

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Resource Consent Applications by Hydro Developments Ltd
for the Stockton Plateau Hydro Scheme being:

RC08//149 - West Coast Regional Council &
RC08/131 – Buller District Council

Date: July 2009

**STATEMENT OF EVIDENCE OF REBECCA INWOOD ON
BEHALF OF HYDRO DEVELOPMENTS LTD**

1. INTRODUCTION

1.1 Qualifications and Experience

My name is Rebecca Anne Inwood. I am an Associate Planner of the Planning Institute of New Zealand. After obtaining a law degree from Otago University I began working for the West Coast Regional Council in 1993, where I spent 5 years as a Consents Officer. After ceasing work for a period to have a family I re-entered the planning field in 2004, assisting the Buller District Council in processing resource consent applications and assessing annual work plans for mining operations within the district. Since 2008 I have been working primarily as an independent planning consultant for Hydro Developments Ltd (HDL).

I have been involved in a number of significant projects on the West Coast including Solid Energy's proposed deep sea jetty at Granity, various coal and gold mining proposals, land clearance activities and tourist developments. I have also undertaken analysis of work plans required pursuant to conditions of consent for the likes of Stockton Mine, Oceana Gold and a variety of other large scale coal and gold mining operations.

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.

I have been commissioned by HDL to provide a resource management planning assessment of the Stockton Plateau Hydro Scheme. (The Project). My involvement in this proposal commenced in March 2008 when I was asked to prepare resource consent applications for the project.

1.2 Scope of Evidence

In this statement of evidence I will provide an evaluation of the planning framework relevant to the consent applications for the project. Specifically, my evidence will include comment on the following matters:

- Project Description
- Environmental Setting
- Relevant Plans and Status of Applications
- Section 104 Effects Assessments
- Part 2 Matters
- Relevant Planning Documents
- Other Relevant Matters
- Overall Assessment and Conclusions
- Draft Conditions

2. Project Description

A full description of the project has been provided by John Easter and I do not intend to cover this in any more detail, other than to outline the essential components of the hydro scheme as follows:

- Mt William reservoir will be formed below the confluence of Plover and Fly Streams on the St Patrick Stream to the east of Mt William. The reservoir will inundate an area of approximately 50 hectares and will include a main dam built across St Patrick Stream, just

upstream of the confluence with T35 Stream. The main dam will be up to 40 metres in height with a saddle dam extending to high ground to the west, the resulting reservoir will retain approximately 7 million cubic metres.

- Fives streams will be captured and diverted into the Mt William storage reservoir being: T31, Fly, Plover, St Patrick and Darcy streams.
- Weka Reservoir will be formed below the confluence of Weka and Sandy Creeks near Tin Town corner. The reservoir will inundate an area of approximately 28 hectares and will include a main dam built across Weka creek at the entrance to the gorge. The main dam will be up to 25 metres in height with saddle dams extending to the east and west, the resulting reservoir will retain approximately 3.5 million cubic metres.
- Five streams will be captured and diverted into the Weka storage reservoir being: Weka, Sandy, Upper Mine, Mangatini and A.J. Streams.
- The Stockton tunnel some 3850m long, will connect the Mt William reservoir and the Weka power station. The Weka power station is expected to be built within the tunnel near the outlet.
- The Granity tunnel some 4900m long, will connect the Weka reservoir to the Granity power station. The Granity power station will be built within the tunnel near the outlet.
- A micro tunnelled ocean outfall driven from below the Granity tunnel outlet beneath the railway line, state highway, bare land adjacent to the Lyric Theatre, BDC legal road and beneath the seabed, will discharge tailwater from the Granity power station approximately 600m offshore.

The hydro scheme is based around a core scheme which covers the main water collection, hydro electric power and outfall infrastructure. Included within the scheme design are a number of diversions which will divert relatively small volumes of water. These diversion have little hydro potential but will contribute to the environmental benefits of the scheme. The core schemes can be built with or without these diversions, with the decision to build all the diversions being dictated by funding. The core aspects of the scheme are as follows:

- Mt William reservoir
- The Stockton tunnel
- Weka power station
- Weka reservoir
- The Granity tunnel
- Mangatini Stream weir and diversion conduit
- Granity power station
- Granity ocean outfall

The diversions that will proceed if funding is available include:

- Mine Creek weir and diversion tunnel
- Darcy stream intakes and diversion tunnel
- Mangatini sump drop shaft intakes
- T35 stream drop shaft intakes
- Granity and Miller Streams drop shaft intakes.

In the event that T35, Mangatini sump, Granity or Miller Stream are diverted into the scheme at some stage in the future, then further resource consent applications would be lodged as required.

In addition, the scheme has been designed for the possible future addition of St Patrick's reservoir. This would involve the refurbishment of the existing dam structure, construction of a penstock form

the dam to Mt William reservoir and the construction of a third power station above the Mt William reservoir. This may increase scheme power generation by around 3 – 7MW.

3. Environmental Setting

An extensive description of the application area and surrounding environs is provided within the technical reports appended to the resource consent application. However in summary, the Ngakawau catchment extends over 197 km². In general the Ngakawau River flows from east to west discharging to the Tasman Sea at Hector township. The majority (57%) of the Ngakawau River catchment is located on the true left (southern side) of the main channel. The second order tributaries of the Ngakawau River have been identified as Mangatini Stream, Charming Creek and St Patrick Stream. The Mangatini and St Patrick Streams drain the southern area of the catchments and Charming Creek drains the northern area. A large number of first order streams are present which drain the remainder of the catchment.

The proposal involves collection of flows from St Patrick Stream catchment, Mangatini Stream catchment and Mine Creek catchment. This totals approximately 31km² of the Ngakawau River catchment, around 17% of the total catchment area.

Most of the headwaters of the watercourses to be collected by the hydro scheme flow through or in close proximity to Solid Energy NZ Ltd's (SENZ) mining area, the main ones being St Patrick Stream and Mangatini Stream along with other small streams including T35, T31, Mine Creek, Sandy Creek and Weka Stream. Other streams such as Darcy, Plover and Fly are affected by acid mine drainage (AMD) leaching from abandoned coal mines in the Mt William area. GHD's report noted that although the streams draining the Plateau are naturally acidic, historical and current mining activity has inflated the natural acidity through exposing underlying pyritic bedrock to oxidation. The resulting low pH in the mine affected watercourses and the Ngakawau River have reduced the presence and abundance of aquatic ecology values.

With respect to terrestrial values, the surface infrastructure on the Stockton Plateau is located within areas which have been significantly modified through historic settlement, roading and coal mining activity. Mr Richard Nicol's flora report describes the the Mt William reservoir area as follows:

“...Historical mining in the area has left a legacy in the form of mining relics, spoil dumps and tracking, as well as acid mine drainage and coal fines. The vegetation of the area reflects this history of disturbance, especially along the north-west and northern boundaries of the area. Significant portions of the footprint are sparsely vegetated, due either to the natural exposure of the coal measure sandstone or due to the loss of natural vegetation and soils through historical activities...”

As regards the proposed Weka reservoir, the Norton/Roper Lindsay report described the proposed area and surrounds as having been strongly modified by fire. Similarly, the Granity construction area has been modified by recent bulldozer activity which cleared the vegetation at the base of the hillslope, with the hillslope itself comprising regenerating native species.

The Project footprint on the Stockton Plateau is sandwiched between the Ngakawau Ecological District and SENZ's coal mining licence. The land within the project area is stewardship land managed by the Department of Conservation (DoC). HDL has submitted an application to DoC to enable the Project footprint on the Stockton Plateau (approximately 110 hectares) to be exchanged for a block of coastal lowland forest along Fairdown Straight (approximately 14 hectares) which is

of greater value to the conservation estate.

4. Relevant Plans and Status of Applications

4.1 Regional Council

Relevant Plans at the regional level are as follows:

- a) Regional Policy Statement (RPS)
- b) Regional Coastal Plan (RCP)
- c) Proposed Water Management Plan (PWMP)
- d) Proposed Land and Riverbed Management Plan (PLRMP)
- e) Regional Plan for Discharges to Land (RPDL)
- f) Regional Air Quality Plan (RAQP)

HDL's Consent Application lists all the consents being sought from the Regional Council, the activity status and the applicable rules. The majority of the applications being sought under the regional plans are discretionary activities; the only exception being the water takes for drilling purposes (restricted discretionary), the taking of groundwater seepage from within the tunnels, (restricted discretionary) and the discharge of stormwater to land (controlled). However, if “bundled” as is the normal practice the overall status of the applications under the Regional Plans is a discretionary activity.

Discretionary activities are to be determined in accordance with section 104B of the RMA, whereby the Consent Authority may grant or refuse the applications sought and if granted, conditions may be imposed under section 108 of the RMA.

Restricted discretionary activities are to be determined in accordance with section 104C of the RMA, whereby only those matters specified in the plan to which discretion has been restricted can be considered. However, the Consent Authority may grant or refuse the application and if granted, conditions can be imposed under Section 108 but only for those matters relating to the restricted discretion.

It is also noted that the Coastal Permit sought for the ocean outfall and diffuser structure is a Restricted Coastal Activity, therefore is an activity for which the Minister of Conservation has the final decision. In these circumstances the Regional Council deals with the application as it would for any other application but makes a recommendation to the Minister.

4.2 District Council

The only relevant plan at the district level is the Buller District Plan. HDL's Consent Application lists all the consents being sought from the District Council, the activity status and the applicable rules. Different aspects of the project have different status under the District Plan. For instance, Mt William dam at 40m exceeds the plan height criteria, the ground floor area of the storage reservoirs exceeds the maximum floor area requirements and tunneling for the ocean outfall exceeds, among other things, hours of operation and noise requirements. All these aspects of the project are non-complying activities. Further aspects of the project such as earthworks, roading, transmission line construction and use of hazardous substances are discretionary activities.

However, if “bundled” as is normal practice the overall status of the applications under the District

Plan is a non-complying activity. Non-complying activities are to be assessed in accordance with the restrictions outlined in S104D of the RMA whereby the Consent Authority may only grant consent if it is satisfied that the adverse effects will be minor or the application will not be contrary to the objectives and policies of the Buller District Plan. If granted conditions can be imposed under Section 108. In my opinion the HDL's proposal meets both tests but this is discussed in more detail in section 7.9 of this report.

Note, as the Planning Officers report has set out the relevant statutory framework (refer to section 3), I do not intend re-stating all the relevant sections of the RMA, instead this report leads directly into discussion of the relevant provisions.

5. Section 104 Effects Assessment

This section of the report discusses both the positive and adverse effects of the project as follows:

5.1 Social/Economic Benefits

- 5.1.1 The project utilises a renewable energy resource to generate electricity and does not involve any greenhouse gas emissions beyond the construction phase. It is consistent with the Government objectives and policies of ensuring the utilisation of renewable resources for energy generation as opposed to fossil fuels.
- 5.1.2 On a regional basis, the proposal will increase the West Coast region's electricity generation capacity by approximately 240GWh per annum and will support the continued growth of industries and businesses within the region.
- 5.1.3 From a local perspective, this additional generation capacity will enable the Buller District to be essentially self sufficient and not reliant on remote power generation and the associated reliability issues this brings.
- 5.1.4 Power generated by the scheme will be embedded into the local transmission network rather than the National Grid, thereby minimising transmission losses with potential cost savings. During construction, an estimated 50 jobs will be directly associated with the construction, as such the project will have considerable economic benefit to the Buller District.
- 5.1.5 The Ngakawau River presents a flood risk to the townships of Ngakawau to the south and Hector to the north. The hydrological analysis undertaken for the scheme design suggests that construction of the project will significantly reduce flood runoff from the Stockton Plateau and reduce corresponding flood peaks at the Ngakawau River mouth.

5.2 Environmental Benefits

- 5.2.1 AMD contamination is an environmental legacy from historic coal mining activities on the Stockton Plateau. These abandoned mine sites can be regarded as orphan contaminated sites, responsibility for which falls on the Crown and the local community. The project provides a solution for the comprehensive management of abandoned mine sites that are currently leaching AMD into the Ngakawau River catchment. The project has the potential to collect all the tributaries of the Ngakawau River that are currently contaminated by AMD, the only exception being Charming Creek, which is not on the Stockton Plateau and hence cannot be captured by the scheme.

