



Enquiries to: Steph Brown and Jane Bayley  
WCRC File Ref: RC08149  
BDC File Ref: RC08/131

19 March 2009

Hydro Developments Ltd  
C/- CJ Coll Surveying Ltd  
PO Box 204  
**WESTPORT 7866**

Attention: Rebecca Inwood

Dear Rebecca

**WEST COAST REGIONAL COUNCIL**  
**RESOURCE CONSENT APPLICATION RC08149**

**BULLER DISTRICT COUNCIL**  
**RESOURCE CONSENT APPLICATION RC08/131**

**APPLICATION FOR PROPOSED STOCKTON PLATEAU HDRO SCHEME – FURTHER INFORMATION REQUIRED**

Assessment of your application for the proposed Stockton Plateau Hydro Scheme has identified the need for the West Coast Regional Council and Buller District Council to ask for additional information relating to the application.

Pursuant to section 92(1) of the Resource Management Act 1991 the Councils request further information. The additional information is required for the Councils to determine the extent of the proposal and the effect(s) that the activity will have on the immediate and surrounding environment and the ways in which the adverse effects may be mitigated.

**The further information required is:**

- as per the attached tables

The information requested is divided into the main technical areas however noting that there are areas of overlap.

**What you have to do now:**

In accordance with section 92A(1) you must, within 15 working days of the date of this request, take one of the following options:

- a) Provide the information; or
- b) Tell the Council, in writing, that you will provide the information; or
- c) Tell the Council, in writing, that you refuse to provide the information.

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2.

If you do not take one of these options within 15 days the Councils may decline your application.

You can also object to this request for further information by writing to Council, setting out the reasons for the objection, within 15 working days of receiving this request.

We look forward to your response, and the opportunity to meet to discuss this information request.

Steph Brown of Opus International Consultants is processing this section 92 request on behalf of the Regional Council. If you have any queries please contact Steph on (03) 363 5445 or Rachel Clark at the Council on (03) 768 0466.

Jane Bayley of Staig & Smith Ltd is processing this application on behalf of the District Council. If you have any queries please contact Jane on (03) 545 6883

By delegated authority



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**Colin Dall**  
**Consents and Compliance Manager**  
**West Coast Regional Council**



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**Trish Casey**  
**Manager of Community &**  
**Environmental Services**  
**Buller District Council**

## WEST COAST REGIONAL COUNCIL INFORMATION REQUEST

<b>Section A: Consent/General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Land ownership		<p>The proposal includes comment that HDL are applying for a land swap with the Department of Conservation. The land proposed for the land swap appears to offset the terrestrial ecology effects of the proposal.</p> <p>One of the other major effects of the proposal is the effect to the loss of heritage values. Has similar offset be considered in terms of a land swap? (see also heritage information request as overlap)</p>	Provide an update on land swap with Department of Conservation or concession
Conditions		Some mitigation measures such as relocating Charming Ck walkway have not been mentioned in the application or AEE yet are in the supporting technical documents (App J).	<p>Is the applicant proposing that the mitigation included in the technical reports be included in the application?</p> <p>Provide clarification about what mitigation is proposed. This may be best provided by way of draft conditions which the Councils can consider.</p>
AEE	91	<p>Granity water supply</p> <p>Granity has no formal community water supply scheme with most allotments connecting into private water supplies from creeks coming off the escarpment. The BDC is uncertain as to which properties are associated with the scheme that may be affected by the proposal.</p> <p>The AEE states that an alternative water supply would be supplied.</p>	<p>Confirmation of the properties that would be affected if an alternative water supply would be required.</p> <p>What are the options for alternative sources given the AEE states that there would be no interruption of supply for parties concerned?</p>

<b>Section A: Consent/General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	19 54	<p>Disposal of silt from the silt traps at the reservoirs is likely to be to SENZ's waste dump sites.</p> <p>Sediment removal from the collector tunnels is to be disposed of initially in the SENZ area and it is suggested that when they have closed down there will be little sediment deposited. While that may be the case it is not certain and it would be prudent to have designated disposal sites and consents to place sediment and debris from tunnel traps in them.</p>	Confirm whether agreement from SENZ has been obtained to use its waste dump sites.
AEE	99	The AEE states that any temporary stormwater control measures will be designed for a 2 year event however it is not clear how stormwater from permanent access roads will be managed.	<p>Confirm how stormwater from access roads will be managed.</p> <p>What is the rationale for designing stormwater control measures to cope with a 2 year event only?</p>
Application AEE	49 98 125	<p>Level of assessment undertaken on the impacts of putting emergency discharge into Granity Creek if the ocean outfall cannot be used.</p> <p>The AEE states that an emergency discharge would be up to 9m<sup>3</sup>/s, smaller than freshes that pass down the creek.</p> <p>Is there any potential effects of scouring of riverbanks, and bridge supports.</p> <p>It is noted that the northern end of Granity beach erodes along the river mouth in certain wave patterns and that erosion protection was required.</p>	<p>What information is there to prove the discharge would be smaller than a fresh?</p> <p>What measures does HDL propose to ensure that the discharge does not cause scour or erosion in the creek?</p> <p>What would be the effects of an emergency discharge if Granity Creek was already in high flow during high tide?</p>

<b>Section A: Consent/General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	various	A number of temporary and permanent structures and diversions are required to enable construction of the project, for example: temporary diversions in Darcy Stream, Mangatini Stream and Mine Creek and temporary culverts in Weka and St Patrick Streams: and permanent culverts in Sandy Creek. No design criteria (e.g. culvert sized for 1 in 10 year event) have been provided to demonstrate that they will be of sufficient capacity.	Confirm design parameters of the structures and diversions
AEE	106 119	<p>Ocean outfall The AEE notes that the probability and extent of the plume cannot be predicted by the model and that field trials would be required to determine if a plume would be visible from Granity.</p> <p>Section 107(1)(c) means that the Council cannot grant a discharge permit that after reasonable mixing will give rise to certain effects. The extent of the plume needs to be determined to enable the effects on the receiving environment to be assessed.</p>	Comment on how, in the absence of modelling information, a reasonable mixing zone can be determined.

**Section B: Hydrology information request**

Matter	Page #	Reason	Information required
		<p>Note: there are overlaps in the information requested in relation to the hydrology, freshwater ecology and engineering. The approach has been to include the request in the most appropriate section.</p>	
		<p>General Comments:</p> <p>The audit identified three main areas from which specific matters have been raised below. The three main areas are:</p> <ol style="list-style-type: none"> <li>1. The relatively short hydrometric records used to base the conclusions on</li> <li>2. The emphasis and focus on mean conditions; rather than the magnitude and periods of high and low flow</li> <li>3. The focus on 2006 as an appropriate 'annual record' for analysis.</li> </ol> <p>It is acknowledged that this approach might be appropriate, but it cannot be assessed until the data used in the analyses have been placed in both temporal and spatial contexts. In the majority of physical processes, it is the extreme events or occurrences, rather than the normal or average conditions that have a critical effect on the stability of the system, potential stress, or the potential for change.</p> <p>Consideration of the available flow records into both a temporal and spatial context would allow more confidence to be placed in the results and conclusions. At present, much of the discussion is rather qualitative and speculative. While perhaps this cannot be avoided, this uncertainty must be acknowledged.</p> <p>The comments below relate particularly to pages 24-26 of the application (which draws on the appendices); and sections 4.5 and 8.8.</p>	

