



TrustPower Limited

WAIRAU HYDROELECTRIC POWER SCHEME

Post Interim Decision on the Wairau HEPS
Applications – Submissions and Draft Conditions

November 2007

mitchell 
partnerships

1. INTRODUCTION

TrustPower Limited (TPL or the consent holder) is planning to expand its generation capacity in Marlborough with the development of the proposed Wairau Valley Hydroelectric Power Scheme (Wairau HEPS or the proposed Scheme). TPL made two applications (U050729 & U060284) to the Marlborough District Council (MDC or the consent authority) for over 200 resource consents related to the construction of the Wairau HEPS. The applications were publicly notified in 2005 and 2006 respectively. The applications were heard together and the hearing took place in the period from June 2006 through to December 2006. The MDC released an interim decision in June 2007; the effect of this interim decision was that consent for the Wairau HEPS was granted, subject to formulation of final consent conditions. The interim decision established a process for further submissions on the form and content of conditions of consent.

The submissions on conditions closed on 10 August 2007, and MDC has had the opportunity to lodge its own submissions on the conditions. TPL has also been given the right to reply to the submissions and their content matter. This report comprises part of TPL's right of reply to the further submissions and suggested amendments to conditions.

The areas under discussion in regard to conditions for the Wairau HEPS have been identified, and set out as follows:

- Hydrology and groundwater
- Aquatic Ecology
- Civil Engineering and Geology
- Terrestrial Ecology
- Recreation
- Avifauna
- Social and Cultural Effects
- Construction Effects – Traffic, Noise and Dust

Submitters have raised a number of issues relevant to conditions in these areas. Mr Wilkes, reporting officer on behalf of the MDC has prepared a report on submissions received to draft conditions for the proposed scheme applications (the officer's report dated 19 October 2007). This report also contains a summary of submissions and recommends amendments to conditions. The recommendations by Mr Wilkes and experts NIWA and Golder and Associates on behalf of the MDC are contained in the tables attached as Appendices A, B and C to this report. The tables also outline TPL comments as to whether the proposed recommendations are acceptable or otherwise.

In general this report provides a summary of the matters raised by both submitters and Mr Wilkes, and the response from TPL.

A table indicating the amendments to the consent conditions acceptable to TPL is attached to this report as Appendix D. This report also contains a marked up

set of consent conditions attached as Appendix E. Several minor amendments are also required to the consent templates and the consent templates requiring amendment are included as Appendix F. Also note that the consent templates and several conditions refer to a location plan. These plans are currently being finalised by TPL and will be made available to the MDC prior to the hearing in January 2008.

It is important to note that many of the submissions focus on the merits of the decision, rather than providing specific feedback on conditions. TPL has focussed on condition related feedback only where possible, or where submitters' suggestions or concerns might be alleviated by conditions for the content of this report. Overall however it is evident that the current draft conditions are generally robust and provide a strong basis for managing and mitigating the various effects that could potentially arise from the proposed scheme.

2. SUBMISSIONS AND DRAFT CONDITIONS

2.1 APPENDICES

The following documents are attached as appendices:

APPENDIX A	Table containing TPL's comments on the MDC Officers' Report prepared by Mr Wilkes
APPENDIX B	TPL's comments on the NIWA suggestions to consent conditions
APPENDIX C	TPL's comments on the Golder and Associates suggestions to consent conditions
APPENDIX D	Table containing amendments to conditions acceptable to TPL
APPENDIX E	Marked up copy of consent conditions.
APPENDIX F	Amended consent templates – land use (template B) and discharge consents (templates B, E, F and H).

2.2 HYDROLOGY AND GROUNDWATER

Groundwater Monitoring

A number of submitters have raised concerns with respect to base line groundwater monitoring and also post operational groundwater monitoring. Some submitters are concerned that the proposed scheme will impact on bore water availability, and adversely affect irrigators in the Valley.

In regard to base line groundwater monitoring, Mr Callander in his evidence on this matter stated that there is a considerable existing body of knowledge that is available to determine groundwater permeability conditions in the valley. It is also proposed as part of the Groundwater Management Plan that pre construction investigations and monitoring of existing groundwater usage and

quality will be undertaken. Proposed conditions GW1 – GW8 are specific to pre construction groundwater investigations and require TPL to investigate existing groundwater abstractors and undertake monitoring requirements on these wells.

Post construction conditions GW9 – GW24 require ongoing monitoring of existing bore abstractors, a method for complaints should any loss or change be detected by the respective owner, and the requirement to appoint during the construction period of the scheme an independent peer reviewer.