- 5.2.2 The project is downstream of all current mining activity and as such will intercept all mine impacted watercourses. HDL stated in the S92 Response that the ecology of the streams impacted by the scheme is expected to revert to pre-mining conditions as AMD, coal fines and silt generated by mining activities will be controlled by the hydro scheme. As a result, vegetation and aquatic ecology is expected to re-establish in the stream channels and on the stream banks downstream of the projects dams and diversions.
- 5.2.3 As detailed in the GHD report, significant environmental benefits are anticipated as a result of diverting AMD and sediment contaminated tributaries from entering the lower Ngakawau River and estuary. The Project has the potential to improve the water quality in the lower reaches of the river. In the presence of improved water quality GHD concluded that it is likely that macro invertebrate, plant and fish species diversity and abundance within the Ngakawau River will improve over time. On this basis it is considered that amenity, natural character values and the life supporting capacity of aquatic ecosystems in the Ngakawau River will be enhanced.

5.3 Temporary Construction Effects

5.3.1 Land Disturbance

The removal of vegetation and earthworks within the project footprint has the potential to release sediment into adjacent watercourses. However, the majority of vegetation and earthworks required for construction of the project will be undertaken within the upper level of inundation of Weka and Mt William reservoirs. While at Granity the construction footprint is contained within a relatively small area. The majority of roading requirements for the project will utilise established roads and tracks, with approximately 3km of new permanent access roading required (including the realigned section of the mine haul road). Stormwater from the project's permanent roads will be directed into water tables and into the project's silt traps and reservoirs with no effect on waterways.

All land disturbance activities will be undertaken so that stormwater run-off is contained within the respective construction work areas, with appropriate stormwater controls to be established in accordance with the commonly adopted recommendations outlined in the Auckland Regional Council's TP 90 "Erosion & Sediment Control Guidelines".

5.3.2 Instream Activities

The weirs and intake structures will be prefabricated so as to minimise disturbance within Mine and Mangatini (weirs) and tributaries of Darcy and St Patrick streams (drop intakes). Diversion of the streams to enable installation of the weir/intake structures will be undertaken during dry conditions when stream flows are low. Installation of the structures will be undertaken in the dry stream channel and is expected to be completed within a few days.

The Sandy creek culvert and the temporary dam sluice culverts are larger structures and will take a slightly longer to install. Again, construction will be undertaken during dry weather conditions when stream flows are low, with stream flows temporarily diverted past the culvert sites to allow for installation.

All the above construction activity will involve the discharge of sediment to water, however, I consider the effects will be temporary with the methods utilised ensuring sediment release is

minimised as far as practicable.

5.3.3 Hazardous Substances

During construction activities fuel storage at the operational work sites will be required and will take the form of mobile diesel tankers. Tankers will be located in areas with an impervious surface and appropriate bunding to capture any potential spills.

A range of other hazardous substances will also be used on site including oils, explosives, cement and cement additives. HDL have stated that the safe and efficient transportation, storage, handling and use will be undertaken in accordance with Hazardous Substances and New Organisms Act and any other applicable industry standards.

5.3.4 Potable Water Supply and Wastewater Disposal

Potable water supply for the construction workforce will be by means of rainwater collection from the temporary construction buildings. Sewage and greywater will be discharged by one of two ways - either into holding tanks for collection and disposal at an approved site or to septic tanks with appropriately designed ground disposal systems.

5.3.5 Gravity Water Supply

Approximately 20 properties are served by the water supply that feeds into the header tank situated on the Millerton track. The water supply is fed by one of the numerous springs that arise from the slope debris along the escarpment behind Gravity.

HDL stated in their S92 Response that there is a possibility that construction of the Gravity portal may alter spring flows in the immediate vicinity of the portal. If this occurs, HDL have stated they will ensure that alternative water supply arrangements are made, involving provision of potable water by means of a water tanker while connection to an alternative intake is established.

5.3.6 Lighting

During the construction phase it is expected that some activities will be undertaken at night. The Weka dam is elevated above the Millerton township, some 2km from this operational area. Lighting requirements will be temporary and focused on a given work area with minor spill and glare effects anticipated for Millerton residents given the distance to the township.

Construction of the Gravity tunnel and the ocean outfall tunnel will be undertaken on a 24 hour basis. Lighting will be required around the entrance of both the jacking pit and the Gravity portal to aid workers accessing these areas. Mitigation measures such as screens, hoods and fences will be utilised by HDL to ensure there will only be minor lighting effects for surrounding residents.

5.3.7 Air Quality

There will be discharges to air associated with the various construction activities including dust, vehicle emissions and odour/fumes from blasting events and operation of the tunnel ventilation systems. Given the temporary nature of the construction activities, the high rainfall and frequency of rainfall on the Stockton Plateau, minimal dust deposition is expected beyond the project footprint.

With respect to the Granity construction site, the majority of dust/odour emissions will be associated with site establishment and hence of short duration. HDL have stated that mitigation measures will be implemented to minimise dust emissions including the addition of water when forming the construction yard area and sealing of the heavy vehicle access off the state highway.

5.3.8 Noise

Noise is inevitable given the machinery that will be required for construction of the project and the need for blasting for tunnel construction. However, the Weka dam is elevated above the Millerton township some 2km from this operational area. The township is also a similar distance from the Stockton Mine, which generates substantially larger surface blasts on a daily basis. As such, HDL anticipates that noise effects for Millerton residents will be no more than minor.

With respect to Granity, the proximity of residents requires appropriate measures to mitigate noise. Initial site establishment at Granity, including formation of the construction yard, access ramp and Granity tunnel portal is expected to take up to 3 months, following which all construction works will have migrated into the tunnel where noise will largely be contained. Note, that Granity residents already incur considerable noise from both trains (up to 8 per day pass through Granity) and Stockton Mine traffic (Appendix 1 records traffic at the Stockton Mine gate but does not take into account the vehicle movements associated with the Ngakawau coal handling facility, north of Granity)

HDL has stated that all construction and blasting noise will comply with the relevant noise standards. Mitigation measures to ensure compliance include the restriction of all above ground activities to the hours of 7.30am to 6pm, erection of a sound insulation construction fence around the construction yard perimeter and speed limits for vehicles using the site. Furthermore, HDL have stated they will undertake regular consultation with all immediate neighbours and a proposed Liaison Group is to form the basis for an on-going relationship with the community.

With respect to establishment of the Jacking Pit, this will be situated as close to the toe of the hillslope as ground conditions allow, providing a reasonable buffer to adjoining properties. Further noise mitigation will be provided in the form of an earth bund around the western perimeter of the pit. Construction of the pit is expected to take approximately 1 week with HDL stating they will comply with the relevant noise standards.

Over-all, given the relatively short duration of the main noise emitting construction aspects, I consider noise effects to be no more than minor.

5.3.9 Vibration

Surface blasting associated with construction works at Granity will be for the purpose of splitting large rock blocks. HDL's design team has stated that small blasts of this type are not cable of creating vibration or air over pressure effects that could adversely affect the structural stability of buildings. The extent of vibration from blasting can be controlled through blast design, particularly the maximum instantaneous charge and can be adjusted to ensure vibrations are minimised and the required vibration standards meet. Once tunneling is beyond the slope debris and within bedrock, discernible vibration is considered to be highly unlikely.

As regards potential vibrations during micro tunnelling, experience gained from similar operations in New Zealand is that ground vibrations during operation of tunneling equipment is expected to be minimal. Micro tunneling within close proximity to residential buildings is not a new methodology

and has been undertaken for a number of wastewater outfalls, including residential Christchurch, where no discernible damage to buildings was detected. However, as a precautionary measure, prior to micro tunneling commencing pre-conditions surveys of buildings deemed at risk from vibration (including the historical buildings in the vicinity) will be undertaken. On completion of micro tunneling a post construction structural check will be completed and any damage attributable to HDL's construction activities will be repaired at HDL's cost. Ground settlement surveys will also be undertaken and any detectable subsidence recorded in the vicinity of the road or rail facilities repaired at HDL's cost.

5.3.10 Traffic, Roading & Infrastructure

For the construction areas on the Stockton Plateau, it is expected that there will be minimal haulage of additional construction materials from beyond the Plateau, as most of the rock and aggregate required for construction of the dams/embankments will be sourced from excavations within the Weka and Mt William reservoirs and excavations from the tunnels. However, some additional building materials and plant will be required to be transported up to the Plateau including construction equipment, cement and fuel. The additional traffic generated will be a minor increase to existing volumes.

The Officers report states that HDL have failed to consider the cumulative effects of the proposal in relation to the existing traffic utilising Millerton road, particularly given the narrow, windy section near the Mine Creek culvert. However, HDL's S92 Response outlined the large volumes of Stockton Mine traffic that currently utilises the Millerton road and stated that the additional volumes generated by HDL's project are considered to give rise to no more than a minor increase in traffic volume. (refer to Appendix 1, detailing daily Stockton Mine traffic supplied by Phil Rossitor of SENZ). In addition, recent advice from BDC's Operations Manager (e-mail dated 21 July) established that SENZ and BDC are in negotiations over improvements to this particular section of Millerton road.

The officers report (page 21) incorrectly states that HDL does not propose providing transportation for workers. To re-state the S92 Response, HDL will collect the Stockton Plateau work force in vans for transport to the respective operational areas.

As regards Granity, access to the construction site will be via an existing access route off the State Highway, immediately north of the war memorial. This will minimise traffic effects on Granity residents by avoiding some 20 residents to the south of the site. This access will be upgraded and sealed to minimise noise and dust emissions.

Once initial site establishment is completed at Granity and the Granity tunnel construction is underway, regular vehicle movements will comprise up to 10 truck movements per day removing tunnel excavations from the Granity tunnel to the Weka reservoir area and light vehicles carrying the work force to the site. Heavy truck movements will be restricted to the hours of 7.30 – 6pm, with one truck designated to cart material from Granity up to the Plateau.

The Officers report (page 49) also states that HDL has given little consideration to the effect of subsidence from the micro-tunnel on the state highway and railway networks. With respect to Kiwi Rail, the Officers have failed to acknowledge that HDL obtained affected party approval from Kiwi Rail (formerly Ontrack) thus effects on the railway line must be disregarded (refer to section 104(3)(b) of the RMA). Also of consideration is that NZTA have advised that they will not be attending the hearing and were satisfied with the draft conditions of consent.

5.3.11 Visual/Amenity

The key amenity effects of the project relate to the Granity construction site as this is the component of the project that is within close proximity to residents. However, the area to be used as the construction yard is essentially bare land covered with grass, weeds and some scattered pines, with the construction yard to be located behind buildings and the railway line. The yard will be fenced and suitable plantings will be established around the perimeter to minimise visual effects. The adjoining hill slope on which the Granity tunnel will outlet is a mixture of regenerating native species. Construction of both the access ramp and portal will utilise tie-back techniques to minimise disturbance to the surrounding vegetation.

Initial establishment activities will require roading and construction activity which has the potential to impact on the residents of Granity. However as discussed above, measures will be adopted to ensure effects of such aspects as noise, vibration, dust, lighting and traffic movements are minimised. Once construction of the Granity tunnel is underway work will be concentrated underground and construction effects will be largely limited to the movement of materials and workers to and from the site. I consider that the visual and amenity effects will be temporary and will not compromise landscape or amenity values beyond the construction phase.

5.3.12 Outfall Pipeline and Diffuser Construction

The Cawthron report concluded that construction of the outfall pipeline and diffuser will result in minimal direct impacts on the coastal marine environment. With the exception of the diffuser, the construction method of micro-tunnelling is unlikely to disturb either the intertidal or subtidal habitats.

The final configuration of the outfall diffuser is dependent on further design assessment but is expected to require minimal disturbance to the seabed. Excavations of the seabed will only occur around the riser caisson at the termination of the micro-tunnel (some 72m²). This disturbance will entail the resuspension of sediments, potential smothering of benthic communities in the immediate locality and the physical removal of some species. However, Cawthron concluded that the effects will be minor with direct impacts not expected to extend more than a few metres, with recovery of faunal communities via migration and recruitment expected to be relatively rapid.