<b>Section B: Hydrology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		<p>When discussing the effect of the proposed scheme on the tributary and main channel flows it is important that its effect over the entire flow regime is considered; not just its effect on average flow conditions.</p> <p>It is likely that the mean is in effect representative of very little in terms of the actual flow regime. The median flow would have been a better measure – at least from the hydrological perspective. For the statistical summary and analyses to be placed in context it is critical that a full analysis of the flow records and consequently the flow regimes is presented.</p>	<p>Given the nature of the flow regime in the affected catchments, with short high intensity events interspaced by periods of low flow, how appropriate/relevant is the use of mean conditions?</p> <p>What is the nature and variability of the flow regime? What other measures (e.g. medians) might have been more appropriate from an environmental perspective?</p>
		<p>The short 4-year periods of hydrometric record from the project area needs to be placed in the wider temporal context.</p> <p>While the application makes no claims that 2006 was average, or even what conditions it represented, this is actually critical when assessing the potential impact of the scheme.</p> <p>Given the strong focus, and more in-depth analysis, of the hydrometric data from 2006 it is critical that this year is placed in context. It would also allow the significance and relevance of 2006 to be highlighted; and therefore whether this was a typical year.</p>	<p>Provide a detailed analysis of the long term flow record for the Ngakawau catchment.</p> <p>What conditions does 2006 represent?</p> <ul style="list-style-type: none"> <li>- How did the rainfall during 2006 compare to other years?</li> <li>- How typical was 2006?</li> <li>- Was it distinctive in any way?</li> <li>- How might this distinctiveness affect the results and conclusions reached?</li> </ul> <p>Compare both the rainfall and flow records from 2006 (perhaps using the Ngakawau records) with the long term temporal record. This would allow more confidence to be placed in the conclusions derived from the analysis of this particular year.</p>

<b>Section B: Hydrology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		The comparison of synthetic and actual flow data, even using daily average data, shows that the relationship is not good. It is essential, given the extensive use and potential significance of the synthetic flow records that the potential impacts of this rather poor relationship is explored. While it is likely that little can be done to avoid the 'error', it must be recognised; as must its potential effect on the results and conclusions.	Provide comment on the potential effect on the results and conclusions on having used synthetic data.
		In the Water Quality and Hydrologic Modelling report when discussing hydrological verification it is stated that the difference is 50%. In fact, the difference is 100% with the modelled data being twice the measured data. This is a significant difference. Its effect on the results and conclusions must be addressed.	Discuss the effect on the results and conclusions due to the difference in the measured and modelled data.
		The hydrometric data record is not considered of high quality. Of the three sites discussed missing data account for 14%, 13% and 24% of the record. Of critical importance is 'which part of the record is actually missing'? It is likely that the missing record biases the data by disproportionately missing either the high flows (most likely) or low flows.	What is the effect of these missing data on the statistics derived?  How does it affect the means derived from the analysis?  What are the potential effects of this on the conclusions?
		After providing some discussion of the rainfall and flow variability across the project site it is then argued that gaps in the rainfall record can be filled by substitution. No justification is provided for this approach.	Provide justification for filling gaps in the rainfall record by substitution.

Section B: Hydrology information request			
Matter	Page #	Reason	Information required
		Given the uncertainty of the hydrometric data sets, it is essential that the application (or an Appendix) provides a detailed analysis and quantification of the errors inherent in the analysis. This must then extend to an attempt to quantify the potential effect of these errors on the results and the conclusions. There is considerably more uncertainty regarding the hydrologic impacts of this proposal than suggested in the application. This uncertainty must be quantified if at all possible. At the least it must be recognised and acknowledged.	Provide a detailed analysis and quantification of the errors inherent in the analysis.
		While considerable emphasis is given to the available flow records no discussion is provided of the accuracy and reliability of the data.	How accurate are the hydrometric data? Consider: <ul style="list-style-type: none"> <li>- how accurate are the rating curves?</li> <li>- how stable are the curves?</li> <li>- how do the distribution of gaugings from which the rating curves were derived relate to the flow regime? That is, what were the highest and lowest gauged flows? How do these compare to the highest and lowest flows on record?</li> </ul>
		While areal scaling has been used to derive flows for un-gauged catchments it would appear that a straight proportioning approach has been taken. It has been shown, and extensively documented in New Zealand, that areal scaling should involve $A^{0.8}$ rather than area alone. If no justification is provided to the contrary, then a similar approach should have been adopted in the current study.	Provide any justification or use areal scaling that involves $A^{0.8}$ rather than area alone.

**Section B: Hydrology information request**

Matter	Page #	Reason	Information required
		<p>The application contains very little on the effect of the proposed scheme on the high flow events. It is the extreme events or occurrences, rather than the normal or average conditions that have a critical effect on the stability of the system, potential stress, or the potential for change.</p>	<p>How will the scheme impact on the frequency of flooding and the magnitude of floods? What is the likely effect of this with increasing distance downstream? Will this have a significant affect on the environmental processes downstream?</p> <p>What is the nature of the flood regime of the various tributaries? How will the scheme impact on these regimes?</p>
		<p>While some weight is given to the flood mitigating effect of the proposed reservoirs, this effect will reduce over successive floods; unless the storage capacity of the dam is restored between events. While there will be some attenuation of flood events caused by the reservoir, this may be offset by the reduced travel time of any flood wave. This does not appear to have been considered. The potential effect of the reservoirs could be better reviewed by considering the frequency and occurrence of storm events, and how this pattern of storm activity will interact with the operating regime for the reservoirs and power schemes.</p>	<p>How will the pattern of storm activity interact with the operating regime for the reservoirs and power schemes?</p>
		<p>There is no discussion provided as to the effect of the proposal on the low flows of the tributaries, and in particular the effect of flow retention within the reservoirs on the periods and duration of low flows. While short periods of low flow may not be critical to environmental processes, extended periods of low flow can certainly have a significant effect.</p> <p>Of particular importance is the significance and impact of the scheme on the duration and magnitude of periods of low flow. The use of, and focus on, mean flows tends to downplay the</p>	<p>Provide comment on the effect of flow retention within the reservoirs on the periods and duration of low flows.</p>

<b>Section B: Hydrology information request</b>			
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		potential significance of the scheme on low flow conditions.	
		There is very limited analysis of the potential impact of the scheme on channel morphology. No attempt appears to have been made to link changes in morphology to changes in the flow regime of the various streams.	What are the potential effects of the scheme on channel morphology?
		While the potential impacts of the proposal will be less with increasing distance downstream, this has not been quantified. It is important that the full potential impact of the proposal is assessed. This includes the dissipation of effects with increasing distance from the site.	What are the effects of the increased flood flows in the Mangatini Stream?  How might these increased flows affect the morphology of the channel? How might this affect downstream users?
		The application makes the conclusion that one effect of the scheme may be that the 1:50-year event could become the 1:100-year event. This claim appears to be unsubstantiated. It is, however, highly likely that low flow events will become much more common, and their duration will also increase as a result of the diversion of flow into the scheme.	Provide comment on why the 1:50-year event could become the 1:100-year event.  Note: if it is demonstrated that the scheme would appropriately ameliorate flood flows, it is likely that responses to the above questions would reflect this.
AEE	24	Given the life expectancy of the scheme, the potential effect of any climate change needs to be considered.  The AEE states that more extreme patterns of rainfall will need to be managed and that this will be done by providing storage and increasing power production. However it is not clear whether the reservoir area proposed has accounted for this.	Confirm how potential storage requirements due to climate change have been accounted for within the reservoir areas.