The proposed conditions adopt an adaptive management approach which sets in a place a strategy that progressively allows the groundwater assessment to be refined through each of the project steps, namely detailed design, construction, commissioning and ultimately operation so that changes encountered to existing groundwater conditions, particularly during construction, can be adapted to. During construction, conditions require that ongoing monitoring occurs and where changes occur that exceed the natural expected fluctuation of groundwater conditions as monitored the consent holder shall remedy the situation by providing a water supply to the affected party of a similar or better quality and quantity.

Mitigation measures can be implemented as required to mitigate or remedy any adverse effects that arise at each stage. The adaptive Groundwater Management Plan promotes methods of mitigation that can be adapted according to conditions encountered. It is considered therefore that the proposed conditions are robust and should be imposed without any significant amendments (refer to Appendix D).

It has been suggested by a submitter that groundwater monitoring results should be available to the Community Liaison Group (CLG). This is considered appropriate and as such TPL proposes an additional condition which requires the monitoring reports to be available to the CLG (refer to Appendix D).

Flow Regime and Monitoring

Submitters have raised concerns regarding flow monitoring and the ability of the Council to ensure adherence to the flow regime once the proposed Scheme is operational.

The operational parameters that must be achieved and complied with at all times for the scheme are set out in the proposed conditions. Conditions setting out the proposed flow regime (FR) require adherence to the residual flow limits and monitoring to ensure that this is achieved. Conditions also relate to other aspects of the operational requirements of the Scheme including those specific to moderating the discharges from Power Station 5 and the use of operational and emergency spillways (SP).

Flow monitoring equipment will be installed as required by Condition FR7, the monitoring results will be reported to the consent authority on a monthly basis. The location of monitoring sites will largely be governed by hydraulic suitability of sites for flow measurement. It is envisaged that this data would also be

available for public review. It is also proposed to submit this information to the Community Liaison Group. A new condition is proposed to secure this. Please refer to Appendix D .

Specific concerns also relate to the flow regime and its variability. It has been suggested that the proposed Scheme should maintain mid-range flow variability, as this would assist to scour periphyton and fine sediment build up on the river. TPL has been advised that the maintenance of mid-range flow variability will not achieve the desired scouring effect. The evidence of Dr Coffey showed that much heavier flows were necessary to achieve this. Scouring of a river requires excess energy in the flow regime and this occurs during flood events of some magnitude. These flood events will still occur and will be passed down the river under the proposed Scheme and flow regime. Mid range variability of flows would not initiate scouring and the proposed conditions sought are therefore unnecessary. Conditions for the management of periphyton are also proposed these are described in further detail in section 2.5 below and conditions AE1 – AE2 in Appendix D.

Northern Tributaries

An issue raised by submitters Fish and Game and 'Save the Wairau River Inc' relates to maintaining connectivity between the northern tributaries and the main stem of the Wairau. The evidence for TPL showed that connectivity of this nature would continue during scheme operation. Notwithstanding this, TPL is committed to undertaking the necessary inspection and any mitigation should it be identified that connectivity of the northern tributaries has been affected due to the operation of the Scheme. Condition NT1 relates to the connection between the Wairau River and its major north bank tributaries. This condition requires that the consent holder monitor this connection and that it is not interrupted by the formation of gravel obstructions. In such circumstances where such obstruction occurs then the consent holder is obligated to carry out remedial works to remove the obstruction. Additional monitoring within the North Bank tributaries is not necessary given that the proposed Scheme activities do not impact on the flows generated within those subcatchments.

It has been identified that a critical time to ensure connectivity is maintained is during May – August. This is the trout spawning season and fish passage is critical during this time. Dr Keesing has advised that Condition NT1 should be amended to upscale monitoring of connections between the main stem river and the north banks major tributaries through the period May to August. Please refer to condition NT1 in Appendix D.

Mill Creek/Walkers Stream

Submitters have also raised concerns in regard to flows in Mill Creek and Walkers Stream. Key conditions (ST) require the monitoring of Mill Creek and Walkers Stream in a manner consistent with meeting the specific concerns expressed by Ormond Aquaculture Limited regarding the potential effects of the proposed scheme on its organic fish farming operation. Specifically the consent holder is required to monitor the stream flow and water quality for Mill Creek and implement mitigation should this flow or water quality conditions reach unacceptable levels. Conditions also specify the required flow for Mill Creek

during the construction phase and management when emergency spillways are in use. The conditions and amendments outlined in Appendix D are sufficient to satisfy any concerns in regards to flow management of Mill Creek and Walkers Stream. Please refer to section 2.6 below which addresses the amendments to conditions ST in further detail.

Power Station 5

Submitters have also raised concerns in regard to Power Station 5 (PS5) and the stability of downstream flows. There are also concerns about the magnitude and timing or speed of flow fluctuations at Tuamarina. These concerns are not substantiated given the existing environment (ie Branch Flow conditions) and the smoothing of flow releases that would accrue with the proposed scheme.

