as subject to the conditions provided by the applicant. However, I acknowledge that the AEE and accompanying information is insufficient for a number of wider matters to be determined, specifically those

matters related to water quality, terrestrial habitat and landscape. Whilst the implications of the proposal on the Highbank HEPS could be sufficiently resolved, this may not in itself be sufficient, given the paucity of information in the application, to demonstrate that adverse effects on all natural and physical resources (s3(b)) that constitute the environment in this locality can be avoided, remedied or mitigated (Section 5(2)(c)).

- 127 I would also caution against substantial weight being given to the benefits of the scheme in the face of a reduction in generation capacity from the Highbank HEPS. In my view there is still some uncertainty as to the likely delivery of the proposal against national or regional energy efficiency policies, or enabling people and communities to provide for their wellbeing.
- 128 However, after listening to all of the material presented at the Hearing, including the reply by the applicants to this evidence, should the Council consider that consent could be granted, as a minimum I would consider those conditions identified in this evidence as outlined in Mr Dunning's Appendix 'B' be incorporated into the suite of corresponding consents.

Matt Bonis

15 September, 2008

Attachment 'A' Highbank HEPS Infrastructure

- 1 The Highbank HEPS is located some 60m from the edge of the Rakaia river terrace. The power station and tailrace structures are protected by rock groynes, a river protection berm and a number of mature riverbank trees.
- 2 As outlined by Dr Allibone, the first 500m of the Highbank tail race consists of a formed channel extending southeast from the power station. There is some 30m to 60m between this extent of the tailrace and the Rakaia Riverbed which consists of a grassed flat area, gravelled access to the salmon screen, a number of mature trees and river protection works. Southeast of the salmon barrier the tailrace becomes more naturalised, upstream being a concrete lined channel which contains the existing salmon screen, and downstream containing a number of willows and mature vegetation lining the river corridor. This section was graded by TPL as a good-will gesture to ensure that the stranding of Salmon in the lower section of the tailrace is avoided during fluctuating flow conditions.
- 3 The existing bypass channel discharges its flow into the tailrace immediately downstream of the concrete formed channel area at the Salmon barrier. The purpose of this channel is to allow salmon that encounter the barrier to continue up river.
- 4 Adjacent to the Highbank HEPS is a switchyard (ADP Designation #62) on a separate title (Lot 1 DP63832). The District Plan specifies that this designation for Switchyard relates to Transpower as the designating authority, although I note that TrustPower has assumed responsibility for the operation of this utility.

Attachment 'B' Planning Status and relevant Planning background

1 I am of the opinion that the application as a whole is to be considered as a 'non-complying activity' rather than the discretionary status as identified within the s42A report by Ms Johnson.

2 I reach this conclusion on the basis of a breach of WQL40 relating to the excavation and fill works over an unconfined or semi confined aquifer system where the depth of excavation exceeds 5m and is within 100m of the Rakaia River. I note that the statutory assessment accompanying the application (Attachment C) identifies the location of the scheme over the unconfined or semi confined aquifer system, but does not then go on to apply Clause WQL40 to the scheme. I acknowledge that the previous EA application which is referred to by Mr Dunning, Ms Harte and Ms Johnson as 'overlapping'. That consent was considered by Commissioner Rogers under Sections 104, 104B and 104D, and draw the Panel's attention to paragraph 14.8 where it was stated:

"Insofar as the assessment of the application against the statutory backdrop is concerned this requires me to consider Part 2 of the RMA in particular sections 5,6,7 and 8 and also sections 104, 104B, 104D, 105 and 107.

I then wish to point to paragraph 4.5 of Mr Steven Woods evidence from ACWT where it is stated that *"The canal (Highbank) would be formed by a combination of cut and fill earthworks to a maximum height of 7m and a maximum depth of approximately 7m".* Also paragraph 4.8 in that evidence refers to the *"new tail race canal will be excavated up to 7m below existing ground level".* My underlining.

3 Correspondingly, it is my view that the application is to be considered with reference to Sections 104, 104B and 104D of the Act.

4 Ms P Harte's Section 42A report, provides a comprehensive assessment of the resource consent applications required from the Ashburton District Council in relation to the proposal.

5 As was stated with reference to the EA application, I agree with Ms Harte's conclusion that the provisions of the Rural B zoning are not to be applied to this proposal, given the wording specified in Section 6.7 of the Ashburton District Plan ('ADP') that unless specified, the Utilities rules "take precedence

over any other rules that may apply to utilises in the District Plan". Therefore, the permitted site standards of 7.6.5.4.13 and 7.6.5.4.14 which relate to earthworks and riparian management respectively do not apply. For the purpose of considering this proposal, the status under the ADP remains fully **Discretionary** (refer Attachment 'B') and thus the assessment matters for 7.6.5.4.13 and 7.6.5.4.14 are still able utilised to give guidance as to assessing all the effects of the proposal.