<b>Section B: Hydrology information request</b>			
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		In terms of sediment control, both during construction and during tunnelling, there is no discussion on the nature of the sediment load, its character, size, and volume. Likewise, there is no discussion as to how this differs from the natural load in the rivers and streams.	<p>Given the limited hydrometric data available, how will the sediment control structures be designed, and what are the contingencies should failure occur?</p> <p>What would be the potential impact of this material if it was to become 'uncontrolled'?</p>
		The sources of sediment within the project area are not discussed in either the application, or any of the appendices. If the sources, volume and character of the sediment changes as a result of the scheme this could impact on channel stability and morphology.	<p>What are the sources of sediment within the project area?</p> <p>How will the proposal impact on these sediment sources?</p> <p>Will the proposal create new sources? How will these be managed?</p> <p>What is the reliability of these management strategies?</p>
		Given that most of the sediment moving downstream will be intercepted by the reservoirs this impact on sediment sources and transport processes downstream needs to be considered.	<p>How will this impact on sediment sources and transport processes downstream.</p> <p>Is the trapping of sediment likely to increase bank erosion downstream?</p> <p>Does this have any potential to affect the integrity of the dam via head-wards migration?</p>
		Considerable discussion is provided on turbidity values, and therefore the derived suspended solid concentrations. However, no data are provided as to the reliability of the conversion from turbidity to suspended sediment; and the potential effects of any error in the calibration on the conclusions reached. Given the likely high concentrations of coal within the flow, this may have a significant effect, and a distinctive effect, which does not	<p>What is the reliability of the suspended load data – especially given the comment regarding the high percentage of coal; and the reliability of any turbidity to suspended sediment calibration?</p> <p>How does suspended load relate to total load?</p> <p>What is the nature and significance of any bedload?</p> <p>How will the scheme impact on bedload movement?</p>

<b>Section B: Hydrology information request</b>			
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		<p>appear to have been considered.</p> <p>With regard to the sediment analysis it would appear that only suspended load is considered.</p>	

<b>Section C: Engineering information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		<p>Comment:</p> <p>The dam breach assessments have been prepared as a preliminary assessment and are based on dam levels that are lower than those given in later documents (Weka as RL 390 compared to RL 382-384 used and for Mt William RL 575 compared to RL 565-570). The dam breach studies have also been carried out assuming that earth dams will be built where as now it is proposed to use RCC dams. The derived classifications for the earth dam structures is that they are in the high potential impact category and this is not likely to change in any new analysis using the higher lake levels and RCC dam break mechanisms.</p> <p>The dam breach report does not identify the level of effects from the proposed dam heights.</p>	<p>Confirm that, given the differences between the assessment and what is proposed, whether the effects (eg. on the area flooded) would be different from that supplied in the application.</p>
Drawings		<p>The extent of the construction areas (i.e. footprint) is not clear from the concept drawings. The scale of disturbance beyond the structures (e.g. dam, reservoir, tunnel portal) footprint is necessary to understand the effects of the activities.</p> <p>For example, at the Granity portal the footprint is necessary to determine the potential for instability.</p>	<p>Provide plans showing the extent of disturbance beyond the Dam, reservoir and portal structures.</p>

<b>Section C: Engineering information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
			Provide a schematic plan showing the major hydraulic controls of the proposal showing such things as inlets, tunnels, intake tower controls, dewatering sluices, spillways, power stations and sea outfall.
		<p>No mention is made of the likely operating regime of the new reservoirs, the water level range and the likely annual movement. This will have some impact on shoreline erosion from wave action which should be assessed.</p> <p>This information will also be required for landscape assessment and ecological assessment.</p>	Provide comment on (i) the likely operating regime the water level range and the likely annual movement and (ii) the potential for erosion as a consequence.
		Excavation of Granite within the inundation area is a practical thing to do. However there is no indication of how much material is going to be required and if the potential resource can supply the required volumes. Typically one would prove a source with at least 1.5 to 2 times the volume required.	Demonstrate that the potential resource can supply the required volumes.
		<p>The hydraulic structures are all in the preliminary design stage and may change as the final design is worked through. The concepts for the Mt William and Weka Dams are satisfactory showing a low level sluice for emergency dewatering and possible use as a diversion structure during construction.</p> <p>For these structures given the nature of the acidic water impounded it is prudent to allow for the reservoirs to be drained should some defect show up sometime in the future requiring the water level to be lowered below the hydro outlet level. This is a</p>	Confirm if dewatering of the reservoirs, either in an emergency or for maintenance or repairs, is included in the consents being sought for discharge of tailwater.

<b>Section C: Engineering information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		fundamental dam safety issue. Designing such facilities that will have a long life in that environment will be a challenge.	
		<p>Construction of the dams using RCC is a good choice for this high rainfall site as they are less affected by rainfall and can be overtopped without dire consequences.</p> <p>They will however need to show that the dams can safely contain the acid water over the life of the dam (100yrs) without any significant reduction in stability. Leakage through dam joints in this situation has far greater consequences than for a RCC dam retaining normal water. The building consent will need too address these issues and require an adequate monitoring programme to monitor these aspects.</p>	Show that the dams can safely contain the acid water over the life of the dam (100yrs) without any significant reduction in stability
		There is a coal seam near the true right abutment of the Weka Reservoir.	<p>Provide comment on the potential for, and effects of leakage through coal measures/workings.</p> <p>If there is a leakage potential, what procedures would be put in place to manage this?</p> <p>What confidence does HDL have that there are no other coal measures in both reservoir footprints?</p>
AEE	39	All sediment traps	Confirm whether the sediment traps shown on the plans and discussed in the AEE (e.g. pg 39 Darcy Diversion) are the ones to be used during construction or whether other temporary ones are proposed?

Section C: Engineering information request			
Matter	Page #	Reason	Information required
AEE	90	<p>During micro tunnelling extensive dewatering is required and with the potential for poor ground conditions there is a real risk of effects on adjacent properties and infrastructure.</p> <p>There is a need to ensure long term stability of the tunnel and not just during monitoring. The pipe size will be slightly smaller than the tunnel, allowing some possible displacement.</p>	<p>What measures will be implemented to minimise the potential for settlement on building and utilities (e.g. road, rail)?</p> <p>What monitoring during excavation is proposed? What criteria are proposed for acceptable levels of settlement?</p> <p>What contingency measures would be implemented if settlement levels are exceeded?</p> <p>How long will monitoring occur for and what mitigation is proposed long term should subsidence become an issue?</p>
		<p>During construction of the outfall vibration monitors should be set up to actually monitor the effects as well as an initial ground survey so that any ground settlement can be identified.</p>	<p>Confirm what monitoring is proposed.</p>