Climate Change

Submitters have also raised concern in regard to rapid climate change and potential effects on stream flow and the carrying capacity of the river. Climate change has been described in the evidence of Mr Mitchell. Given the commitment to set a residual flow in the river any effect arising from a rapid or extreme climate change event will impact on TPL operations rather than the river. It is not considered necessary to undertake a full scale climate change model, as the scenarios would only be speculative and would not add any value to the proposed management of the river.

2.3 AQUATIC ECOLOGY

The primary issues arising from submissions with respect to instream ecological values relate to the effects that the minimum flow regime proposed will have on the retention of instream habitat values, water temperatures, and flow fluctuations.

Sediment Flushing

It has been suggested that sediment flushing should not occur at all within the proposed scheme, and that any build up of sediment in the settling ponds must be dug out and disposed of away from the river. The concerns are that sediment flushing will have an adverse effect on aquatic habitats. Sediment flushing will only occur when the river flow is greater than 80m³/s and when the turbidity of the water is greater than 5.6NTU. Dr Ryder has advised that similar sediment flushing regimes in rivers such as the Rangitata have not resulted in adverse effects. The proposed approach is robust. However it is accepted that sediment flushing could be monitored to ensure that the effects are no more than minor and reports made available to the consent authority on request. This has been incorporated into conditions. Please refer to Appendix D.

Trout Habitat and Food Species

Several submitters are concerned that the proposed scheme will result in adverse effects on trout habitats and food availability. This was a key concern expressed at the hearing. However Dr Ryder confirmed that there is no compelling evidence to indicate that physical habitat for trout or native fish species within the abstraction reach will decrease significantly under the

proposed flow regime. The hearings panel also found that the applicants proposed flow regime is sufficient to protect the habitat of trout and the availability of food. Monitoring of trout habitat and abundance of fish and macroinvertebrate communities as proposed as part of the Aquatic Ecology Management Plan outlined in condition AE1 is considered sufficient to detect any substantial changes to trout habitat.

Minimum Flow and Temperature

It has been suggested that minimum flow and temperature parameters must be monitored and maintained over the whole reach affected by the proposed scheme. Although there is no evidence that the proposed scheme flow regime will significantly increase temperature, temperature management has been recommended as part of the Aquatic Ecology Management Plan (refer to condition AE1). However it is not practicable, conventional or necessary to monitor flows or individual parameters on the entire reach of the River.

Fish Screening

The use of fish screens and their respective specifications, standards and monitoring has been queried by submitters. As outlined in Condition CM5 a fish screen will be installed in the downstream end of the settling basin and a bypass/return channel back to the river will be installed. The fish screen will be designed in accordance with best industry practice provisions and culvert installations will also adhere to the Fish Passage Guidelines prepared by the Department of Conservation (1999). Condition CM5(d) has however been amended to provide more specific detail in regards to the minimum screen diameter. It is appropriate that fish passage is monitored via provisions in the conditions and the Aquatic Ecology Monitoring Plan. Please refer to Appendix D which contains the draft conditions with the necessary amendments noted.

Didymo

Several submitters seek conditions which prevent the spread of didymo in waterbodies during construction of the proposed scheme. Dr Ryder notes that currently there are no existing recommended control measures for Didymo in New Zealand water. However appropriate methods to avoid the spread of didymo should be adopted such as the cleaning of machinery equipment that may enter water. This is part of the construction management plan which sets out the appropriate procedures to avoid as far as practicable in river works, and also appropriate equipment cleaning procedures.

Eel Management

It has been suggested that an eel management plan is established to enable protection of this customary resource. Dr Ryder advises that the amount of adult eel habitat potentially affected by the proposed scheme is minor. However TPL has discussed eel management with the appropriate iwi representatives and representatives from the commercial eel fishing industry. It has been identified that there is an opportunity to protect some potential eel habitat in the lower reaches of the river and/or for TPL to explore the prospect of developing an eel enhancement trust for the Wairau catchment. It is appropriate that TPL continues this consultation and undertakes any good will agreements accordingly.

2.4 AQUATIC ECOLOGY - PERIPHYTON

Summary of Key Issues

Periphyton

Key matters raised by various submitters which relate to the proposed periphyton management conditions (AE2), require an amendment to the definition of 'nuisance growths', flushing flows, and recreational and amenity protection from increased persistence of periphyton.

It is agreed that the aquatic ecology condition specific to "nuisance growths" of periphyton (AE2) requires modification. The definition of a "nuisance growth" has been amended to include mat forming growths and is consistent with the Ministry for the Environment Criteria¹. Please refer to Appendix D which contains the draft conditions with the necessary amendments noted.