5.4 Long Term Effects

5.4.1 Natural Character

Examination of case law relates the criteria of 'naturalness' to include the following aspects:

- The physical landform and relief;
- the landscape being uncluttered by structures and/or obvious human influence;
- the presence of water (lakes, river, sea);
- the vegetation (especially native vegetation) and other ecological patterns.

The absence, or compromised presence of one or more of these criteria does not mean that the landscape is non-natural just that it is less natural. (refer: Wakatipu Environmental Soc Inc v Queenstown Lakes DC C180/99).

The habitat values which will be lost through development of the project have already been compromised primarily through historic and current mining activity. Incorporating hydro infrastructure into this environment will alter the natural character of the Stockton Plateau, but within the context of the existing mining landscape, I do not consider this to be a significant change. With the exception of the reservoirs, all hydro infrastructure will be underground and cannot comprise the natural character of the area. The reservoirs will have natural qualities as adjoining vegetation will remain undisturbed and rehabilitation of any disturbed margins (from roading and dam construction) will be undertaken. The fluctuating nature of the reservoir levels will give rise to exposure of rocky reservoir foreshore, however, the Plateau mining landscape also displays significant areas of exposed rock and un-vegetated landscape.

Given the major scheme components at Granity are underground, I consider the natural character of the coastal environment will remain predominantly unaltered.

5.4.2 Visual Impacts and Landscape

As illustrated by two photos contained in the S92 Response, the effects of the hydro infrastructure on the Stockton Plateau from various vantage points in Millerton are considered to be no more than minor. An approximately 30m section of the western Weka saddle dam will be visible through the haul road cutting, as a distant feature. However, the saddle dam will be largely hidden by the haul road climbing up past the dam face. The landscape will be very much the same as exists now, where the cutting is not a feature in the expansive landscape of mountains and sea views. The proposed new power line connection into SENZ's line is not expected to be readily visible from Millerton, given the distant perspective.

With respect to visual impacts at Granity, the only surface components of the project will be the Granity tunnel portal, portal apron and access ramp - an indicative photo comparison was provided in the S92 Response with the Manapouri tunnel portal and access ramp. Construction of these aspects of the project are to be undertaken so as to minimise vegetation disturbance beyond the immediate footprint of these structures, with the dense vegetation in the vicinity expected to largely obscure the structures. Connection into the existing transmission network will be via a new overhead power line but no new poles are anticipated as the existing line passes in the immediate vicinity.

In order to mitigate visual and landscape effects all disturbed areas will be rehabilitated to establish native vegetation either by means of direct vegetative transfer or by native plantings appropriate to the locality.

Of note is that the Council Officers' report states that the cumulative visual effects of both HDL's and Meridian Energy's proposed transmission lines have not been considered (page 32). Case law is clear on this point, that cumulative effect considerations do not include the effects of activities not yet granted (refer to paper entitled "Dealing with Cumulative effects under the RMA (2008), P Milne). Notwithstanding this position, HDL covered this issue in the S92 Response. HDL's proposed 500m spur line is effectively an extension to the existing SENZ line within the Stockton Plateau mining landscape, as such will not increase the landscape effects of the SENZ line, or for that matter the proposed Meridian line (refer to Appendix 2).

5.4.3 Amenity

Landscape, visual and natural character assessments were undertaken above and determined to have no more than minor effects. With respect to noise associated with operation of the scheme, the

HDL design team are of the view that noise is unlikely to be discernible beyond the immediate portal areas. On this basis I consider operational noise will have no more than minor effects on ecological values and residents at Granity.

5.4.4 Recreation and Public Access

Public access is currently restricted by SENZ with control expected to revert to DoC on expiry of the coal mining licence (c2027). On completion of mining activity on the Stockton Plateau it is expected that there will be unrestricted public access.

Currently public access to the Weka reservoir site is gained via the Repo Basin walking track and this will be maintained both during and following construction of the Weka reservoir/dams.

The Millerton Incline track will be crossed by the access ramp up to the Granity portal. During construction and subsequent operation of the scheme un-interrupted safe walking access will be provided.

5.4.5 Terrestrial Ecology

Reports provided by Waybacks Ltd/Wildlife Surveys, Richard Nichol and Norton/Roper-Lindsay have considered the effects on the terrestrial ecology within the application area.

The project will result in the loss of approximately 80 hectares of habitat through creation of the storage reservoirs and construction of new roading, with some ecological edge effects on adjoining vegetation. However, Mr Nichol noted for the Mt William site, the intactness of the area has already been compromised through tracking, roading and mining itself. Mr Nichol's report concluded that no threatened species were present and none of the communities are found solely within the Mt William footprint and all are better represented beyond the application site.

The Norton/Roper-Lindsay report came to similar conclusions for the proposed Weka footprint area, stating the site had been substantially modified by fire, no significant plant species were identified and the vegetation within the proposed lake area is well represented elsewhere.

Noteworthy, is that the Norton/Roper-Lindsay report was commissioned to assess the ecological values of a proposed hydro lake in the same vicinity as the currently proposed Weka reservoir and whether this area should be excluded from the then proposed Ngakawau Ecological Area. The report concluded that the flora species appeared well represented elsewhere and they were not critical to the long term viability of the ecological area. On the basis of these conclusions the proposed Weka lake area was excluded from the Ngakawau Ecological Area.

Mitigation for habitat loss is proposed by HDL in the form of off-site mitigation of a land exchange with DoC, for a block of land along Fairdown Straight of high conservation value. This 14.6 hectares of lowland forest was purchased specifically for the purpose of land exchange by HDL on the advice of local DoC staff. A copy of a Nature Heritage Fund application in relation to the Fairdown property (undertaken prior to HDL's purchase) and a submission by DoC on a previous subdivision proposal for the property outlines the ecological values of the Fairdown block and is attached for the Hearing Commissioners consideration. A further 9.4 hectares adjoining the HDL property is also covered by a restrictive covenant of no native vegetation clearance. This restrictive covenant is in favour of the HDL property and therefore remains for all time unless the current landowner decides to cancel it.

Further on-site mitigation is proposed in terms of salvaging all disturbed vegetation for use in rehabilitating other areas of the project footprint by means of direct vegetative transfer. This will be supplemented where necessary with additional native plantings, with HDL to monitor the success of re-vegetation until plantings are well established. Weed and pest control will be undertaken by HDL to ensure the success of rehabilitation measures. Of note is that the Officers report stated that reducing the transportation of weeds to the site during construction had not been considered (page 36). This is incorrect, with the AEE outlining that weed mitigation, in the form of cleaning machinery prior to transport up to the Stockton Plateau, will be undertaken.

As regards fauna effects, the Waybacks/Wildlife report concluded that with the exception of fern birds, low numbers of threatened bird species and individuals were present in the proposed development area, with all species well represented outside the footprint. In relation to fernbirds, numerous fauna studies have established these birds as widespread throughout coal measure vegetation on the Stockton and Denniston Plateaux and throughout the Ngakawau Ecological District. The fauna reporting team considered that the effects on fernbirds are less than minor as fernbirds can quickly re-colonise rehabilitated areas.

Despite the feedback provided by Rhys Buckingham (Wildlife Surveys) in the HDL S92 Response, the Council Planners still consider the project will have a significant effect on fern birds. Once again I have sought further comment from Rhys Buckingham on this issue and he responded as follows:

“Approximately 1.3% of local fernbird habitat will be affected by the proposed vegetation clearance, a percentage that in my opinion is minor to less-than minor, especially for a species that is known to recover quickly after rehabilitation of habitat. Similar habitat, though in smaller and isolated areas occurs within the Charming Creek area, and elsewhere in the Buller District. The percentage of national South Island fernbird population affected would be negligible. Thus the proposed development would not affect the national threat status of South Island fernbird, though it would result in a very minor overall loss of birds”.

Rhys also provided comment on the Planners suggestion that the reservoirs may adversely impact on birdlife and wildfowl stating that *“...rather than having adverse effects I would think that the creation of reservoirs would have an advantageous effect for a range of species currently not well-represented on the plateau.”*

The Wayback/Wildlife report stated that kiwi appear to be rare in the footprint area, although are reasonably common in the nearby Mt William Range. However, in the unlikely event that they may be present mitigation is proposed by ensuring construction works on the Plateau are undertaken outside of the kiwi breeding season, alternatively, prior to construction activity commencing, areas will be searched by a certified dog handler.

The Wayback/Wildlife report stated that no bats were detected in the survey of the area. Lizard species on the open tops of the Stockton Plateau are sparse but the fauna team expect that forest geckos, West Coast green geckos and “speckled skinks” (the latter near Granity) are likely to be scattered within the application area. However, it was concluded that the overall impact on each of these species was considered to be negligible given their wide distribution locally. Mitigation is proposed for lizards in the form of searching and relocating such species prior to inundation of the reservoirs, with relocation likely to be within the Ngakawau Ecological Area.

The fauna survey included a detailed search for *Powelliphanta* snails with a total of 88 hours dedicated to searching for snails around the proposed reservoir sites. The survey was undertaken by

a team of experienced *Powelliphanta* searchers before arriving at the conclusion that *Powelliphanta* snails are likely to be absent from within the Project footprint. The fauna reporting team added some additional comments in HDL's S92 response, stating that other surveys carried out on behalf of SENZ and L & M Coal Ltd have also searched areas within the HDL scheme footprint such as near Millerton, Weka Creek and the proposed Mangatini Stream diversion area without finding snails. Hence their conclusion that *“there is a reasonable degree of confidence that the proposed hydro avoids Powelliphanta populations, or at least 'core' (stronghold) populations in their range.”*

5.4.6 Heritage Values

HDL commissioned an archaeological survey (by Katharine Watson) of the application area to ascertain the heritage values. This survey discussed the effects of the project on the remnants of the formation of an electric loco line, the historic settlement of Tintown, Fly Creek mine workings and the Granity coal bins site, with the report focusing on the loco formation as being the most significant in terms of heritage values.

Of the approximately 4000m length of the loco formation surveyed, approximately 460m will be affected by the proposed Weka reservoir. While the haul road realignment has been selected to avoid destruction of way- points (historical artefacts), construction of the Weka western saddle dam will destroy 3 way-points and a section of the loco formation will be subject to inundation.

Options to build a dam to avoid relocation of the Stockton Mine haul road and avoid flooding the loco formation were investigated. This involved construction of a shoulder dam built parallel to the road which limited storage to around 1.5 million cubic metres. The URS scheme modelling report established that for such a storage scenario there would be increased spill to the Ngakawau River, reduction in the base generation by around 40% and reduction in annual power generation by around 30%. As a result of this analysis the 1.5 million cubic metre storage option was dismissed by HDL on engineering and cost grounds.

The Historic Places Trust (HPT) submission stated that while the proposed construction of Weka dam will only affect approximately 10% of the loco formation, it is one of the longer sections of intact line and a section where features are present that are not represented on the remainder of the line. HPT consider the whole of the remanent loco line should be protected for present and future generations.

By far the bulk of the loco formation is unaffected by the Project and the section of the formation to be inundated is not in good condition. The archaeological survey undertaken by Ms Watson acknowledged that the loco formation has suffered damage with the passage of time and the expansion of Stockton Mine, particularly the widening of the Stockton haul road. At a site visit undertaken with HPT, the 3 representatives had great difficulty in locating many of the artefacts recorded in the archaeological survey. There was also general agreement that decay of most of the timber structures associated with the loco formation is already well advanced. Most of the rails, plant and equipment were stripped years ago with a large portion of the formation being totally overgrown. Without some prior knowledge of the history of the area, visitors who currently walk this section of the loco formation (via the Repo basin track) may well be oblivious to its historic origins, given the amount of gorse and regrowth over the remnant structures.

The approximately 460m section to be affected by project works is not the only reasonably intact section of the loco formation. During the numerous site visits undertaken with affected/interested parties, HDL have taken parties along a section of the loco formation that follows Mine Creek for

approximately 700m terminating in a tunnel portal. This is a particularly interesting section of the loco formation cut into basement rock. Currently vegetation along most of the loco formation is very dense as to be nearly impenetrable and there is no protection or preservation of remaining artifacts currently taking place.