Section D: Ecological (freshwater) information request			
Matter	Page #	Reason	Information required
		<p>Note: there are overlaps in the information requested in relation to the hydrology, freshwater ecology and engineering. The approach has been to include the request in the most appropriate section.</p>	
Appendix D	10-11, 20, 24	<p><i>Allisoniella scottii</i> is a liverwort with a threat classification of Nationally Critical, and <i>Blindia lewinskyae</i> is a moss that is range restricted (based on limited data). At the site visit <i>Blindia</i> was observed in Weka Creek.</p>	<p>What is the distribution of these bryophytes within the footprint of the proposal?</p> <p>Will the <i>Hennediella sp</i> population be affected by the proposal?</p>

Section D: Ecological (freshwater) information request			
Matter	Page #	Reason	Information required
		<p>NIWA reports have noted both species in the general area, but their investigations have not specifically defined the range of these bryophytes within the footprint of the proposal.</p> <p>NIWA also reported a possible new species of <i>Henediella</i> in the west branch of Mine Creek.</p> <p>The applicant proposes to undertake a pre-construction baseline study, and if necessary offset any habitat losses by protecting other habitat for these taxa or by relocating plants to areas outside the footprint of the proposal.</p>	<p>Provide information on the proposed method of relocating these plants; including how the success of the relocation will be monitored and contingency plans if relocation is unsuccessful.</p> <p>Identify areas outside the footprint of the proposal that could be protected as an offset for habitat loss, and describe the mechanism and details of how this will be achieved, for example land-ownership, covenant proposals etc.</p>
	8-10	<p>Combining of Mangatini, Weka and Sandy Creek for the purposes of assessment.</p> <p>The NIWA reports do not investigate these streams. Sandy and Weka Creek may not be AMD impacted and may provide an important source of colonists to other streams.</p> <p>The Mangatini Stream arises in a different part of the plateau than these streams so assessing them as a single site provides insufficient resolution. Weka Creek and Sandy Creek have considerably different in-stream morphology to Mangatini Stream and should have been assessed separately.</p>	<p>Provide an assessment of the potential environmental effects on Sandy Creek and Weka Creek, given their potential importance as representative remnants unaffected by AMD.</p>
		<p>It is likely that the changes in the flow regime will lead to an increased growth of algae under the imposed low flow regime. Such an effect has been observed in other 'managed' river systems in New Zealand.</p>	<p>Confirm what consideration has been given to the effects of increased growth of algae under the imposed low flow regime.</p>

<b>Section D: Ecological (freshwater) information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		While it is recognised that the period between freshes is seldom going to be really long enough to accumulate a high biomass of material it is not clear whether this has been considered.	
		In a number of areas baseline surveys are proposed. It is not clear what is proposed and what the management response to the surveys would be.	Describe what baseline surveys are proposed and what the management response to them would be.  Alternatively indicate whether it is proposed to draft consent conditions prior to the s42a report being prepared so that it can be considered at that time.

<b>Section E: Geochemistry information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Appendix K	Page ES2	Statement in the Executive Summary needs clarification. It is noted that “Water quality in Mt William reservoir quality will improve ... due to increasing dominance of Mangatini waters...”	Please clarify whether or not Mangatini Stream will contribute to Mt William Reservoir (cf. for example, Table 5-1).
	Pages 5-1 to 5-3	The limitations of the input data for modelling are acknowledged. However, insufficient information is provided to determine just how representative the data being used is likely to be. Therefore it is not possible to judge the reliability of the modelling.	For each of the sites in Table 5-1, please specify the number of data points (“n”) used in the derivation of the mean value shown, the range of data (min-max), and the year represented by the data (i.e., 2007/08, or previous).
	Page 5-1	Two major assumptions made for modelling; that TSS are not re-suspended, and secondary mineral precipitates are not re-dissolved, are effects that are likely to be very detrimental to water quality. It is usual to model worst case scenarios.	A brief sensitivity analysis of the likely effects of TSS re-suspension and precipitate re-dissolution on modelled water quality would be useful.

<b>Section E: Geochemistry information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
	Page 5-2	There is no information on whether or not the reservoirs are expected to develop vertical stratification. This would affect downstream water quality.	Please include a statement as to whether the possibility of stratification has been considered. If so, can this effect be included in the modelling?
		For the input data, cation or anion concentrations have been adjusted to ensure an ion balance. Changing the concentrations of some constituents could affect WQ predictions.	Please indicate which cations or anions were used to create an ion balance.
		Waterways that are noted to contribute to the reservoirs elsewhere in the AEE documents are not listed in the input data in Table 5-1. For example: Plover, Fly, Sandy and AJ Streams.	Please clarify that the input of these waters has been included in the flow/chemistry of the streams that are listed in Table 5-1 or 5-2 (and which streams).
	Page 5-3	Given the potential for Cd to bioaccumulate in benthic marine life, any information on likely Cd concentrations in the outfall would be useful.	If any data is available for Cd in the modelling input waters this should be included in the modelling process (e.g., Appendix C of this URS report shows Cd concentration significantly raised in ARD samples from Mangatini Creek (S14)).
	Page 5-4	Model validation against WQ monitoring for Ngakawau River is mentioned, but no results are shown.	Please include the data referred to at the end of Section 5.1.3.
	Page 5-4-5-8	There are major discrepancies between comments in the text, and the data presented in Tables 5-3 and 5-4. Some of these comments are reproduced in the main AEE document (p100).	Please clarify so that text and tabulated data are consistent.  For example, WQ in Weka Reservoir doesn't improve under high flow conditions (consider trace metal concentrations).
	Page 5-6 – 5-7.	In Table 5.4, the modelled data for low, median and high flow scenarios are identical for the Mt William Reservoir. This table is reproduced in the AEE document (p100) also.	Please confirm that this is correct and, if so, include an explanation of why this occurs.

<b>Section E: Geochemistry information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
	Page 5-8 and Fig 5-1	The discussion of Ngakawau River water quality is limited to pH, Al and Fe. It is unclear why modelled data for other trace metals is not discussed.	Please clarify why this data is so limited.
	URS report Appendix C	Figure 1 does not include Fe, the precipitation of which is critical in this exercise.	Please add Fe data to Figure 1 of this appended report.
	Page 5-14	It is unclear how NTU or TSS units have been converted to units of clarity. Figure 5-5 is very difficult to interpret (e.g., what is the y axis on this figure?).	Please clarify.
Appendix L	Page 3	Worst case scenario effluent is noted to be 9m <sup>3</sup> /sec (2 x modelled median flow).	Please include an indication of how dilution modelling results will be influenced by the higher flow conditions.
	Page 5	The summary bullet points appear somewhat contradictory. This is possibly because two different URS reports (2007 and 2008) are being referred to.	Please clarify, identifying the most recent, confirmed results of these previous studies.
	Page 20	It is unclear whether the effects of the difference in density between the outfall effluent and seawater have been taken into account, when dilution is being modelled. It does appear that this may be why so little further dilution occurs after the initial mixing of the plume into seawater.	Please confirm that CORMIX does model the movement of the outfall effluent within the seawater column in response to density differences.
	Page 21	If modelled Cd data can be made available (see comments above re: Appendix K), then potential bioaccumulation in marine organisms could be assessed (also on p31, where food guidelines are considered).	Please add commentary on the potential for Cd bioaccumulation in benthic marine life ... if Cd concentrations in the outfall can be predicted.