2.5 AQUATIC ECOLOGY - TRIBUTARIES

Monitoring – Fish Populations, Water Flows and Water Quality

It has been suggested that the level of existing knowledge of existing fish species in affected tributaries is insufficient. An Aquatic Ecology Management Plan is a requirement of conditions (AE1). The existing instream qualities including fish species and habitat have been identified in the assessment phase of the consent application. The Aquatic Ecology Management Plan is required to set out monitoring to detect effects of the operation of the scheme on the ecology of the affected reach of the river, including methods to assess, water temperature changes, abundance of fish and macroinvertebrate communities, and water quality changes. This Plan is to be prepared in consultation with a number of key stakeholders and approved prior to operation of the scheme by the MDC.

Northern Tributaries – Upland Bully Populations

Dr Keesing has advised that fish monitoring in the northern tributaries will continue to occur during scheme operation. This is a specific requirement of condition UB1 requires monitoring of upland bully populations in specific northern tributaries upstream of the flumes which intersect with the canal.

The monitoring proposed in UB1 is to ensure following a drought year that severely affects the upper reaches, upland bully recolonisation is not hindered by a difficult lower reach passage. Condition UB1 states that the consent holder shall monitor upland bully in Saltwater, Hillersden and Walkers Stream up stream of flumes at five yearly intervals in November. A failure to detect upland bully in the upper reaches following a drought period will trigger an egg transfer programme to assist the recolonisation of upland bully. This condition (UB1) is appropriate and no amendments are necessary.

¹ Biggs, B. J. F., 2000; *New Zealand Periphyton Guideline: Detecting, monitoring and managing enrichment of streams*. A NIWA report prepared by the Ministry for the Environment, June 2000.

Mill Creek and Walkers Stream

Submitters have raised concerns in regards to Mill Creek and Walkers Stream and the possibility that these reaches might be disturbed or affected by construction and operation of the proposed Scheme. Specific concerns relate to the intentional capturing of Walkers Stream, baseline monitoring of Mill Creek and Walkers Stream flows and water quality monitoring.

Conditions ST2 and ST3 state that the consent holder will not intentionally capture and convey flows of Walkers Stream. It was envisaged that Walkers Stream would not be affected in any way by the proposed scheme, and condition ST3 requires TPL to use reasonable endeavours to ensure that existing water flows into Mill Creek and Walkers Stream are not disturbed or affected by construction and operation of the scheme. TPL will use reasonable endeavours not to affect the existing water flows so condition ST3 is still valid. However design has dictated that Walkers Stream needs to be available to convey emergency spills, which will only occur in the extremely unlikely event of dam failure. Accordingly ST2 needs to be amended to reflect this emergency flow more accurately. This is discussed in further detail in section 2.6 below.

Baseline monitoring of Mill Creek and Walkers Stream flows is also proposed and this is detailed in conditions ST4 – ST9. Amendments to these conditions have been made in accordance with discussions held with the MDC and TPL experts. Please refer to Appendix D which contains the draft conditions with the necessary amendments noted. The baseline monitoring of Mill Creek and Walkers Stream will determine natural flow regimes in these water bodies. Monitoring will be located as close as practical to immediately upstream and downstream the canal structure. The monitoring sites will also be approved by the consent authority. The conditions then require TPL to continue to monitor the flow regimes on Mill Creek and Walkers Stream, to determine whether flow regimes have been affected by the scheme construction or operation.

It is also proposed that monitoring of water quality in Mill Creek and Walkers Stream will be undertaken during construction and operation of the scheme, refer to conditions ST17 – ST25. Consultation between TPL and Ormond Aquaculture Limited (OAL) is continuing and as such the methodology in regards to monitoring of water quality in Mill Creek and Walkers Stream has not been defined. This is considered appropriate to provide for flexibility to develop this methodology further with OAL. Conditions ST21 and ST22 refer to remedial action, should the proposed monitoring show that the quality of water has deteriorated due to the construction and operation of the proposed Scheme. The data will be independently reviewed and recommendations put forward for remedial action to return water quality to the baseline standard, should the scheme's operation induce a reduction in water quality. It will be the responsibility of TPL to implement the recommended remedial action, as practicable.