HDL have outlined various mitigation measures to ensure heritage values within the project footprint are provided for. These include the following:

1. Construction of the realigned section of haul road will be undertaken so that the haul road passes through existing cuttings in the loco formation.
2. The current project provides an opportunity to increase public access and understanding of local heritage information. Prior to construction works commencing HDL have stated they will employ an archaeologist to further investigate the area of Tintown settlement and the section of the loco formation to be inundated. Any structures and artefacts that are salvageable will be recovered for on-site display or at the Granity museum. The project archaeologist will fully document and record any recovered items and provide advise on interpretative material to be incorporated into a visitor display in the vicinity of the Weka power station tail race.
3. In order to protect heritage items that are accidentally uncovered during the course of construction activity, further mitigation is proposed by way of preparation and implementation of an Accidental Discovery Protocol. This Protocol will establish procedures for identifying, reporting and managing features of archaeological significance that may be accidentally uncovered in the course of construction activity.
4. HDL have stated that with the co-operation of DoC and SENZ they will create a walking track linking Weka reservoir to Mt William reservoir. HDL anticipates that this would include the section of the loco formation that follows Mine Creek and would link into remaining sections of the tramway formation that could be safely traversed. While mining operations continue, public safety issues will determine the staging of such a proposed walking track. It may not be practical to extend public access beyond the Weka reservoir until mining operations cease. Once mining ceases at Stockton mine and public safety is not an issue HDL is confident that DoC and SENZ will support development of a walking track through to Mt William reservoir.

The current project provides an opportunity to increase public access and understanding of local heritage information. HDL's proposed measures to further survey, record and recover items for public display and interpretation will improve public access and understanding of this mining relic. On this basis I consider the loss of a portion of the historic loco formation to be no more than a minor effect.

5.4.7 Cultural Values

Mr Barber of Te Runanga o Ngati Waewae provided an assessment of the cultural effects of the Project in the form of a brief letter. Mr Barber indicated that the project has some cultural issues, namely the reduction of flow within the affected catchments and the mixing of different catchments and diversion directly to sea. This is considered culturally inappropriate and is detrimental to the mauri of the place. However, Mr Barber indicated that cultural concerns are likely to be mitigated by the enhancement of water quality that will be achieved through discharge into the marine environment as opposed to the Ngakawau River and estuary.

Although the correspondence attached with the consent application referred to preparation of a Cultural Impact Statement (CIS) this has not been forthcoming from Mr Barber. However, Mr Barber did forward the CIS for Cypress Mine as being proximate and relevant to the HDL application site. This CIS assessed Ngati Waewae cultural values for not only the actual Cypress mine development but also for the wider Denniston and Stockton Plateaux, including the Ngakawau and Waimangaroa catchment areas.

Given the proposal recognises and provides for the relationship of maori with their ancestral waters in diverting currently contaminated flows into a more benign environment, I consider cultural matters have been adequately addressed. Furthermore, no submissions were received that raised any cultural concerns.

5.4.8 Hydrology/Sediment Loads

Reports provided by URS have considered the effects on hydrology and water quality of the waterways to be impacted by the hydro scheme.

The Project has been designed to create a hydrological barrier between the upper catchments of the Stockton Plateau that are affected by mining and the lower catchments that are unmodified. The objective of the project design has been to capture all surface run-off from the upper catchments of the Ngakawau River so as to prevent ongoing contamination of the Ngakawau River and to maximise water available for power generation.

Some spillage will occur from the dam spillways during infrequent extreme events but such flows exist under a natural regime. The URS report stated that it is likely that any flood flows will be both attenuated and moderated by routing through the reservoirs. Some flow will be lost at the small stream intakes as these are cross flow, drop intakes with silt screens fitted. However, the total volumes lost in bypass spill is expected to be less than 5% of total flow at these intakes. On this basis URS concluded that flood flows will not be adversely impacted in any significant way by operation of the scheme.

In the S92 Response the HDL design team stated that there is unlikely to be any change in stream morphology as a result of the scheme and truncation of the catchments. The stream channels downstream of the scheme have adjusted naturally to the high flow events and are described as being deeply incised in bedrock with minimal alluvial deposits. As operation of the scheme is expected to have no significant effect on stream flood flow, the overall effects on stream morphology is expected to be relatively minor.

URS stated that the most significant effect for the affected waterways will be during low flows. The loss of the headwater tributaries of the impacted streams is expected to alter the flow regime by reducing and extending periods of low flow. However, the impacted streams ecology is expected to revert to pre-mining conditions as AMD, coal fines and silt generated by mining activities will be contained by the hydro scheme, with vegetation and aquatic ecology re-establishing in the stream channels and on the stream banks. It is expected that these benefits will more than offset a reduction in the low flow regime.

5.4.9 Natural Hazards

URS completed an initial assessment of the geotechnical risks associated with the dam locations in the Scheme Modelling report. The initial site investigation verified that the respective dam

locations are suitable from a geotechnical point of view. Further intensive ground investigation by means of exploration drilling will be carried out prior to final design, to confirm this assessment and to optimise the location of structures with respect to the foundations.

HDL also commissioned URS to assess the potential effects of dam breach and to determine the New Zealand Society of Large Dams (NZSOLD) impact category that should apply to dam design.

The URS report modeled a range of scenarios for catastrophic release of the impoundments at the Weka and Mt William reservoir sites. It was determined that for the majority of scenarios the flows produced were similar to flows which would be produced by 'natural' extreme rainfall events over the Ngakawau catchment. In the worst cases modeled, rapid and catastrophic failure of the dam structures would lead to significant inundation of Hector and Ngakawau townships and the potential loss of life. For all the dam scenarios modeled, some level of threat was posed to users of the Ngakawau valley, either on the Charming Creek walkway or within the river itself. On this basis URS concluded that both the Weka and Mt William dams are likely to be classified as 'high potential impact category' dams.

As a result of URS's modeling HDL directed that the design and specification of the dams should be based on roller compacted concrete (RCC), which are the most resistant to catastrophic collapse and cannot erode as assumed in the modelling.

HDL have stated that mitigation of potential effects of dam breach will largely be addressed through the design of the impounding structures. NZSOLD provides guidelines for the design of large dams and the proposed Weka and Mt William dams will be built, maintained and operated in accordance with these guidelines.

5.4.10 Water Quality and Freshwater Ecology

A report provided by GHD has considered the effects on freshwater ecology of the waterways to be impacted by the hydro scheme.

The GHD report found that all of the streams to be damed or diverted by the project have poor water quality and do not support diverse or abundant aquatic ecological values, with very limited macro-invertebrate, plant or fish species identified in studies conducted to date. This paucity in diversity and value is considered to be caused by historical and current coal mining activity resulting in highly acidic and conductive water and in some cases the smothering of habitat by precipitated metal hydroxides and/or sediment.

The project will impact upon the existing aquatic ecology of the affected streams by significantly reducing flows in each of the impacted watercourses, particularly the lower Mangatini Stream and St Patrick Stream. However, the GHD report stated that capture of mine-impacted water is expected to result in improved water quality and existing ecology is likely to adjust to the reduced flow regime. Significant benefits were also anticipated for the Ngakawau River, with GHD stating that it is likely that macro invertebrate, plant and fish species diversity and abundance will improve over time.

While the GHD report established that aquatic fauna present in the Ngakawau catchment is limited, two species of considerable value were identified, the liverwort, *Allisoniella scottii* (which later turned out to be a subspecies of *Allisoniella nigra*) and the rare moss *Blindia lewinskyae*.

Subsequently, HDL commissioned an assessment of the impacts of the project on bryophytes by a

recognised bryophyte expert, John Braggins. His conclusions are reproduced as follows:

“Blindia lewinskyae has now been located in a number of sites in the general area and the development proposed by HDL is unlikely to seriously adversely affect this species. Indeed the improvement in water quality downstream of the project may improve habitat for this species. So in terms of considering relocation, only the Allisoniella nigra subspecies novazelandiae forma novazelandiae would seem worth the effort of relocation. However, as the only currently recognised location is in an unnamed tributary of the Mangatini Stream in an area unaffected by this project, there is currently no need for such action as we no have evidence of its existence in any of the affected watercourses”.

Based on these comments I consider the potential effects of the project on bryophytes species to be no more than minor.

5.4.11 Marine Outfall

At this stage I consider it appropriate to address the requirements of **Section 105 and 107 of the RMA**.

Firstly, **Section 105 of the RMA** sets out matters that the Consent Authority must have regard to for such discharges as currently proposed. These matters include:

- (a) *The nature of the discharge and the sensitivity of the receiving environment to adverse effects;*
- (b) *The applicant's reasons for the proposed choice; and*
- (c) *Any possible alternative method of discharge into any other receiving environment.*

As to item (a), Cawthron's report describes the Granity shoreline as comprising unstable boulder and shingle beaches along a high energy coastline, with this rocky substrate forming relatively barren reefs, even in sheltered quarters of the coast. The report states that the benthic communities are variable but are considered to be typical of those along the West Coast shoreline, with no significant scientific or ecological value. A moderate diversity of reef fish species have been recorded as present and Hector's dolphins are the only year-round nearshore residents in the Granity region of note.

With respect to assessing the potential for adverse effects, Cawthron stated that there are no reported species of special scientific or ecological value in the area of the marine outfall. Any potential deposits of metal precipitates in the vicinity of the discharge are expected to be localised and plankton effects are expected to be minor, given the high initial dilution expected in the vicinity of the outfall. Fish species and marine mammals in the vicinity of the outfall are expected to naturally avoid any localised adverse conditions.

Initial laboratory studies undertaken by Cawthron have established that under normal operating conditions the marine discharge is expected to meet recognised water quality guidelines with relatively low levels of dilution. HDL have stated that further trials will be undertaken to ensure the outfall diffuser is designed to achieve optimum dilution of all the key constituents of the discharge, with regular monitoring proposed by HDL to ensure compliance with discharge conditions.

In relation to item S105(b), the primary reasons for HDL choosing to apply for consents to discharge into the marine environment were:

1. That during the consultation phase the majority of parties consulted expressed a preference for an ocean outfall over continuation of the current disposal into the freshwater environment of the Ngakawau River tributaries, provided the effects of such are appropriately managed; and
2. There are a considerable number of studies, both on waterways draining the Stockton Plateau and internationally, that have documented the adverse effects of AMD run-off into freshwater environments and the buffering capacity of the ocean to receive such discharges with comparatively minor effects.

With respect to S105(c) and alternative methods of discharge, a variety of alternative design scenarios were considered, including the addition of a third power station incorporating an up-graded St Patrick dam and various reservoir storage capacities. These alternatives are outlined in the AEE. As regards alternative discharge locations, a variety of alternative freshwater receiving environments were also investigated, being discharge into Granity Creek, Mine Creek and the Ngakawau River.

In the final analysis HDL's design team considered that the best practicable option, with the greatest environmental benefits, was discharge into the marine environment, as this is expected to result in minor effects as opposed to the significant adverse effects that are well documented for the current discharges into the Ngakawau River catchment.

The next matter to address is **Section 107 of the RMA**. This requires that after reasonable mixing the marine discharge shall not give rise to all or any of the following effects in the receiving waters:

- (c) *the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:*
- (d) *any conspicuous change in the colour or visual clarity:*
- (e) *any emission of objectionable odour:*
- (f) *the rendering of fresh water unsuitable for consumption by farm animals:*
- (g) *any significant adverse effects on aquatic life.*

Within the S92 Response Cawthron provided additional information on mixing zones, stating the zone of reasonable mixing depends on the following:

1. *The rate of discharge and concentrations;*
2. *The physical configuration of the outfall or structure from which the discharge is emitted;*
3. *The depth, current velocity and direction and the rate of turbulent mixing of the receiving water; and*
4. *Ambient concentrations in the receiving water.*

Cawthron also outlined other considerations such as minimising the size of the zone of reasonable mixing, confining adverse effects to within the zone of reasonable mixing and ensuring adverse effects within the zone of reasonable mixing are no more than minor. After considering all these aspects Cawthron stated: "*In the case of the proposed HDL discharge, the diffuser is situated 600m from shore, which would, incorporating the 2:1 factor, equate to a maximum 300m radius mixing zone. This 300m size is commensurate with the volume of the discharge and is similar to other*

recently consented coastal discharges. For example, in 2005 the Fonterra Clandeboye coastal outfall was granted a 300m mixing zone for an open coastal discharge. In our experience most of the recently consented coastal outfalls have had mixing zones form 100m to 300m radius and we see this outfall as being no different”.