<b>Section E: Geochemistry information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
	Page 28	Precipitation of Fe and Al oxides (giving rise to changes in the clarity being measured) may take time.	Please specify the time allowed for reaction to occur during mixing experiments
	Page 29	Figure 5 is difficult to interpret.  A clarity change can be due to a number of different processes. Was any colour change observed as clarity decreased?	Please clarify whether the vertical axis is % change in clarity, or % transmittance (as stated on p 28). Also clarify in discussion below this figure.  Note any colour changes observed.

## BULLER DISTRICT COUNCIL INFORMATION REQUEST

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	78/113	Need to consider the visual effects at Granity construction site	<p>Will there be a permanent fence retained around the site once operational?</p> <p>If so will it be the existing security fence or a new fence around a smaller area?</p>
		Need to consider public accessibility to Millerton Incline track and whether a secured operational area will prevent public access to the track.	Show in relation to the perimeter fence(s) how access will be provided to the Millerton Incline, both during construction and operation
Application Appendix J AEE	7 5-1 83	<p>The application states that the Charming Creek experience will be improved. To some who walk the walkway, the experience is the Mangatini waterfall. Reducing water volume over the falls to 40% will therefore reduce the experience.</p> <p>The proposed mitigation to relocate the track to avoid flood down the river in case of dam breach, as defined in App J. This will alter the experience as the track will no longer be on the old rail line and will remove the walkway from its context.</p>	<p>How will the Charming Creek experience be improved?</p> <p>Is the improvement proposed to be one off or on-going mitigation?</p> <p>Is it a plausible action to de-scale the rocks in the Ngakawau River given that Charming Creek will still be discharging AMD waters?</p>
		<p>Will workers for the HDL construction and operation project be locally sourced? Need to consider social effects regarding accommodation, demand on services such as medical and education.</p> <p>The application states 50 people and 2 shifts per day. Given days off that would be 4 shifts of 10-12 people plus management.</p>	<p>How many people will be employed by HDL during construction and operation?</p> <p>Is this a correct interpretation of the information? If not please specify the likely spread of workers.</p>

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		The BDP requires bulk of buildings to be considered. The information contained in the application only states the area of the reservoir.	What is the footprint area of the dams/shoulders?
		Again, need to consider the footprint and height of the intake structures.  From discussions at the site visit, the intake structure will have holes around the intake at various levels. It was uncertain whether it would be capped. Weka Dam will have access around it to Repo Basin, so public could access the reservoir. There is also a need to consider a cap for preventing wildlife entering the system.	What size (height/footprint) will the intake structure be?  Will the intake structures have covers to prevent access by people and wildlife?
		No details have been provided about the internal layout of the power stations. It is assumed that only one turbine will be required at each power station.	Provide a schematic diagram of the internal operating of the bulk head, machine hall for the proposed power stations  It would be beneficial to have a cross section of the scheme, showing the reservoirs, intakes, dams, tunnels, bulk heads, machine halls, transformers, etc to view flow of water through the scheme.
		Need to assess whether there are any visual effects at Granity and whether there are any effects from noise or spray drift and from potential contamination of water supplies.	Will the surge chamber at Granity be located within the tunnel? Provide a schematic diagram.
Application	9	The application states that the base load will be 25MW subject to configuration and possible 3 <sup>rd</sup> power station.	It is not clear whether the 25MW includes the 3 <sup>rd</sup> power station. If it does, then what is the output of the two power stations?

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Application	12	The application states that a licence to occupy will be required for temporary occupation of On Track land.	Does this mean that access to the site once the scheme is operational is to be from Back Road and the museum?  Will this affect the access ramp/overflow which appears to be located partially on rail land?
		The reservoirs and feeding rivers contain mining relics such as timbers, which may become buoyant. There is the potential that this material may be forced over the spillway in times of flood.	What will the finish of the dam structures be? Is overtopped by timbers etc likely to affect the integrity of the structures / will the structure be compromised by such overtopping?  What impact will this have on the roading on Mt William Dam?  Will there be any issue regarding the integrity of the intake towers?
Application	41	The BDP requires consideration of bulk and height of all buildings. Although only temporary, some of the buildings will be in place for over 3 years. In Granity, consideration is required in relation to the visual impact of the bulk of buildings etc as the site is adjacent to the township. It is also possible that some of the activities, such as batching plants and silos will exceed height requirements.	Provide details on the types of proposed construction buildings both on the plateau and at Granity?  In terms of the buildings at Granity, are any of these proposed to be permanent? Will there be a control room/office block at Granity similar to that proposed at Weka power station?
		Granity does not have a public water supply nor sewer reticulation. The Plateau also has no services and difficult conditions for disposal of effluent.	How will potable water be provided and effluent disposed of?  How are the temporary construction buildings and the permanent office block to be serviced in terms of ablutions?

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		<p>There seems to be an under estimation of the amount of material to be extracted from the tunnels, and ventilation shafts.</p> <p>Example            Gravity tunnel, estimated extraction of 40,000m<sup>3</sup> (pg 50). However at 4900m long x 10.5m<sup>2</sup> diameter, the minimum amount that would be extracted would be 51,450m<sup>3</sup> and that excludes any material from the ventilation shafts.</p> <p>This will affect traffic generation and also potential storage capacity of the reservoirs.</p>	<p>Provide an assessment as to the amount of material to be extracted from the tunnel operations. Will the storage of this material affect the generation capacity of the scheme, the amount of storage capacity and flow regime of the project?</p>
Application	45	<p>The plans show an inundation behind the Mangatini diversion should the weir be closed, however this information has not been provided for the Mine Creek diversion.</p> <p>This also needs to be considered in relation to landscape and ecological effects.</p>	<p>How much land will be inundated if the Mine Creek weir was closed?</p> <p>How long/regularly would the weirs be expected be to be closed?</p>
Application	46	<p>Due to the use of RCC, a batching plant will be required close to the dam sites. Therefore will there be two of everything?</p> <p>Will need to consider social, traffic effects and the number of staff required.</p>	<p>Will the construction of Weka and Mt William Dams occur concurrently?</p> <p>Will that require two separate operating areas?</p>

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Application	48	<p>Are temporary lines proposed or is a generator to be used during the construction of the dam and tunnel?</p> <p>In terms of the Granity tunnel, it is noted that the ventilation shafts will be used for power. Will this have visual and ecological effects? Also need to consider effect on snails.</p> <p>Any new lines would be through MAPPS? Would need to check the MAPPS restrictions.</p>	<p>How is electricity to be supplied to the dam sites and in the tunnels through the project construction?</p> <p>Where is the power from the ventilations shafts to come from? Are new powerlines required?</p> <p>What visual and ecological effects will this have?</p>
		<p>If the MAPPS prevents mining, does it prevent tunnelling?</p> <p>New roads are proposed to the vents. Are new roads permitted within the MAPPS area?</p> <p>Would powerlines be permitted within MAPPS?</p>	<p>Provide a copy of the MAPPS agreement.</p>
Application	49	<p>Have very little detail about what is occurring within the construction area. Need to consider noise from stockpiling and visual effects of stockpile.</p>	<p>The application states that should rock be required by the community for coastal protection it would be stored somewhere. Where would this material be stored?</p> <p>Is the area identified for construction large enough to include such a stockpile?</p>
Application	49/50	<p>Confusion about whether the proposal is a 24hr operation or not. The application states 2x10hr shifts and 24hr tunnel operation at Granity.</p>	<p>Need to confirm hours of operation</p>