Specific concern has been raised in regards to proposed condition ST9 which allows the consent holder to discharge sufficient water from the Canal into Mill Creek, to maintain flows within 20% of the Monthly Average Stream Flow or the estimate natural stream flow. It is suggested that this could result in warmer

water, increased levels of silt and weed growth and degraded habitat and amenity. Conditions ST6 – ST9 have been superseded by conditions recommended by Mr Wilkes on behalf of the MDC, and require monitoring to determine whether existing flow regimes have been affected by the scheme construction or operation, and the mitigation to be imposed if an effect is detected. In the event that low flows at the downstream monitoring sites in Mill Creek or Walkers Stream are more than 10% lower than the predicted flow, condition ST8 requires the consent holder to release sufficient water from the canal to maintain the natural low flow regime. Condition ST9 has been amended to ensure that any releases of water are recorded and the report provided to the consent authority on an annual basis for verification.

Consent templates

It has been identified correctly by a submitter that consent template H11 states that water from Walkers Stream will be used during the operation of the proposed Scheme. This provision has been carried over from the original application as lodged and does not reflect the latest amendments agreed during the course of the hearing process. There is no abstraction proposed from Walkers Stream into the canal, and as such H11 within the consent template will be amended to reflect this. Please refer to Appendix F to this report.

It has also been identified that B25 within the consent template refers to the construction, use and maintenance of a section of Canal 8 in Walkers Stream. TPL confirms that Walkers Stream is to be left in its current 'natural' state, although the canal crossing will require some diversion and works required within the Creek to enable the canal to pass over it. This diversion is temporary and once the construction period and canal 8 is established the waterway will be returned to its original state.

Irrigation

Concern has been raised in regard to the potential use of herbicides used for aquatic weed control or other activities which may impact upon water quality for water to be used for irrigation. To address this concern TPL will be required to notify surrounding landowners and water abstractors of any intent to utilise herbicide control in the canal, approximately 4 weeks in advance. The notice will provide details such as the chemical and application dose to be used. Please refer to Appendix D which contains the proposed new condition.

2.6 CIVIL ENGINEERING AND GEOLOGY

Individual submitters have also raised concerns in regards to the spill flows, establishment of stopbanks along Hillersden Stream and other flood protection, spillway discharges into Kiemans Creek, establishment and start date of the community liaison group (please note that this aspect is discussed in detail in section 2.10 below), and seek assurance that Church Road will not be used as an access route.

Spill Flows

A number of submitters have correctly identified an error in regard to the Walkers Stream emergency spill discharge rate. The consent template (Discharge Permit Table E9) reflect an emergency spill volume of 65m³/s for Walkers Stream, however the latest spill discharge predictions as traversed during the hearing show that 44m³/s is a more appropriate value. It is agreed that the draft consent templates should be amended to reflect the latest spill predictions in the section 92 response and during the hearing. Tonkin & Taylor also recommend so as avoiding confusion the draft consent templates are revised to accurately provide spill flows, and that operational spills are accurately and clearly distinguished from emergency spills. Amendments to the relevant consent templates have been made. Please refer to the amended consent templates attached as Appendix F.

It has also been suggested that a 35 year consent term is inappropriate for spill flows. Spills will occur due to three principal causes; operational spills, flood inflows, and canal failure. The consent term for the operational capacity of the scheme is 35 years, and as such the ability to spill through the operational duration of the scheme is required.

It has been suggested that warning should be given in the event that water started to overtop the spillways. A warning system could be provided for each operational spillway site which would activate once a set level was reached and spill was commencing. This is considered an acceptable provision by TPL and as such is included as a consent condition. Please refer to Appendix D for this condition.

In response to submitters concerns in regards to dewatering of the canal, Tonkin & Taylor has put forward a number of amendments to condition SP5 (a) – (d). The amendments require that affected parties are notified of the rate of the discharge which will not be exceeded during dewatering, and that inspections are undertaken before and after the dewatering discharge with results being supplied to both the consent authority and affected landowners. Please refer to Appendix D for these amendments to condition SP5.

PIC Standards

A number of submitters have also requested that the entire scheme is to be designed to High Potential Impact Classification (PIC) Standards, and that a Civil Defence Management Plan is prepared. It has also been suggested that an international peer review for the design of the scheme where it crosses the fault is required to ensure canal safety.

In Tonkin & Taylor's view the design of the Wairau HEPS to a higher PIC standard than impact assessment shows is necessary, is not consistent with currently accepted national and international best practice construction standards. It is not considered necessary to amend any consent conditions in this regard.

Emergency Action Plan

In response to the request by submitters to prepare a Civil Defence Management Plan, it is noted that the preparation of an Emergency Action Plan (EPA) is already proposed as part of the scheme development and that it is considered adequate to meet the intent of a Civil Defence Management Plan. However it is accepted that the conditions do not explicitly require the preparation of the EPA, and as such the conditions have been amended to provide for this.