With regard to the S107(c), there will be no significant grease, oil, scums, foams or floatable suspended materials. However, the discharge will contain AMD which typically has low pH and high concentrations of iron and sulphate. Other common constituents also include metals such as aluminium, copper, iron, nickel and zinc with the water quality chemistry outlined in the URS and Cawthron reports.

Initial laboratory tests have established that most contaminants in the discharge are expected to be reduced to levels that meet the ANZECC (2000) guidelines with relatively low levels of dilution. The key component of the discharge identified as having the greatest potential effect is pH. Small changes in pH levels can have a marked change in the amount of dilution required to meet receiving water guidelines. On this basis the Cawthron report recommended that additional dilution assessments be undertaken to evaluate the envelope of pH and required dilution to meet the ANZECC (2000) water quality guidelines, with this information to assist in determining the optimum configuration of the outfall diffuser.

Following Cawthron's recommendations, HDL have proposed an Ocean Outfall Management Plan as a condition of consent. This Management Plan requires additional field trials and modelling to be undertaken to verify predictions of the water quality of the outfall discharge, with this information to aid in determination of the final configuration of the outfall diffuser design. HDL have also stated they will undertake regular monitoring to ensure that once commissioned, the discharge meets ANZECC water quality guidelines at the perimeter of the proposed 300m mixing zone.

Section 107(d), also requires consideration of potential changes to clarity as a result of the marine outfall operation. Within their report Cawthron described clarity as a measure of the transparency of a water body which decreases as suspended solids concentration and associated turbidity increase. With respect to the current proposal, Cawthron stated that while AMD is relatively clear and free of suspended particulates there is potential that altered pH can cause precipitation of iron and aluminium in seawater and hence reduce visual clarity in the receiving environment.

Cawthron discussed the range of guideline documents used to assist with assessing changes in colour and clarity. These guidelines aim to provide criteria for discharges that if met, will avoid 'conspicuous' changes in receiving waters after reasonable mixing. In order to assess potential clarity effects for the marine outfall Cawthron ran a dilution series using filtered seawater and Stockton Plateau AMD with pH levels of both 4.5 and 3.3. The modelling indicated that both the 50% clarity change and the more stringent 33% clarity change MfE (1994) guidelines were met with little dilution even when using very clear filtered seawater. Thus Cawthron's conclusions *“...that meeting clarity change guidelines will not be a major hurdle for the discharge.”*

With respect to the possibility of a plume arising through precipitation of iron and aluminium in the discharge, the HDL design team are of the view that the high wave energy environment along this part of the coastline and the consequent substantial mixing capacity will minimise any potential clarity issues. Any localised change in colour or clarity due to the discharge is not expected to persist in such a high energy environment nor is it expected to be obvious from the Granity beach, given the nearest point of diffusion will be some 600m offshore.

6. Part 2 Matters

An assessment of the matters outlined in Part 2 of the RMA requires that a Consent Authority, in evaluating a proposal, consider the question of sustainable management and be satisfied that an activity accords with the purpose of promoting sustainable management of natural and physical resources. The matters outlined in sections 6, 7 and 8 are intended to assist with this determination.

In this report I have assessed the project in relation to sections 6,7 and 8 of the RMA first, as this accords with the approach taken in *Tainui Hapu v Waikato Regional Council* A063/2004 at [163] where it was stated that: “*because the Act has a single purpose and so sections 6 to 8 are subordinate and ancillary to (section 5), we apply the relevant provisions of those sections first, then come to the overall judgment*”. This approach has been taken in this report.

Although there are potentially conflicts inherent in the provisions of the Part 2 matters, the provisions broadly indicate the level of weight to be given, effectively establishing a hierarchy by giving priority to the matters of “national importance” in section 6, over the matters set out for having “particular regard to” in section 7 and “taking into account” in section 8 of the RMA.

6.1 Matters of National Importance – Section 6

Section 6 of the RMA sets out matters of national importance. Consent Authorities are required to “*recognise and provide*” for these matters when considering consent applications. The relevant matters are discussed as follows:

Section 6(a) requires the preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins from inappropriate use and development.

The only project structures which are within the coastal environment is the Granity outlet portal and associated structures and the ocean outfall. The power station will be contained within the Granity portal and on completion of construction activities the only visible component will be the portal outlet, portal apron and access ramp. These areas will largely be concealed by the existing vegetation and rehabilitation plantings. The ocean outfall pipeline will be buried, with the diffuser structure laid on the seabed and the point of diffusion some 600m offshore, therefore there will be no detracting to the natural character of the coastal environment.

The natural character of the watercourses diverted into the hydro scheme will be affected but the extent and degree is considered acceptable for the locality. Currently the natural character of the Stockton Plateau is modified significantly by SENZ's large scale coal mining operation. The Weka reservoir will be situated adjacent to the mine haul road with mining operations providing an immediate backdrop. The Mt William reservoir will be situated adjacent to a number of historic mine workings. I consider that within this context the project will not detract from the natural character of the general area.

Section 6(b) requires the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.

The landscape comprising the Stockton Plateau and Granity area has not been identified as outstanding within any planning document. In fact the Environment Court in its decision on *Solid Energy New Zealand Ltd v West Coast RC and Buller DC C074/05 (2005)* concluded that the Stockton mine site was not part of an outstanding natural landscape due to the amount of human

interaction from past and present mining activities.

Section 6(c) requires the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

The proposal will result in the loss of approximately 80 hectares of habitat through creation of the storage reservoirs and construction of new roading, with some ecological edge effects. However, Mr Nichol noted for the Mt William site, that the intactness of the area has already been compromised through tracking, roading and mining itself. Mr Nichol's report concluded that no threatened species were present and none of the flora communities are found solely within the Mt William footprint and all are better represented beyond the application site. Similar conclusions were reached for the Weka reservoir as described in the Norton/Roper-Lindsay report.

The Waybacks/Wildlife Surveys fauna report concluded that although the Stockton Plateau and its immediate surrounds supports several species of threatened fauna, the planned route and footprint of the proposed hydro developments avoids areas where these species are likely to be significantly impacted.

On the basis of the flora and fauna reports, I consider that the proposed loss of habitat is not contrary to the requirement of protection, given the lack of significant species present and the proposed mitigation of salvaging vegetative material disturbed within the footprint area for rehabilitation purposes and controlling weed and pest species to ensure the success of proposed rehabilitation measures.

In addition, HDL has purchased and covenanted an area of highly valued indigenous lowland vegetation for the purposes of off-site mitigation against the loss of habitat for the project works on the Stockton Plateau.

Section 6(d) requires the maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers.

The project will have no adverse effects on public access to and along the coastal marine area or the various watercourses impacted by the scheme. Currently public access onto the Stockton Plateau is restricted for safety purposes. However, two walking tracks pass through the project footprint, being the Repo Basin and Millerton Incline walking tracks. Un-interrupted public access will be maintained along these walkways during and following construction of the project. For the future when the Stockton mine is closed and public restrictions are removed, HDL envisages that the public will have full access to the Stockton Plateau.

Section 6 (e) requires recognition and provision for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.

HDL has consulted with Ngati Waewae to assess whether the scheme presented any aspects of concern. Discussions established that initial cultural concerns, in relation to the mixing of different catchment waters, will be mitigated by the anticipated improvements in the ecology of the Ngakawau River.

The choice of discharge into the marine environment as opposed to the Ngakawau River and/or estuary recognises and provides for cultural values associated with the River, such as Mahinga Kai (places where food is procured) and Kohanga (important native nursery/spawning areas), as identified in Schedule 1C of the Proposed Water Management Plan.

Also of note is that no submissions were lodged that raised any cultural concerns with the project.

Section 6(f) requires the protection of historic heritage from inappropriate subdivision, use and development.

HDL has outlined various mitigation measures to ensure heritage values within the project footprint are provided for. In addition to the already completed archaeological survey, HDL has stated they will commission a further archaeological survey of TinTown and the loco formation (affected by the project) prior to commencing any vegetation clearance. Any structures or artefacts that are salvageable will be recovered and fully documented. The recovered material will be offered for display at the Granity museum or displayed at HDL's visitors centre in the vicinity of Weka power station tail race. This will enable public access to previously unseen historic material and will provide an opportunity to enhance public knowledge of coal mining heritage on the Stockton Plateau.

In addition, HDL have stated they will work with DoC and SENZ to protect remaining sections of the loco formation with creation of a walking track linking Weka reservoir to Mt William reservoir, following the loco line formation and providing interpretative information panels where appropriate.

With regards to heritage sites at Granity, the ocean outfall pipeline will pass beneath the historic Granity Library and beside the war memorial. Micro tunnelling in close proximity to these historic buildings is not expected to have adverse effects on the integrity of the structures. However, condition surveys by a heritage specialist will be undertaken on these historic buildings to ensure no structure damages results from tunnelling activities.

There are no viable options for a storage dam at the Weka site without relocating the haul road and affecting the approximately 460m section of the remanent loco formation. However, I do not consider that protection of heritage values dictates preservation at all costs, particularly given the current condition of the section of the loco formation to be inundated and that by far the bulk of the formation is beyond the project footprint. HDL's proposed mitigation measures to undertake further surveying of the loco formation, recover, record and display artefacts with an historical interpretation ensures historic heritage is protected.

6.2 Other Matters – Section 7

Section 7 sets out matters which consent Authorities must have “*particular regard to*” when considering resource consent applications. Relevant matters are as follows:

Section 7(b) requires the efficient use and development of natural and physical resources & Section 7(ba) requires the efficiency of the end use of energy

A number of environment court cases have established that economic efficiency is part of sustainable management (refer: Marlborough Ridge Ltd v Marlborough DC (1997) 3 ELRNZ 483).

The West Coast is dependent on the national grid for about half of its electricity and demand is predicted to grow with a number of intended developments and expansions such as SENZ's coal processing facilities, the proposed Pike River Coal Mine and the Westland Milk Products dairy factory. A report on the West Coast's renewable energy potential (The West Coast Regional Renewable Energy Assessment 2008) stated that the region experiences up to 50% transmission

losses at peak times from power delivered from the Waitaki hydro system. This has an impact on the cost of power on the West Coast, with the region having one of the highest retail power prices in the country. It is anticipated that local generation and transmission will translate into cheaper power for West Coast electricity consumers.

Furthermore, the HDL design team consider that the Project provides the most efficient use of resources in terms of management of AMD. Current measures to treat AMD address only part of the problem and require considerable expenditure in terms of labour, power, machinery and have some undesirable side effects such as discolouration of the receiving waters. Opinions vary on duration and the likely effects of AMD after mining activities cease, but theoretically, on-going treatment will be required for a period of around 100 years.

Section 7(c) requires the maintenance and enhancement of amenity values.

The amenity of the Stockton Plateau includes significant modification to the landscape from past and current mining activities. I consider that incorporating hydro power infrastructure into such a modified landscape will not provide any further detraction to the amenity of the general area.

The amenity of Granity township is affected by the State Highway traversing through the town centre catering for considerable mine related traffic and the regular movement of coal trains in close proximity to residents and businesses. I consider that project infrastructure at Granity will not provide any further detraction to the amenity of the area, given the majority of hydro infrastructure will be underground and noise associated with the operation of the hydro scheme is not expected to be discernible at any of the adjoining properties.

Section 7(d) requires consideration of the intrinsic values of ecosystems & Section 7(f) requires the maintenance and enhancement of the quality of the environment.

The aquatic ecology of the watercourses to be impacted by the scheme is poor, while both the flora and fauna within the application area has been significantly modified by previous human activity therefore the proposal does not offend these requirements. The degree of support for the use of the Stockton Plateau for hydro development, as demonstrated in the number of supporting submissions, suggests the existing intrinsic values of the application site are not high. Furthermore, construction of the scheme will lead to substantial restoration of the pre-mining intrinsic values of the ecosystems of the Ngakawau River and its tributaries.

Section 7(i) requires considerations as to the effects of climate change.