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Application	54/74	What is proposed if SENZ will not take sediment from the dam sites?	How large a sediment stockpile would be required if SENZ didn't take sediment? Would the footprint are need to be expanded?  What height are the stockpiles expected to be?  At what point would the stockpiles be contoured and rehabilitated?
AEE	74	All other diversion structures have access roads or footpaths shown on the maps It is assumed that a short length of track will be formed	How is access proposed to maintain the diversion of Mine Creek?
AEE	78	At the site visit, it was said that the pipe connecting the surge chamber to the jacking station would be dug in. This pipe is to be at least 7m below ground at the jacking station.  Digging may affect any archaeological remains	Due to depth of excavation is digging or drilling more appropriate?
AEE	114	Need to consider setback from public access/residences/rail line	Are explosives to be stored on site? If so, where are they to be stored?
AEE	113	The Ngakawau River is a grade 3 flood-run river. There is little known about the usage of the river. The applicant should have made an attempt to identify the level of use on the river to determine the effects of fewer but larger flood events would have on the use of the river.	What are the effects on the users of the Ngakawau River?
AEE	113	Need to consider the footprint required, the landscape effects and possible ecological effects if additional clearance required	The AEE says no public access to the reservoirs. What happens when the SENZ is no longer operating on the site? Will there be a need for public restrictions/security fences to prevent access to the dams, the intakes etc?

<b>Section A: General information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	114	Need to consider whether hazardous material, how it is transported to the site and stored, and volume.	What will the additive be for the RCC dam to strengthen/quicken the cement?
Appendix J	5-1	Some of these options include effects on recreational aspects, and landscape effects such as flood protection works for the villages of Ngakawau and Hector, and raising the level of Charming Creek walkway.	Is the applicant considering implementing any of the mitigation options proposed by URS in the dam breach report?
		It is noted that Meridian Energy Ltd's application includes powerlines over the plateau which appear to run through the proposed Weka dam	Has any consultation been undertaken in relation to the placement of the MEL poles and the HDL dam?  Would there be any conflict between powerlines if MEL's line crossed HDL's line where it ran from the Weka power station to join up with SENZ line at Station #4?
		The construction report appears to be missing reference to noise and traffic management plans	These will need to be included in the matters to be included in the construction report.

<b>Section B: Terrestrial Ecology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Appendix H	26	Greater certainty is required regarding the conclusions that impacts on the local fernbird population will be small.	Further information to support the claim that there are likely to be several thousand fernbirds on the Stockton Plateau and analysis to place likely project losses into context. Map showing the extent of the Stockton Plateau and approximate estimate of the extent of suitable habitat for fernbird would be helpful here.
	28	Greater clarity required concerning the risks to <i>Powelliphanta</i> snails, particularly <i>P. lignaria</i> "Millertoni".	Further analysis of the reasons why <i>Powelliphanta</i> snails are likely to be absent.

<b>Section B: Terrestrial Ecology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
	28	Greater clarity regarding the effects of access roads on flora and fauna.	Description of the vegetation habitats and associated fauna likely to be affected by permanent or temporary access roads and what will be the nature and significance of effects? What rehabilitation is proposed for the temporary access roads?
	28	Greater clarity required regarding the risks of open channels on fauna.	Further details of the locations and extent of open channels/vents and analysis of the associated risks.
	31	Further rationale required concerning the necessity and effectiveness of the proposed pest and predator control on access roads.	Substantial access to the project area already exists and therefore presumably opportunities for mammals to move easily through the area. In this context therefore, how great an additional risk does the project pose and how effective is pest and predator control likely to be on the new access roads.
	31	Further information required concerning the wetland area near to the junction of Fly Creek and St Patrick Stream.	Description of the vegetation and assessment of significance. Assessment of the nature and significance of any impacts on this vegetation.
	32	Clarification required concerning the merits of capture and relocation of lizards and snails.	What are the prospects of finding suitable habitats for relocation of lizards and snails where there will not be competition from existing populations?
	32	The value of the monitoring to assess unforeseen effects on threatened birds is unclear. It is likely to be very difficult to measure and isolate unforeseen effects of this development from natural trends, particularly in populations that may already be in decline.	Further rationale required to clarify the benefits of monitoring to assess unforeseen effects on threatened bird populations.
	32	Clarification needed as to whether an entomologist has been engaged to review the macro-invertebrate life in the area.	Results of the entomological review, if one has been undertaken. Rationale for not undertaking the review if it has not occurred.

<b>Section B: Terrestrial Ecology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Appendix F	17	Further clarity regarding the significance of the <i>Carpha alpina</i> gravelfields required.	Further comment on how unusual this community is and also the significance of its loss if it is going to be affected.
	18	The assessment of representativeness appears to contradict the statement regarding the uniqueness of the <i>Carpha alpina</i> gravelfields referred to on page 17	Clarification regarding the apparent contradiction.
	18	The assessment of distinctiveness does not include comment on the uniqueness of the <i>Carpha alpina</i> gravelfields referred to on page 17	Clarification required concerning the distinctiveness of the <i>Carpha alpina</i> gravelfields.
	19	The assessment of "size" against the criteria on P17 does not appear to reflect the intent and purpose of the criteria.	Analysis of the significance of the size of habitats impacted against the criteria.
	20	The analysis of effects is very limited and does not cover in any detail the nature or significance of effects of the project on vegetation.	Analysis of the nature and significance of effects. If effects are indeed minor then some rationale regarding why is required here. This is particularly important with regard to potentially unique features.
Application Appendix G	31 14	No terrestrial assessments have been provided for the proposed Granity Tunnel route. All assessments have been undertaken for Millerton Road. While it may be possible to presume similar habitats, the application area has little human interference and so may have a different distribution of species. The area also includes the <i>P. lignaria</i> "Millertoni", and no information has been provided on the effects the proposal will have on them. It is not certain where the drill holes and ventilation shafts will be in relation to the snail population. Nor whether the proposed access roads will impact on the snail population.	Provide an assessment on the terrestrial ecology of the new Granity tunnel route, and in particular the effects of the surface disturbance from drilling, vents, access tracks and power lines may have on the ecology, in particular <i>P. lignaria</i> "Millertoni"  Provide a map showing the proposed Granity Tunnel route and associated activity in relation to the known location of the <i>PI</i> "Millertoni"

<b>Section B: Terrestrial Ecology information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		To consider the reasons behind the ecological area. From the maps, it appears that part of the dam structures at Weka creek and some flooding may occur within the Ngakawau Ecological Area.	Provide a copy of the Ngakawau Ecological Area gazettal
Application	29	Is it proposed that all timbers be removed? Or flood the larger vegetation which may result in timbers being exposed at the surface?  Also some confusion about whether the timbers will be used for restoration or utilised as proposed in App F.	How much large vegetation within the reservoir will be removed, and how much will be drowned?
Application AEE	41 73	Need to consider location and area of disturbance outside the reservoir and sediment site areas.	Where will the sites be located for the overburden and strippings?
Appendix E	9.7		Appear to be missing the last sentence in the 1st paragraph on pg 20.
Appendix E	113/137	One benefit identified in the Norton Roper-Lindsay report was that a lake would prevent public access to Repo Basin and avoid trail bikes from accessing the area. This proposal retains an access, a matter raised in submissions.	Have Norton Roper-Lindsay considered the proposed access intended to be retained to Repo Basin?  How much additional disturbance is required to re-route the Repo Basin walking track?
		Uncertainty as to the effect that the varying reservoir levels will have on the ecology of the area and what mitigation is proposed.	Provide an assessment of the effects of the changes to the operating level of the reservoir and any mitigation proposed.