Tonkin & Taylor reiterate that given the interaction of the Scheme with the Wairau fault, conservative and robust engineering solutions have been applied and this will be continued through to the construction design phase of the project. It is also noted that monitoring and surveillance proposed by TPL is consistent with the NZSOLD Dam Safety Guidelines. Conditions SD1 – SD5 relate to design standards and dam safety and surveillance monitoring. While Tonkin & Taylor have every confidence in the proposed design and monitoring regime, a review by a recognised engineer as defined by section 149 of the Building Act 2004 of the critical scheme design concepts is considered appropriate and as such this is proposed as an additional condition (SD6).

With regard to flood flow monitoring Tonkin & Taylor are satisfied that the historical monitoring already undertaken by the MDC is sufficient and that no further monitoring is required. Tonkin & Taylor also advise that flood flows within the Scheme are predicted to be of lower frequency and magnitude than existing natural flood flows.

2.7 TERRESTRIAL ECOLOGY

River Margins and Wetlands

Fish and Game is concerned as to the effects of the proposed Scheme on river margin wetlands which provide habitat for fish and wildlife. It is suggested that conditions need to specify what would be the limits of an acceptable change on this vegetation and what mitigation would be in place should an adverse effect occur. It has also been suggested that the conditions should provide certain and clear direction in terms of the contents of the Terrestrial Vegetation Management Plan.

Conditions TV1 – TV4 provide for the creation of and greater certainty as to the matters to be contained in the Vegetation Management Plan. Furthermore the conditions require that the Vegetation Management Plan be submitted to and approved by the Consent Authority (MDC), the Department of Conservation, and the Royal Forest and Bird Society. It is noted that Fish and Game have not been included on this list and as such condition TV1 has been amended to include this particular organisation. This plan is to include a description of the vegetation to be protected and or restored, ongoing monitoring requirements during the construction and operational phases of the scheme and mitigation measures which are to be implemented should any adverse effects be detected at a later time as a product of a lowering of the groundwater table on wetlands.

The draft Terrestrial Management Plan was presented at the hearing, the latest draft being dated July 2006. The draft Terrestrial Management Plan contains specific information about the monitoring proposals including the number of monitoring locations, methodology and trigger points for intervention and mitigation proposals should the trigger points be reached. The detail in the draft Terrestrial Management Plan provides significantly greater certainty as to the monitoring that will be carried out in the construction and post construction/operational periods of the proposed Scheme.

Condition TV2 also requires that as a complement to the wider Vegetation Management Plan, a Vegetation Protection and Restoration Plan shall be established. This refers to protection of ecologically significant indigenous bush and riparian enhancement measures. A number of locations have been identified in Condition TV2, and include the active revegetation of 1.0ha of indigenous wetlands at Canal 4 and 5 embayments. However Dr Keesing in his evidence recommended restoration of riparian vegetation for Saltwater Creek at the canal intersection. This has been inserted as Condition TV2(j) and requires a 10m wide indigenous riparian restoration area for Saltwater Creek at the canal intersection (refer to Appendix D).

2.8 RECREATION

The submission of Jet Boating New Zealand seeks that a minimum flow of $30\text{m}^3/\text{s}$ 'at any time' within the affected reach is required to provide for adequate flow for jet boat activities. However the reach affected by the scheme is not currently noted as a key jet boat setting and summer observational analysis is likely to confirm this. Accordingly, it is not considered necessary to impose a minimum flow of $30\text{m}^3/\text{s}$. No amendments to the consent conditions are considered necessary.

The submission of 'Save the Wairau' has requested that an independent recreational assessment is undertaken. This would analyse pre and post scheme data, identify remedial issues, identify the potential scheme impacts on angling days, jet boat day and swimming days. Mr Greenaway has addressed the issues raised within his recreational analysis. These findings were presented in evidence. Mr Greenaway confirms that the weight of several studies carried out by different agencies suggest similar results. Mr Greenaway confirms that the collective research offers a good overview of the uses of the river, their significance, and how an assessment of the scale of effects should be approached. He confirms that angling use is relatively low between the Branch confluence and the Narrows. Kayaking is concentrated in the upper and lower river, with some use in the middle section for kayak training. Jet boating use reduces upstream of State Highway 1. Mr Greenaway points out that the affected section of the river is naturally variable in terms of its value to anglers and flow. The technical assessments indicate only minor changes to fish habitat, passage, and its value to anglers. As such further assessment is not considered necessary.

Public access to the river will not be restricted, unless it is considered necessary for the public's health and safety particularly during the construction

period of the scheme. This issue will be addressed under the umbrella of consent condition HS1 which requires the contractor to prepare a comprehensive health and safety management plan.

Both Tonkin & Taylor and TDG confirm that Church Lane will not be utilised as a haul route. This is discussed later in this report.