Renewable energy developments, such as the HDL project, have the potential to have a significant positive effect on climate change, by being benign in respect of green house gas emissions compared with alternative sources of generation. This reflects New Zealand's international obligations as regards climate change and implementation of government directives. Consent Authorities are required to balance national benefits of renewable electricity generation projects with local environmental considerations.

The HDL design team have also considered climate change impacts in terms of effects on the hydro scheme design and operation. These considerations influenced the decisions to opt for tunnels with surplus hydraulic capacity and to maximise storage at each reservoir site.

Section 7(j) requires consideration to the benefits to be derived from the use and development of renewable energy.

The proposed hydro scheme with a maximum capacity of 50MW will generate approximately 240 GWh annually - enough electricity to supply approximately 29,000 houses per annum. (However, it is noted that at this stage HDL has not determined that the installed capacity of the scheme will be 50MW. Concept hydro modeling shows that generation in the order of 240 GWh is achievable through a number of configurations, with the total annual volume subject to seasonal variations).

A significant benefit of the proposal is that it will be installed relatively close to the source of electricity demand, with electricity being injected into the local distribution network, thereby avoiding losses from transmitting the electricity on the national grid. Currently the West Coast endures transmission losses of up to 50% at peak times from power delivered from the Waitaki hydro system.

Hydro storage based generation is valuable as it allows relatively fast responses to demand changes and storage ability, thus enabling it to be used to balance rapid changes in demand and the intermittency of wind. Therefore the project will not only provide more overall generation capacity but it may also allow more wind generation to be incorporated into the electricity system.

The promotion and development of electricity generated from hydro resources will result in short and long-term employment opportunities and may have positive flow-on effects for businesses in the region, including industry. The proposal will also assist in supplying electricity to the Stockton Mine.

6.3 Treaty Principles – Part 8

This section of the RMA requires that Consent Authorities “*shall take into account the principles of the Treaty of Waitangi*”.

HDL has undertaken consultation with Te Runanga o Ngati Waewae representative Mr Barber. Consideration of Ngati Waewae concerns have been incorporated into the project design. During consultation Mr Barber indicated he was not in favour of any discharge near the Ngakawau estuarine environment for cultural and potential food gathering reasons. This was a view shared by the majority of groups/parties that HDL consulted with regarding the most appropriate receiving environment for the Granity power station tailwater. This has resulted in HDL's selection of the Granity marine outfall location over the options to discharge into the Ngakawau River.

6.4 Purpose of the RMA – Section 5

The application of section 5 involves an overall broad judgment of whether a proposal will promote the sustainable management of natural and physical resources. Case law indicates that making a judgment under Section 5 is not a balancing exercise between positive and negative effects and that adverse effects must be avoided remedied or mitigated, regardless of positive effects. However, this does not mean that adverse effects are not acceptable and is a question of scale, degree and relative significance (refer: New Zealand Rail v Marlborough DC [1994] NZRMA 70).

As regards the present proposal, I consider that the project will provide for the social and economic well being of people and the communities of the Buller District by providing the means for local power generation and injection into the existing local transmission network. In doing so it will provide an improved level of security of supply and eliminate some of the problems that occur with remote generation and subsequent transmission to areas such as the West Coast. In this way the Project will support the continued growth of communities and businesses within the Buller District

and wider West Coast region.

In terms of safeguarding the life supporting capacity of the ecosystems affected by the Project, the various supporting environmental reports have concluded that although there will be impacts on terrestrial flora, fauna and aquatic ecology they are not considered to be significant. Mitigation is an appropriate way to manage some of the effects of the project and various measures have been proposed, including rehabilitation of areas disturbed by construction, on-going weed and pest control and land exchange of a block of high conservation value to off-set habitat losses. However, the greatest single mitigation is the potential for the project to restore the Ngakawau River and its tributaries to a pre-mining natural state.

7. Relevant Planning Documents

This section of the report provides a summary of the most relevant objectives and policies on a national, regional and district level.

7.1 The New Zealand Coastal Policy Statement 1994 (NZCPS)

The purpose of the NZCPS is to state policies to achieve the purpose of the RMA. Chapter 1 of the NZCPS states that it is a national priority to preserve the natural character of the coastal environment. It does so by encouraging appropriate subdivision, use and development in areas where the natural character has already been compromised and seeks to avoid sprawling or sporadic subdivision, use or development in the coastal environment. The NZCPS also states a number of national priorities to protect features such as landscapes, seascapes and landforms which are essential elements of the natural character of the coast.

For the current proposal, the ocean outfall pipeline will be buried approximately 4m below the seabed, while the point of diffusion will be approximately 600m offshore. The visible components of the project at Granity are restricted to the access ramp, apron and tunnel portal. Construction techniques will ensure adjoining vegetation remains undisturbed and HDL have stated they will landscape areas on completion of construction activity.

The marine discharge has the potential to reduce visual clarity with an associated change in water colour in the coastal environment due to iron and aluminum precipitation. Such an effect may be conspicuous from a plane, boat or elevated position onshore. However, Cawthron ran a clarity series that established that meeting clarity change guidelines for the proposed outfall is unlikely to be an issue. In addition, the HDL design team are of the view that any localised change in colour or clarity will not persist in such a high energy environment nor is it expected to be obvious from the Granity beach, given the nearest point of diffusion will be some 600m offshore. On this basis I consider that the natural character and landscape effects will be temporary and will not compromise landscape values beyond the construction phase.

The preservation of natural character is also dependent upon protection of the integrity, functioning and resilience of the coastal environment. In this regard the Cawthron report states that there are no known species of ecological significance and that the outfall discharge “....represents a highly localised contaminant source surrounded by a vast dynamic body of 'clean' water, hence adverse impacts on fish and marine mammals due to toxicants in the discharge plume are highly unlikely”. Initial laboratory studies have established that under normal operating conditions the outfall discharge is expected to meet ANZECC water quality guidelines with relatively low levels of dilution. Further field trials will be undertaken to ensure the outfall diffuser is designed to achieve

optimum dilution of all the key constituents of the discharge and compliance with ANZECC water quality guidelines.

7.2 West Coast Regional Policy Statement (RPS)

A broad range of objectives and policies within the RPS are relevant to the current proposal, with many of the policies carried through into the relevant plans and as such are discussed under the respective plan headings. However, two issues covered by the RPS require further comment.

Firstly, the provisions in Chapter 14 dealing with Energy issues are obviously an important consideration. Objective 14 seeks to promote the sustainable management of energy resources with Policy 14.1 recognising the importance of an adequate supply of energy resources for the needs of people and communities on the West Coast, provided that this is not inconsistent with other policies in the RPS. Comments within the RPS refer to the development of further hydro-electric schemes on some of the region's many suitable rivers alleviating the degree of dependency on energy imported from outside the region, resulting in more efficient use of electricity. The RPS commentary states: *“Hydro power has the perceived advantage of being more environmentally acceptable than production from non-renewable sources. This however, needs to be weighed against the possible disadvantages such as the flooding of areas of land, destruction of natural values and changes in water flows or levels. There may be ways of lessening these effects by careful design and location of structures”*.

Chapter 6 deals with heritage issues with Objective 6 seeking *“To avoid, remedy or mitigate actual or potential adverse effects of resource use, development or protection on heritage and archaeological sites and values that contribute to the West Coast's distinctive character and sense of identity”*.

There are no viable options for a storage dam at the Weka site without relocating the haul road and affecting a section of the loco formation. However, I do not consider that protection of heritage values dictates that the proposal cannot proceed unless disturbance to the formation is totally avoided. The project only affects a portion of the loco formation and the condition and location is such that artefacts are not currently readily accessible. HDL are proposing heritage mitigation measures to ensure public access and understanding of the loco formation is enhanced, I therefore consider the project is consistent with the RPS heritage objective and policy.

7.3 Regional Coastal Plan (RCP)

The RCP identifies issues associated with the use, development and protection of the coastal marine area. In essence the RCP implements the provision of the NZCPS and the provisions of the RPS. The most significant provisions for the current proposal are contained within Chapter 8 (Structures) and Chapter 10 (Discharges), with some of the more crucial provisions discussed below:

Objective 8.3.2 seeks *“To preserve the natural character of the West Coast's coastal environment as far as practicable from the adverse effects associated with structures”*. The current proposal is consistent with this objective as the ocean outfall pipeline will be buried a minimum of 4m below the seabed, while diffusion of the discharge will be approximately 600m offshore. Surface infrastructure at Granity is confined to a relatively small footprint and will largely be concealed from view by the relatively lush vegetation that surrounds the portal and access ramp location and proposed rehabilitation measures.

Policy 8.4.5 states that *“Structures will only be allowed to locate in the coastal marine area where*

there are no practical alternatives to locate the structure elsewhere". All practicable alternatives for locating the outfall into different receiving environments were considered and discussed within the AEE. Discharge into the various freshwater alternatives were assessed as having greater adverse effects, as opposed to discharge into the marine environment due to the significant buffering capacity of the ocean.

Policy 10.4.2 seeks *"To require an effective mixing zone for discharges of water or contaminants into the coastal marine area which takes account:*

- (a) The sensitivity of the receiving environment; and*
- (b) The particular discharge, including contaminant type, concentration, and volume; and*
- (c) The physical processes acting on the area of discharge; and*
- (d) The community uses and values, including the values of Poutini Ngai Tahu, associated with the area affected by the discharge, and*
- (e) The ecosystem values associated with the area".*

Cawthron have proposed a 300m mixing zone as being appropriate given the nature and location of the discharge. Considerations of what constitutes an appropriate mixing zone were discussed in section 5.4.11 above.

Policy 10.4.5 states: *"The discharge of a contaminant (either by itself or in combination with other discharges) directly into the coastal marine area will only be allowed where:*

- (a) It can be shown that the adverse effects of the discharge to any area, other than the coastal marine area, would create greater adverse effect than the discharge to the coastal marine area; or*
- (b) There are no practicable alternatives to the discharge occurring to the coastal marine area; and*
- (c) The discharge is of a standard which will achieve a water quality standard suitable for contact recreation and shellfish gathering in areas defined by Objective 10.3.1 within five years of this Plan becoming operative".*

As discussed in section 5.4.11, various alternative freshwater receiving environments have been investigated, prior to proceeding with the current proposal to discharge into the marine environment. The fact that there is a considerable number of studies documenting the adverse effects of AMD run-off into freshwater environments (as mentioned in the GHD and Cawthron reports), has dictated to a large extent the final choice of discharge into the marine environment.

7.4 Proposed Water Management Plan (PWMP)

The purpose of the PWMP is to provide a framework for the integrated and sustainable management of the region's lake, rivers, groundwater, wetlands and geothermal water.

Chapter 5 provides protection for the natural and human use values supported by the West Coast's water bodies. A number of objectives require consideration of the appropriateness of the hydro development in relation to such matters as natural and amenity values. Policy 5.4.1B also seeks *"to take into account the benefits from the use and development of renewable energy, including the social and economic benefits."* The current proposal is consistent with the objectives and policies of this Chapter as the location of the scheme is within a modified environment, where natural character and the life supporting capacity of ecosystems will not be significantly affected.

Objective 5.3.2 also seeks “*to protect water bodies from inappropriate use and development by maintaining and where appropriate enhancing their natural and amenity values including natural character and the life supporting capacity of aquatic ecosystems.*” The PWMP contains schedules of significant values for specific water bodies but states these schedules are not exhaustive. No mention is made of any of the waterways to be impacted by the proposed scheme. However, a moss *Blindia lewinskyae*, with a threat classification of sparse, has been found in a number of sites in the general area of the hydro development. Nonetheless, a number of other survey reports (including NIWA, 2002 & Glenny/Kusabs, 2005) have established that *Belindia lewinskyae* is relatively common within Plateau streams beyond the proposed development footprint and John Braggin's report states that these bryophytes are unlikely to be significantly affected by the project.