<b>Section C: Landscape information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	9	<p>Paragraph 1.5 Transmission, refers to the proposed transmission infrastructure. The application includes consents to build spur lines in order to connect to existing SENZ transmission lines. The application proposes to connect Weka Power station to SENZ's 33kV line that serves Stockton Mine. This assumes that SENZ want this connection. Is there a contingency plan if SENZ are not interested in being connected to these lines?</p> <p>Knowing Meridian's plans for the Mokihinui Hydro Proposal and it's proximity to HDL's project, it would be prudent to relate the routes of both project's transmission lines.</p>	<p>Provide alternatives for transmission line connection assuming SENZ don't need/want power resulting from proposed transmission lines connecting with their existing structures?</p> <p>Or</p> <p>Provide evidence of SENZ's interest in the proposal to connect to their existing transmission lines.</p> <p>Provide a plan showing proposed transmission lines for Meridian's Mokihinui project. Plot both Meridian and HDL's transmission line route on plan <b>C-000</b> and comment on the cumulative effects.</p>
AEE	18	<p>Paragraph 2 of Section 3.1 - Location of Proposal notes that "No aspect of the proposal is visible from the [Millerton] township, which is physically separated from the Project by Mine Creek gully." It is difficult to assess the visibility of the proposal from Millerton township as no details are provided as to the physical height of the dam structure or transmission lines.</p> <p>A cut in the road for mine traffic is visible from Millerton township. What parts of the dam may be visible through this cut from Millerton township?</p>	<p>Provide a landscape assessment of the visual and landscape impacts of the dam structure may be/may not be visible from Millerton township.</p> <p>Will the transmission line where it connects with Station #4 be visible from Millerton township?</p>

<b>Section C: Landscape information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	50	The proposal mentions drilling to provide air vents and electrical supply during tunnelling. Will this require the installation of additional power lines? The maps also show maintenance roads being formed.	Provide information for and locate on plans any additional transmission lines required to provide electrical power supply during tunnelling.  Also provide assessment as to whether the new access roads and transmission lines to the Granity tunnel vents through the MAPPS site may also be visible from the township.
AEE	74, 75, 77, 78, 80	11.2 - Landscaping and Rehabilitation Management Plan, states that the applicant will submit a plan detailing the intended rehabilitation and landscaping of all disturbed areas on completion of construction activities. The information detailed in Section 11.2 is considered insufficient in regards to a framework for the intended contents. Therefore it is considered appropriate to provide a more detailed framework to be included in the plan.  The proposal shows rehabilitation outside of the dam footprint. If the geo-tech drilling proves that the proposal is not feasible, there is a requirement for all disturbed areas to be rehabilitated.	Provide a framework (e.g. table of contents) for the proposed Landscape Management Plans which detail expected outputs, timeframes (including review) relative to the application site. This framework will highlight specific areas requiring rehabilitation including areas around the dams and power station.  Rehabilitation Management Plans should include provision for rehabilitating the sites affected by the drilling programme should the project not go further. This including drill sites, stockpiles and access roads.
AEE	78	Section 8.2.3 Granity Flora Effects, describes excavations for an access ramp and small section of access roading to a settling pond and outfall diffuser within Granity Creek. This is an area which is visible to the public.  It will be difficult for most people to visualise what the proposal would look like on completion. Consequently, it will be difficult for people to assess the visual impacts of the scheme and whether or not they will be potentially affected by the visual	Provide visual simulations, where possible superimposed over photographs, of the proposed scheme in locations and from public vantage points on map <b>C-006</b> . Show view of portal, portal apron, ramp and settling pond using visual simulations. Including any landscaping between the site and the State highway

<b>Section C: Landscape information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		impacts. Although the application states that the anticipated effects will be minor, visual simulations in this instance would be a valuable tool for assisting people to properly understand what the built scheme would actually look like.	
AEE	9 & 80	With reference to information in 8.4 Landscape/Visual/Natural Character, it is not possible to make any assessment of the impacts of the nature and scale of the internal transmission infrastructure without a landscape assessment (see above regarding information required, page 18). For example, what heights will the new transmission lines be and what type of structures are proposed?	Provide details of the height of the proposed lines and the materials used for construction of the transmission line structures.
		Uncertainty about above ground effects. The Maps indicate that a 100m <sup>2</sup> building is proposed.	Confirm that a control room/offices/ablutions and parking will be located aboveground at Weka power station. Also indicate how large an area of disturbance is required?
		To be able to consider the landscape/visual effects of the option, including the visual effects of a substation/transformer	Provide a concept plan for an above ground power station at Weka Creek.
AEE	81	What is meant by planting mature trees along the road frontage of the construction yard at Granity? The application site has no road frontage, so where is the planting proposed? Any planting to be undertaken in such a manner so as to not affect the railway line.	Provide a diagram to show where planting is proposed at Granity

<b>Section C: Landscape information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		<p>The application is unclear about what landscaping is proposed around the dam sites. Need to consider visually what is to occur at the dams which will have varying levels. According to the application Weka dam will fluctuate so that it only floods the loco line 50% of the time. Therefore what will the lake edge look like?</p> <p>In particular there is little information provided as to what mitigation would be provided should Weka power station be above ground.</p>	<p>Provide an assessment of the effects of the changes to the operating level of the reservoir and mitigation proposed.</p> <p>Is any mitigation proposed regarding the potential aboveground location of the power station at Weka dam?</p>

<b>Section D: Archaeology and Heritage information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
AEE	92	Reference is made to Solid Energy's CIA for Cypress mine.	Provide a copy of SENZ's CIA for Cypress mine.
AEE	92	The AEE refers to a cultural effects assessment Appendix M. This does not appear to be attached. Does this refer to Mr Barber's letter which is contained in Appendix N?	Confirm whether the cultural assessment is the letter in Appendix N.
Archaeology Report AEE	35 135	<p>The Archaeology Report recommends that the section of loco line at Tintown corner should not be disturbed in anyway whereas the AEE has not accepted this recommendation.</p> <p>Drying and wetting of sites has a more destructive effect than permanently inundating a site.</p> <p>Has HDL considered the types of mitigation available and come up with a preference.</p>	<p>What mitigation is proposed to protect the loco where it is being covered 50% of time by water?</p> <p>What protection is proposed for the balance of the loco line?</p>