2.9 AVIFAUNA

River Bird Conditions

Attached to the legal closing were two sets of proposed conditions relating to river birds. These were referred to as RB1 – 10 and RBA1 – 14. Conditions RB relate to the safe island hypothesis presented by Dr Sanders. Conditions RBA do not require the safe island hypothesis to first be tested and require the implementation of the Black Tern Monitoring Programme and a Predation Management Plan to manage any adverse effects arising from the construction and operation of the scheme.

It is acknowledged that this may have created some confusion. In response to submitter's suggestions and further review by TPL experts this has been completed. Please refer to Appendix D for a revised set of river bird conditions abbreviated as RBA1 – RBA14. For the reasons outlined in the Memorandum of Counsel, TPL prefers the RBA Conditions. TPL's response to the Council's comments on conditions RB1 – 10 has been added as an addendum to the table in Appendix D for completeness.

The preference of the Hearing Panel was that it is preferable to adopt a conservative approach and assume that there is a safe island effect and require the implementation of a predator control programme from the outset as offered by conditions RBA. This approach is also preferred by TPL.

Independent Peer Review Panel

It has been suggested by submitters that the creation of an independent peer review panel to review baseline river bird data, and post operation of the scheme river bird monitoring would be of benefit. Bio-statistical analysis of the data is also suggested.

The river bird conditions (RBA) as contained in Appendix D to this report require the preparation and implementation of a pre construction Black Fronted Tern Monitoring Programme. This plan will provide sound baseline monitoring. The RBA conditions also include the formation of an extensive Predator Management Plan, as well as an operational Black Fronted Tern Monitoring Programme. Analysis, required by condition RBA14 will determine whether there is a biologically significant reduction in the breeding success of Black Fronted Terns between pre scheme assessments and between control sites (post operation of the scheme). A process for independent verification is then sought to determine whether any biologically significant reduction has been caused by the scheme. It has been criticised by some submitters that the

conditions require there to be a direct casual link established between the scheme and reduction in bird numbers prior to any action being undertaken. RBA14(d) has been amended to state that independent verification will be sought when any significant statistical analysis shows that there may be an effect by the scheme on breeding success.

An independent peer review panel is not considered to be necessary. Should the independent reviewer as outlined above require further expert input it is very likely that they will call on others to assist; the conditions do not restrict this from occurring in any way.

It is also important to note that when giving effect to these suggested conditions the consent holder is obliged to work closely with key stakeholders such as the Department of Conservation, the Royal Forest and Bird Protection Society, the Ornithological Society and the Marlborough District Council. The RBA conditions have been amended to ensure that this is consistently the case (refer Appendix D).

Operational Monitoring

It has also been suggested by submitters that river birds should be monitored for the duration of the consent. Draft conditions require the consent holder to prepare a Predator Management Plan and a Black Fronted Tern Habitat Monitoring and Management Plan prior to the commencement of scheme operation. However it is important to note that Dr Sanders does not recommend intensive monitoring for the duration of the consent, if early post operational monitoring indicates no adverse effect on river birds as a result of the Scheme.

The Black Fronted Tern monitoring programme will continue for five years post construction of the proposed Scheme. This will set out methods for identifying any biologically significant reduction in breeding success, and also methods for managing any biologically significant reduction including predator control, review of the scheme's operations during breeding seasons and the reporting obligations of the consent holder during operation to detail the monitoring that has been carried out.

It has been suggested by a submitter that pre and post scheme river bird population surveys would assist to detect any change or trend in population. In order for the consent holder to determine a biologically significant reduction in the breeding success sufficient statistical data will need to be collected and this is likely to include population surveys. In response condition RBA1 has been amended to ensure that pre scheme data is collected on the number of Black Fronted Terns and Black Billed Gulls on Wairau River during the breeding season (October to January). The methods to determine a biologically significant reduction in Black Fronted Tern breeding success will be outlined in the Black Fronted Tern Habitat Monitoring and Management Plan.

It has been suggested that quantifiable triggers for relevant parameters in regards to river bird baseline and operational monitoring should be established. Parameters identified by submitters include fledging survival; egg survival;

breeding success; population numbers. Condition RBA1 as amended requires TPL to undertake survey work in consultation with the Department of Conservation, the Royal Forest and Bird Society and the Ornithological Society and submitted to the consent authority for approval. RBA6 identifies parameters that the survey work shall include (fledging success, and monitoring of egg and chick survival) but it does not limit the nature of the work in any way.

The final set of parameters will be determined in consultation with the parties listed above will ensure that the appropriate triggers within the plans are defined.