Chapter 6 deals with surface water quantity issues and recognises that the taking and use of water can result in adverse effects on instream values and natural character of the region's water bodies. Of particular relevance is Objective 6.3.1 which seeks “*To retain flows and water levels in water bodies sufficient to maintain their instream values, natural character and life supporting capacity*” The proposed scheme will impact upon the existing aquatic ecology of the affected streams by significantly reducing flows in each of the sub-catchments. However, GHD concluded that “*... In light of the absence of significant aquatic ecological values, the reduction of the flows in these streams is not considered to be significant from an aquatic ecological perspective It is considered that the proposed scheme may in fact enhance environmental values within the general area, by reducing the rates of sedimentation and acidification in Plateau streams flowing into the Ngakawau River. This benefit is potentially substantial*”.

Policy 6.4.2 states “*...a minimum flow based on 75% of the mean annual low flow will be applied as a consent condition*”. For the current proposal more than 75% of flows will be removed from all the impacted watercourses, either by damming or diverting within the Project footprint. However, Policy 6.4.3 enables an exception to be made where resource use is unlikely to result in adverse effects: “*To consider granting an application for a resource consent to take water from a river, subject to a minimum flow lower than that specified in Policy 6.4.2, on a case-by-case basis, provided:*

- a) *Any adverse effects on instream values or natural character or the source water body or any other connected water body are avoided, remedied or mitigated; and*
- b) *Any adverse effects on lawfully existing takes of water are no more than minor;*
- c) *The application if granted, together with the cumulative effect of other existing lawful takes, avoids, remedies or mitigates adverse effects on the life supporting capacity of any water body”.*

As far as I am aware there are no other lawful existing takes of water from the waterways to be impacted by the Project. The only party likely to be abstracting water in the vicinity is SENZ and during consultation discussions no mention was made of any water takes within the vicinity of the project nor were any mentioned in their submission on the proposal.

As discussed above, GHD have stated that all the impacted waterways do not support diverse or abundant aquatic ecological values with very limited macro-invertebrate, plant or fish species identified in the numerous studied undertaken to date. Their report went on to state that the reduction of flows within the affected sub-catchments is unlikely to have a major impact on the diversity of the macro-invertebrate, plant and fish populations and that the ecosystems consequences will be slight. In addition, the HDL design team also commented on the hydrology effects within the S92 Response, stating that there is unlikely to be any change in stream

morphology as the stream channels downstream of the scheme are deeply incised in bedrock and over time are expected to revegetate and adapt to the new flow regimes of clean water. On this basis I consider that the exception to the minimum flow restrictions is meet and capture of all surface run-off as applied for is consistent with this policy.

Chapter 7 deals with surface water quality issues with the objectives and policies seeking to maintain or enhance the quality of the regions waterbodies. During the construction phase HDL propose discharging stormwater, plant process water and groundwater seepage during tunneling activities. All these discharges will be into appropriate treatment systems to ensure water quality is maintained in the respective receiving waterways.

The PWMP also places emphasis on enhancing or restoring water quality in situations where water resources are already degraded to an unacceptable degree. The plan recognises the issue of AMD within disturbed BCM's and states that *"...where natural contaminant levels are high the aim is to require that mining activities avoid, remedy or mitigate effects to maintain water quality as close as practicable to natural conditions"*.

Policy 7.4.2 identifies rivers with acid drainage issues in the region and included in this schedule is Mine Creek, St Patrick Stream, Mangatini Stream and the Ngakawau River. Policy 7.4.3 seeks to *"encourage the remediation of orphan sites as a method to enhance existing water quality and offset adverse effects from new mining developments"*.

Policies 7.4.2 and 7.4.3 are directed towards mining activities within areas where AMD is a likely consequence. However, the over-riding purpose is where AMD is causing adverse effects the onus is on avoiding, remedying or mitigating the effects to maintain water quality as close as practicable to natural conditions. In this respect the present proposal meets the aim of this policy by intercepting flows from key AMD bearing catchments, enabling water quality to be enhanced for both the residual sub-catchment flows and within the Ngakawau River.

7.5 Proposed Regional Land and Riverbed Management Plan (PLRMP)

The PLRMP provides the framework for managing effects of land disturbance and activities in rivers and lakebeds.

Chapter 4 of the PLRMP deals with land management issues with the key provisions related to reducing the adverse effects from land disturbance so that the region's water and soil resources are sustainably managed. For the current proposal the majority of land disturbance is focused within the upper level of inundation of Weka and Mt William reservoirs with the effects of such contained within the construction footprint. The majority of roading will follow well established roads and drillers tracks. All existing vegetation will be retained along the margins of the reservoirs except where dams and silt trap structures are required.

Chapter 5 of the PLRMP deals with lake and riverbed management issues. Objective 5.3 gives the main objective as seeking to avoid, remedy or mitigate the adverse effects of lake and riverbed activities including the stability of beds, banks and structures, the flood carry capacity of rivers, the natural character, indigenous biodiversity and ecological values.

I consider the scale of activities within the impacted waterways to be minor. The intake and weir structures will be prefabricated structures that can be placed with minimal disturbance to the stream banks and channels. Appropriate measures will be implemented to minimise water quality effects including diversion of stream flows around the weir/intake sites and placement of the structures

during periods of low flow. Likewise, the temporary sluice culverts required for construction of the two dams and the Sandy creek culvert will be undertaken with appropriate measures to ensure adverse effects are mitigated, including diversion of flows around the construction sites and minimising disturbance to riparian margins. Further, all silt traps at the head of each stream feeding into the reservoirs will not be built until the dams are completed to ensure construction effects are contained within the reservoirs.

7.6 Regional Plan for Discharges to Land (RPDL)

The RPDL manages the adverse environmental effects of discharges to land including stormwater discharges (liquid contaminants) and discharges from stockpiles and spoil areas (solid contaminants).

The objectives and policies relating to the discharge of solid contaminants (Chapter 5) focus on landfills and associated issues but the plan also covers deposits to land of gravel, coal, rock, soil and sand and the avoidance of adverse effects from such. The current proposal includes two silt storage sites for placement of sediment removed from the reservoir silt traps. These sites have been selected to ensure any run-off is directed into the reservoirs so as to avoid any adverse effects on waterways. The sites will be progressively rehabilitated once they become permanent disposal sites.

The RPDL objectives and policies relating to discharge of liquid contaminants (Chapter 6) focus on sewage disposal but also extends to the following construction aspects:

- discharge of water containing sediment to land from operation of the drill rig; and
- discharge of stormwater containing sediment to land during general earthworks and vegetation clearance activities.

The majority of earthworks and vegetation clearance activities will be undertaken within the reservoir inundation areas with appropriate sediment control measures installed to ensure sediment is contained within the immediate construction footprint.

Chapter 8 of the RPDL sets out objectives and policies to ensure the adverse effects from the use of hazardous substances are avoided, remedied or mitigated. The current proposal is consistent with these provisions as it addresses management of hazardous substances with transportation, storage and use of hazardous substances to be undertaken in accordance with relevant industry requirements.

7.7 Regional Air Quality Plan (RAQP)

The RAQP provides a management framework for addressing adverse effects from discharges of contaminants to air. The plan applies to discharges such as odour, dust, smoke, and other particulate matter. Chapter 7 of the RAQP deals with dust discharges with the focus on avoiding, remedying or mitigating adverse effects on human health, property, structures and ecosystems.

I consider the current proposal to be consistent with the objectives and policies of the RAQP as it includes mitigation measures to ensure that the effects of dust are not offensive or objectionable.

7.8 Buller District Plan (BDP)

Key provisions are discussed as follows:

Part 4.2 - Infrastructure

The generation of electricity complies with Objective 4.2.5.1 by securing supply and embedding that supply locally, while avoiding, remedying or mitigating adverse effects. The proposal also complies with the objective and policies directed towards protecting infrastructure resources, as I consider the anticipated increase in vehicle movements will not be significant, bearing in mind the existing substantial volumes of mine traffic utilising the State Highway and Millerton Road.

Part 4.3 – Built Environment

Although the project is located within the Rural Zone, the proposal is in close proximity to residential and commercial activities at Granity. Amenity effects including noise, lighting, visual, dust and vibration have been assessed and mitigation measures proposed to minimise these effects. On this basis I consider the project is not inconsistent with the objectives and policies of the built environment.

Part 4.4 - Rural Land and Water Resource

The proposal is consistent with Objective 4.4.4.1 and the associated policies, in that the project will not affect the productivity of the rural land resources while allowing Buller communities to provide for their economic wellbeing in securing local power generation. The location of the projects main infrastructural components on the Stockton Plateau is not inconsistent with the other predominant rural use activity of coal mining.

Objective 4.4.13 seeks to “*Promote land use activities which maintain or improve the water quality of the District's rivers and do not adversely affect water quantity, in order to safeguard the life supporting capacity of water*”. The proposal will affect water quality and water quantity. However, the GHD report established that the impacted streams ecology are likely to revert to pre-mining conditions as AMD, coal fines and silt generated by mining activities will be contained by the hydro scheme. It is expected that these benefits will more than offset a reduction in the low flow regime of the impacted waterways.

Part 4.5 – Mineral Resources

Policy 4.5.5.7 seeks to ensure that in locations where there are known mineral resources that these are not rendered unusable through other land use activities. HDL has had access to all SENZ exploration drill information and are confident that the project will not isolate any coal reserves or constrain future mining operations.

Part 4.6 - Cultural/Historic Resources

The key objective is 4.6.7.1 which seeks “*to protect places and sites of historical and cultural value from the adverse effects of land use activities and to ensure where appropriate, access to historic and cultural sites is maintained and enhanced*”. The project will affect the historic loco formation recorded in the Buller District Plan as historic site 109 and NZ Archaeological Association site L28/20.

An approximately 460m section of the remanent loco line formation will be affected by the western saddle dam and periodically inundated by Weka reservoir. However, the project only impacts a portion of the remanent formation, with by far the bulk of the loco formation beyond the project footprint. HDL will improve access to historic material by means of detailed investigation, recovery and display of artefacts from the affected section of the loco formation. Such items will be offered for display at the Granity Museum or displayed at the proposed visitors interpretative display adjacent to the Weka power station tailrace. Such measures will not only improve public access to historic material but increase public understanding and knowledge of coal mining heritage on the Stockton Plateau, therefore the proposal is not inconsistent with the heritage provisions of

the BDP.

The ocean outfall pipeline will also pass in close proximity to the historic Granity Library building (recorded in the BDP as historic site 262) and the historic war memorial (recorded in the BDP as historic site 294). Operation of the micro tunnelling equipment is not expected to have any adverse effects on the integrity of these historic buildings. Pre and post construction surveys will be undertaken to ensure the buildings do not experience any structural damage.

Part 4.7 - Coastal Environment

Objective 4.7.5.1 seeks “*To maintain or enhance the natural character of the coastal environment by avoiding, remedying or mitigating the adverse effects of land use activities and subdivisions requiring a coastal location*”. The construction related effects at Granity will be temporary with mitigation measures to minimise amenity and landscape effects. Once the scheme is operational the only surface infrastructure present within the Granity coastal environment is limited to the Granity outlet portal, apron and access ramp, all other components of the project will be buried ensuring no loss of natural character to the Granity coastal environment.

Part 4.8 - Ecosystems and Natural Habitat

There is no inconsistency with the objective and policies of this section of the BDP. The terrestrial flora and fauna reports concluded that there will be no significant impacts on flora and fauna as a result of development of the scheme. Various mitigation measures will be undertaken by HDL including direct vegetative transfer of disturbed areas and weed and pest control to ensure ecosystem effects are minimised.

Part 4.10 - Natural Hazards

There is no inconsistency with the objective and policies of this section of the BDP. Recognition of the dams as high dam impact category means that all aspects of the dam design, supervision, construction and subsequent monitoring will be at the highest level possible for structures of these type. HDL are confident that the level of risk imposed by the dams has been reduced to below an acceptable level.

7.9 Over-all Evaluation of BDP

Given the overall status of the applications sought from BDC as non-complying activities, reference to **Section 104D of the RMA** is required. Section 104D sets out restrictions for non-complying activities, whereby a Consent Authority may only grant a resource consent for a non-complying activity if it is satisfied that either:

- (a) *The adverse effects of the activity on the environment (other than any effect to which section 104(3)(b) applies) will be minor; or*
- (b) *The application is for an activity that will not be contrary to the objectives and policies of:*
 - (i) *The relevant plan, if there is a plan but no proposed plan in respect of the activity; or*
 - (ii) *The relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or*
 - (iii) *both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.*

The test is whether the adverse effects as proposed to be remedied and/or mitigated and taken as a whole are more than minor. The effects of the project were evaluated in section 5 of this report

with various mitigation measures outlined. I am of the view that the first threshold test is met, given the relatively small area of habitat to be lost, the majority of the infrastructure associated with the project is located in areas that have been significantly modified by human activity, the environmental reports establish that no significant loss of habitats or species will occur and the components of the scheme will not significantly alter the natural character or landscape values of the application area.