<b>Section D: Archaeology and Heritage information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
Archaeology Report		The Archaeology Report notes that not all sites have been surveyed. Pre 1900 sites are covered by the Historic Places Act and therefore any disturbance carries the requirement to obtain an archaeological authority. Sites that are post 1900 still need to be considered given the requirements of the District Plan. It is not clear what is proposed in terms of sites that have not been assessed, such as the old manager's residence adjacent to the Millerton Incline SO2517.	What processes/mitigation measures are proposed for other areas that have not been surveyed regarding potential features and artefacts?
		The application identifies that an Accidental Discovery Protocol (ADP) will be in place and the contractors working on-site will be trained. However these processes appear to only be proposed for the Granity Bins and there are other areas within the proposed scheme area where the same measures would be expected.	Comment on why the ADP and training is only proposed for the Granity Bins area and not to the whole project area.
AEE Archaeology Report	92 20	<p>There are a number of buildings at Granity that have heritage value. There is an absence of information to demonstrate that the existing built heritage will not be affected by construction activities, including tunnelling, blasting, earthworks.</p> <p>The following are identified as Category II buildings in NZHPT's register:  The Granity Library – effected by microtunnel  The War Memorial – effected by access road  The State Mine Store (Museum) – works within proximity, access</p> <p>It is also noted that there are kilns behind the museum which are of historic significance. While</p>	<p>Outline the measures/procedures proposed to ensure the heritage buildings at Granity are not adversely affected from construction activities. And if they are affected, what mitigation is proposed.</p> <p>What mitigation is proposed to ensure that the kilns are not affected by blasting?</p>

<b>Section D: Archaeology and Heritage information request</b>			
<b>Matter</b>	<b>Page #</b>	<b>Reason</b>	<b>Information required</b>
		not directly affected by the proposal, i.e. they are outside of the site, they may be potentially be affected by vibrations from blasting of the portal.	
AEE	94	<p>It is noted that there is a proposed land swap for the loss of Crown land to offset against the values that are being lost. However the 'compensation' appears to only take into account the loss of natural values as opposed to heritage values.</p> <p>It is uncertain whether HDL will achieve the land swap proposed. Any mitigation then will be located on either HDL land or DoC land.</p>	<p>What type of protection would be proposed for the loco line?</p> <p>What consideration has been given to linking HDL's mitigation with that on SENZ land to ensure a consistent approach across the various land ownerships?</p>
AEE	135	The Granity Library is a Category II heritage building. The tunnel is proposed to be under this building. Will micro tunnelling vibration affect the integrity of library?	Provide an assessment by an heritage architect on the effects of the micro tunnelling on the library.

<b>Section E: Noise and Vibration information request</b>			
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	49		What height is security fence/bunding proposed to be around the construction site/jointing station. Will it be acoustically designed?
		<p>An acoustic report does not form part of the application. It is considered that an assessment should be prepared for the works up at Weka Creek re crushing and explosives, dam building near Millerton and the work at Granity.</p> <p>The applicant states they will comply with the</p>	<p>How will compliance be achieved?</p> <p>What mitigation would be put in place?</p> <p>What happens if the requirements are not meet?</p> <p>Would operations cease until compliance was achieved?</p>

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		District Plan requirements. Compliance with the Plan is important for the Granity site as it is close to residences, public places and commercial activities.	Will any of the activities proposed have a repetitive noise that would attract a 5dBA penalty?
AEE	49	Noise will vary greatly depending on the location of the surge chamber, its closeness to the portal or whether it is outside of the tunnel.	Need to have details of the location and design of the surge chamber to consider? What noise emissions might be expected?
AEE	50	Construction Noise - Granity It is uncertain as to vibration and noise and the impact on users/residents. Consideration should be given to working under the library when it is closed and the Lyric theatre when not in use.	Where the micro tunnelling is under or close to buildings, when will drilling occur?  Will it affect night time ambience for residents?
AEE	82	Operational Noise - Granity The application states that there will be no industrial noise from the operation of generating equipment that would be discernible to residents of Granity.	If noise is measured from the tunnel, what mitigation measures are available?
AEE	85/88 91	It is noted that BDC has received complaints about vibrations from Terrace Mine at Reefton, so is not considered suitable to say that Terrace Mine provides an example tunnelling and blasting within residential areas that has no effect.  The table J4.5(A) appears to be misleading, as the standard also identifies sensitive areas as being theatres, schools etc occupied by people. This would include the museum, library and Lyric Theatre.	How will the applicant comply with vibration standards for blasting?  Would ongoing operations result in vibrations? In particular would the surge chamber result in vibrations? And if so, to what magnitude?
	89	Heavy trucks can cause troublesome vibrations for building occupants from perspectives of annoyance and building damage.	What standards will be complied with concerning vibrations caused by heavy commercial vehicle operations during the construction phase?

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AEE	89	<p>The normal working hours suggested in the application differ to the noise limits being proposed to be complied with.</p> <p>Normal working hours are suggested to be 7am-7pm weekdays and 8am-6pm other days. Daytime noise standards however begin at 8am.</p>	How does the applicant plan to meet the reduced standards outside of normal operational hours outlined in the District Plan?
	90	Vibration monitoring is specified for blasting and tunnelling, with potential for additional monitoring in some circumstances.	How will the monitoring be used to moderate the blasting or tunnelling vibrations, or otherwise satisfy potential concerns of residents?
AEE	135	Micro tunnelling is to take place in close proximity to the historic Granity Library and historic war memorial. Vibrations are always produced during ground modification or excavation.	<p>How will the tunnelling vibrations affect the stability/structural integrity of heritage sites and what mitigation measures are proposed?</p> <p>What standards will be complied with concerning vibrations caused by micro tunnelling and associated construction machinery?</p> <p>Is trial micro tunnelling proposed to give an idea of likely vibration levels?</p>
AEE	91/153	The Granity Noise and Vibration Management Plan should identify that action will be taken in the event that noise or vibration are excessive.	More information is required on what this Management Plan will achieve. Specify that additional mitigation measures that may be utilised for both noise and vibration.
		There are a number references to brief disturbance but only in a qualitative way. Overall the scheme construction should have to comply with specific noise limits determined with reference to NZS 6803:1999. The assessment says construction will comply with this standard, but this statement is too liberal. NZS 6803:1999 does not have set limits but	Provide a table of construction noise limits in accordance with NZS 6803:1999

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		<p>instead gives guidelines on how to prepare a table of construction noise limits.</p> <p>The noise assessment refers to some blasting work on Sunday. It is questioned whether this activity would comply with a table of construction noise limits made according to the guidelines of NZS 6803:1999.</p> <p>24 hour per day, 7 day per week operations are usually very difficult to conduct without causing nuisance and exceeding noise standards.</p>	

<b>Section F: Transport information request</b>			
<b>Matter</b>	<b>Page</b>	<b>Reason</b>	<b>Information required</b>
	12 78	<p>Access to the site to be confirmed</p> <p>At the site visit, it was said access via the Museum access road is temporary, however application comments state that access via the monument will only be temporary</p>	<p>Confirm how access to the Granity site is to be provided, both temporary and long term.</p> <p>Is there a need to consider upgrades?</p> <p>What type of traffic will use the various access points? What are the likely noise/effect on neighbours and users?</p> <p>What access will be used once the proposal is operational?</p>
		<p>At the site visit, we were advised that HDL will comply with SENZ traffic management plan. Need to consider this and ascertain whether this only relates to within SENZ land or whether it includes public roads plan.</p>	<p>A copy of SENZ's traffic management plan.</p>
		<p>To consider the two access points and the generation of traffic over the life span of the project</p>	<p>Provide a traffic management plan for the Granity site</p>