- 6 I consider that the actual and potential effects associated with the 17 cumec water take from the Rakaia River along with the construction of the scheme intake from the Rakaia River, along with the Highbank canal structures, turbines, 7ha settling pond, and conditioned modifications to Highbank HEPS surrounding environment and tailrace have been considered and granted consent with the suite of consents granted to BCI in 2001, and subsequently EA in 2008. These in my view therefore form part of the existing environment.
- 7 I have viewed the ACWT Assessment of Environmental Effects (May 2007 / May 2008), information response from ACWT dated 31 May 2007, and based on this information I am of the view that the residual aspects of the scheme which can be fully considered as these do not have a previous consented history as being:
 - An increased take up to a total of 40m³/s from the Rakaia intake (although I understand that 35.5m³/s may be the maximum take to comply with the requirements of the Rakaia NWCO refer Mr Neal Borrie, para 10);
 - An Increase in the size of the settling pond to 35ha;
 - A sediment deposit of an average of 91,700 tonnes per year on approx 75ha to a max depth of 700mm at 'sediment disposal area' (Plan Z1114701/C001).
 - The creation and operation of an emergency spillway some 650m to the north east of the Highbank HEPS (500m before the 2nd turbine drop structure);
 - Within the combined Highbank HEPS / Highbank canal tailrace (that is below the Highbank weir, but before the Salmon barrier), a discharge of up to 40m³/s to be pumped to the terrace canal. The remainder is to be returned via the Salmon barrier and Highbank HEPS tailrace to the Rakaia River.

- An emergency spillway at the Highbank HEPS tailrace to provide for up to 23m³/s to spill, should in excess of 57m³/s be discharged via the Highbank HEPS Salmon barrier and tailrace.
- The formed and unformed Highbank HEPS tailrace enlarged for combined flow, including emergency flow.
- For the incorporation of the terrace canal a 300m section of the unformed Highbank HEPS tailrace would be moved approximately 40m to the east;
- The creation and operation of a Terrace canal to extend along the Rakaia terrace toe for some 6.5km;
- The construction and operation of Headpond of some 3ha in area;
- The construction and operation of buried concrete turbine 'Barrhill Power Station', associated tailrace and fish barrier.

Attachment 'C' Principle Activity and Status

	Description / Locality	Activity Status	Plan	Rule
Land use				
CRC072643	Construction of infrastructure required to divert, impound and convey water in the proposed scheme,	Discretionary	NRRP	BLR8
CRC072647	Maintenance and reinstatement of the existing Rakaia riverbank and riverbank protection works.	Discretionary	NRRP	BLR8
CRC072643	Excavation of more than 100m ³ of material and placement of more than 20m ³ of material excavations over an unconfined or semi confined aquifer system.	Non complying	NRRP	WQL40 and BRL8
CRC072648	Deposition of more than twenty cubic metres of material on excavated land over a confined or unconfined aquifer.	Discretionary	NRRP	Rule WQL41
CRC072649	To use land to place excavated material onto the bed of the Rakaia River.	Discretionary	NRRP	BRL3
CRC072646	To use land	Discretionary	NRRP	BLR8
CRC072644	Removal of material from the beds of rivers and streams along the scheme alignment to provide for the intake structure	Discretionary	NRRP	BLR8

CRC072645	Removal of material from the beds of rivers and streams along the scheme alignment to provide for the fish barrier structures	Discretionary	NRRP	BLR8
Discharges				
CRC073862	Discharge fugitive dust to air from construction activities, unconsolidated surfaces and stockpiled material.	Discretionary	NRRP	WQL57
CRC072640	Discharge water and contaminants to water.	Discretionary	NRRP	WQL56
CRC072639	Discharge water and sediments to water.	Discretionary	NRRP	WQL56
CRC072638	Discharge water and sediments to water upstream of the settlement lake fish bypass.	Discretionary	NRRP	WQL56
CRC072684	Discharge stormwater associated with construction to land.	Discretionary	NRRP	WQL57
CRC072641	Discharge cross drainage water with construction to land.	Discretionary	NRRP	WQL57
CRC072642	Discharge material from the settlement pond on the bed of the Rakaia River	Discretionary	NRRP	WQL56
CRC072636	Divert water via an intake structure and fish screen into a settling pond, canal and tail race and then further diversion via Canal and storage pond	Discretionary	NRRP	WQN41

	before discharge. Dam water in the diversion race, settling pond and canal.			
CRC073863	Dam water in the diversion race, settling pond and canal.	Discretionary	NRRP	WQN41
CRC080848	Use of water for hydro-electric generation at or about NZMS 260 K36:080-375 and NZMS 260 K36:080-366.	Discretionary	NRRP	WQN30
Land use				
Utility* not specified.	Hydro generation not specifically listed as a permitted or controlled activity.	Discretionary	ADP	Utilities 6.7.1.4(e)

* (Section 6.2) Utility: means a facilities, structures and works necessary for, incidental to and associated with providing the following:

- The generation and transmission of electricity;
- ...