However, if this is not a view shared by the Council Planner then the second threshold test is that the proposal is not contrary to the objectives and policies of the BDP. This requires an overall broad assessment rather than checking of whether the activity fits exactly within the detailed provisions of the plan (refer: *Elderslie Park Ltd v Timaru DC* [1995] NZRMA 433). In addition, the term “contrary” contemplates being opposed to in nature, different to, or opposite and also repugnant and antagonistic (refer: *NZ Rail Ltd v Marlborough DC* [1993] 2 NZRMA 449).

An evaluation of the proposal in terms of the various objectives and policies of the BDP was undertaken in section 7.8 of this report and established that the project does not contravene any of the policies or objectives of the BDP, therefore the second threshold test has been met and there is no impediment to granting the non-complying consents being sought from BDC.

8. Other Relevant Matters

Section 104 of the RMA states that a Consent Authorities shall have regard to “*any other matters the consent authority considers relevant and reasonably necessary to determine the application*”.

For the current proposal the following documents are considered relevant:

8.1 New Zealand Energy Efficiency and Conservation Strategy 2007 (NZEECS)

The NZEECS is the government's detailed action plan for increasing the uptake of energy efficiency and conservation, and renewable energy. It gives effect to a number of objectives set out in the strategy, in particular the achievement of the renewable electricity target.

The government has also published New Zealand Energy Strategy⁷ 2007 (NZES) which sets the strategic direction for the energy sector and sets down a target of 90% of electricity to be generated from renewable sources by 2025. Increasing the proportion of renewable electricity is considered to be an affordable option for New Zealand, using current technology and indigenous resources. It is projected that if New Zealand achieves this 90% target by 2025 then this coupled with energy efficiency measures will cut greenhouse gas emissions back to 1990 emission levels.

8.2 The Proposed National Policy Statement on Electricity Generation

The proposed National Policy Statement (NPS) is designed to promote the benefits of renewable electricity generation and provide a consistent approach to balancing the competing values associated with the development of New Zealand's renewable energy resources. The NPS is intended to provide greater certainty to decision-makers, applicants and the wider community. It contains the objective to recognise the national significance of renewable electricity generation by promoting the development, upgrading, maintenance and operation of new and existing renewable electricity generation activities, such that 90% of New Zealand's electricity will be generated from renewable sources by 2025.

8.3 The Proposed National Policy Statement for Freshwater Management

The purpose of the proposed NPS is to help guide decision-making on freshwater management under the RMA at a national, regional and district levels. The proposed NPS outlines objectives and policies for the management of fresh watercourses and will require councils to give effect to such in their regional policy statements and regional and district plans. Of significance for the present proposal is Objective 3 which seeks to ensure the progressive enhancement of the overall quality of freshwater resources; Objective 4 which seeks to ensure the life supporting capacity and ecological values of freshwater resources are recognised and protected from inappropriate taking, use, damming or diverting; and objective 5 which seeks to address freshwater degradation.

9. Overall Assessment and Conclusions

At an affected landowner/occupier level there are no outstanding concerns with HDL's proposal. BDC, LINZ and SENZ have raised no issues with the project, affected party approval has been supplied by Kiwi Rail, NZTA have stated they are satisfied with the draft consent conditions, NBCS have given "agreement in principle" and DoC have withdrawn their request to be heard, stating that for the marine environment and downstream freshwater environment they consider these "*values will not be adversely affected if managed appropriately*". However, it is noted that in the last few days SENZ have indicated that they may now wish to speak at the hearing.

With respect to the communities of Granity and Millerton, again a high level of support has been exhibited for the project. Noteworthy, is that the landowners/occupiers that immediately adjoin the Granity Construction site i.e. The Granity Museum, Torea Gallery and Drifters Cafe have not lodged submissions raising any matters of concern with the project, nor have the NBCS and Ms Chorley (potentially affected by micro tunneling operation) raised any issues with this aspect.

I have discussed the relevant tests imposed by section 104D and have stated my opinion that the proposal is not contrary to the relevant objectives and policies of the BDP. In my view critical consideration should be given to what constitutes being "contrary" to the planning provisions. Environment court cases suggest strong terms such as being "*repugnant and antagonistic too*" not simply that the proposal does not find support or fit exactly within the detailed provisions of the plan (refer: NZ Rail Ltd v Marlborough DC [1993] 2 NZRMA 641 and Monowai Properties Ltd v Rodney DC 9 NZED 195). In this regard I do not consider the proposal to be fatal.

All the effects of the project have been comprehensively assessed and wherever possible appropriately mitigated. Several Environment Court decisions have confirmed that mitigation does not require that there is "no net effect" on the environment or that all effects are compensated for in some way.

Sustainable management in terms of section 5 of the RMA involves an overall broad judgment of whether a proposal promotes the sustainable management of natural and physical resources. Such a judgment allows for comparison of conflicting considerations and the scale or degree of them and their relative significance or proportion in the final outcome (refer: New Zealand Rail v Marlborough DC [1993] 2 NZLR 641).

In my opinion the scale and degree of adverse effects is acceptable and HDL's project achieves the RMA purpose of sustainable management. As such my recommendation to the Hearing committee is that all the consents being sought for the project be granted, subject to appropriate conditions.

10. Draft Conditions

Draft conditions were prepared by HDL and forwarded to both Council planners and submitters who requested to be heard and were either in opposition or adopted a neutral position as regards the project. General agreement has been reached with the Council planners over many of HDL's proposed conditions, particularly with the WCRC. A number of submitters have also withdrawn their request to be heard at this hearing based on these suggested conditions including DoC, NZTA and Buller Tramping Club. Discussions have also occurred with a number of other submitters regarding these conditions, with HDL advised that some submitters still wished to speak to their concerns.

Attached to this report as Appendix 4 is a further set of amended conditions for the Hearing Commissioners consideration. Note, these are the same as appended to the Council Officers' report but incorporate some of their suggested changes. The underlined conditions represent changes to accommodate the Council Planners suggestions, while conditions in blue represent conditions where there is a divergence of opinion. I have also arranged these into the respective areas of responsibility for each Council so that remaining issues can be clearly identified as being either a territorial, regional or joint issue.

Comments are attached to the draft conditions as “notes”, however, some additional comments are as follows:

10.1 Bond

HDL consider that the scale of the proposed activity does not justify a complicated bonding scenario. The requirement for an Annual Monitoring Report has been extended to also include an Annual Work Plan. This annual work plan will require an evaluation of the extent of rehabilitation remaining to be completed and the cost associated with such rehabilitation, in terms of the proposed bonding conditions. Therefore the adequacy of the bond can be evaluated on an annual basis once construction activity is fully under-way.

10.2 Snail and Lizard Surveys

HDL consider that requiring additional snail and lizard surveys prior to undertaking drilling, installation of power lines and construction of access roads should not be required. The majority of drill sites will be within the reservoir footprints with only a few sites required along the Granity and Stockton tunnels, well beyond areas of known snail populations. The temporary transmission lines for Weka and Mt William power fed will also be “within reservoirs”. The proposed access roads and Weka transmission line are all in close proximity to areas already surveyed and well beyond known snail populations. With respect to lizards, the fauna reporting team considered impacts on these species to be negligible, given their wide distribution locally and did not suggest that any further surveys be undertaken.

10.3 Lighting

A submitter, Frida Inta, requested that the conditions dealing with lighting include reference to hoods as an appropriate mitigation measure, this has been incorporated into the latest draft.

10.4 Bryophyte surveys

Comments as to bryophyte surveys have been provided by John Braggins (note, these were provided after he had completed his bryophyte report).

“Because a number of assessments and surveys of bryophytes have been carried out in streams on the Stockton Plateau it seems unnecessary to include another survey of many of the streams affected by the construction of the Mt William Reservoir. The St Patrick Stream and some tributaries are the only ones affected by the construction of the Mt William Reservoir and the species of concern noted in the [Council S92 request] have been either misidentified and are other common species or have been shown to be less uncommon than previously thought and persist in other similar streams on the Stockton Plateau. If one stream should be chosen for a survey in this area then the best choice would be one of the branches of the Darcy Stream immediately North of the named branch.

Weka Creek upstream of the reservoir will be unaffected the area of the stream within the footprint is limited and similar habitat is common elsewhere. Monitoring, if considered necessary, could most usefully be downstream of the reservoir on this stream.

Transects at right angles to the stream would be suitable and three in each streambed should be sufficient. Each transect should extend a few metres out from the streambed to include streamside bank habitat as well. The initial survey should take place within one year of commissioning of the scheme”.

10.5 Ngakawau River Monitoring

The Officers suggest that the lower reaches of the Ngakawau River should be monitored to ensure water quality meets ANZECC guidelines for a “slightly-moderately disturbed” environment”. This should not be required as a condition of consent, as historical AMD will only be captured if suitable funding is obtained to incorporate the affected watercourses into the scheme. In addition, it is physically impossible for the scheme to capture AMD from Charming Creek and this will still enter the Ngakawau River.

With respect to specifying a residual low flow condition for the the River, HDL does not consider this is appropriate. HDL will only “control” less than a quarter of the Ngakawau River catchment with the remainder potentially subject to natural or man induced changes in flow. In addition, the analysis of flow records from which the suggested residual flow condition was derived came from records taken over a period of 6 years and is considered representative only.

10.6 Marine Outfall Monitoring

The Officers suggest monitoring of the receiving environment for two years and thereafter once every six months. Cawthron have reviewed the draft conditions and suggest that a maximum of 8 samples spread over two years is sufficient to confirm water modelling assumptions. The NIWA and Cawthron reports both refer to the operational difficulties of undertaking monitoring of the receiving environment due to: weather conditions, locating the edge of the mixing zone and predicting the exact location of the plume. Both Cawthron and NIWA suggest that monitoring is best achieved via the Weka reservoir discharge.

With respect to the additional heavy metals suggested to be added to the monitoring list, Cawthron state that the most sensible approach is to define the discharge constituents through the

Management Plan process and that it would be “...*counterproductive to include a parameter in a monitoring condition if the Management Plan studies establish the it will not exceed the ANZECC limits in the effluent itself*”.

10.7 Financial Contribution

HDL is of the view that there is no justification for a request for a financial contribution, as the project will not adversely impact on any Council services or infrastructure. However, in recognition of the fact that construction activities will be occurring immediately adjacent to the Granity community, it is considered that a financial contribution to a community project/s is appropriate.

10.8 Power lines – Electro Magnetic Fields

As discussed in Mike McSherry's (BEL) evidence, injection of HDL power into the existing transmission network will have no effect on the electro magnetic fields, with the transmission lines already complying with the relevant requirements. The Officers suggestion that conditions addressing such matters are relevant to this consent process are incorrect.

APPENDIX 1

Daily Stockton Mine Vehicle Movements

WED	THUR	FRI	SAT	SUN	MON	TUE
15 July	16 July	17 July	18 July	19 July	20 July	21 July
386	408	382	168	158	484	438

Notes:

- The Stockton Mine is a 24/7 operation.
- Shift change overs are at 6am and 6pm.
- The Saturday and Sunday vehicle movements indicates the number of light vehicles that tend to be spread throughout the day, including the buses and troppers which bring the shift crews.
- The weekday figures show the increased movements for maintenance, design and management teams who work normal shifts – 7am to 3.30pm.

APPENDIX 2

Stockton Plateau Transmission Lines: The proposed Meridian transmission line runs directly parallel to and above existing lines alongside the haul road and across undisturbed skylines for the rest of the route. In comparison, the HDL spur line is an addition to the existing SENZ line and does not increase the landscape effects of the existing line or the proposed Meridian line. A Meridian transmission tower will be on the area beside the Weka Reservoir planned for silt storage. There will be no conflict between the Meridian and HDL proposals.