Effects on River Birds – Construction and Operational Effects

It has also been identified that construction works should not be undertaken in the river during the black tern breeding season, specifically from 1 September to 31 January. It is a standard approach to have a condition which requires that sites are checked prior to works commencing to determine if birds are breeding or nearby the area in question, and a buffer zone is maintained. As part of the in-river construction management conditions proposed, condition CM5 requires that no construction or diversion activities shall occur within 50m of an occupied black tern or black billed gull nesting area. This is an appropriate setback provision to prevent disturbance, and ongoing construction and operational monitoring will review contributing effects on breeding success and require TPL to implement mitigation if required. This approach is acceptable to Dr Sanders.

Adaptive Management Plan

The proposed river bird management programmes promotes an adaptive and consultative approach to the management of a complex braided river system and river bird habitat. Submitters have requested that the conditions list the specific objectives that the management plans must achieve. It is the intent of the conditions that the final management programmes and plans will be prepared in consultation with the Department of Conservation, the Royal Forest and Bird Society and the Ornithological Society and submitted to and approved by the consent authority. The objectives are described in those plans and will contain the methods that will be implemented to achieve those objectives.

Notwithstanding the above comments the objectives to be associated with the 'potential pre scheme bird investigations' could include for example:

- To provide additional baseline data on breeding success.
- To further investigate the relationship between mammalian predator access to islands and flow in channels around islands.
- To further refine modelling of food supplies.
- To assess likely effects of changed flow regime by reviewing and analysing existing data from other rivers on the relationships between terns, flow, and food supplies.
- To provide reliable baseline data on tern chick foraging rates and food types

The objectives to be associated with the 'potential post scheme construction river bird investigations' as outlined in the ongoing Predator Management Plan and Black Fronted Tern Monitoring Programme could include for example:

- To ensure that threatened species of braided river birds are not adversely affected by the minimum flow regime associated with the construction of the scheme.
- To maintain and, where practicable, enhance breeding success of threatened braided river bird species following the construction and operation of the scheme.

As previously stated these objectives will be developed further in consultation with the Department of Conservation, the Royal Forest and Bird Society and the Ornithological Society, and the final plans will be approved by the consent authority prior to their implementation.

2.10 SOCIAL AND CULTURAL EFFECTS

A common theme arising from the submissions is that there is a perceived lack of adequate base line data for comparison in regards to community related impacts which could potentially arise from the Schemes construction and operation. Other themes relate to uncertainty and a desire for greater community involvement in relation to reviewing base line data, on going monitoring of the scheme and the management of construction effects.

Submissions either call explicitly for the following:

- early establishment of a Community Liaison Group (CLG),
- greater community involvement in influencing outcomes,
- opportunities to review the base line data and
- monitoring data by affected landowners, the community or the public.

Submitters have also raised concerns in regards to perceived loss in property value resulting from the construction of the scheme, and property insurance with respect to the perceived increase in the risk of flooding. It has been raised by Ms Hazel Findlay that a condition of consent should be applied which requires TPL to compensate all of the landowners should they not be able to sell their property / lose value, post construction and operation of the scheme. These matters have been sufficiently addressed in the Memorandum of Counsel.

Community Liaison Group

TPL put forward draft conditions which sought to establish a CLG for the proposed Scheme (CL1 – CL5 in the draft conditions attached to the interim decision). The establishment of a CLG was first suggested in the Social Impact Assessment for the proposed Scheme.

The conditions outline the formation, frequency of meetings and objectives for the CLG and also outline a Community Complaints Procedure. Further work completed by Taylor Baines suggests that the operation of the CLG needs to

include provision for an independent facilitator and that an objective of the CLG meetings should not be closed to those outside the group that wish to participate. Please refer to the amended conditions contained in Appendix D.

TPL will initiate the establishment of the CLG which will comprise representatives from the Wairau Valley community, TPL, MDC and the contractors for the Scheme. Taylor Baines suggests that representative community groups should include the school, the church, the Wairau Valley Water Enhancement Scheme, Wairau Valley Action Incorporated, VFB, and Wairau Valley Sports Association. While TPL will extend an invitation to all of the respective community organisations identified by Taylor Baines, the conditions are non specific in terms of who it is that should attend the CLG meetings should be required. It is not appropriate for a condition to attempt to 'bind' parties to participate but the opportunity to do so should be secured. The CLG is required to meet once every two months during the construction period of the Scheme and at least once annually thereafter to address any feedback, questions, or complaints from the local community. Please refer to consent conditions attached as Appendix D to this report.

The conditions require that the CLG is established prior to the commencement of construction, with no set timeframe. TPL consider it important to establish the CLG as early as possible and as such have already made progress to establish this entity. It is envisaged that this group will be established in March or April 2008. It is not considered necessary to amend the conditions.

2.11 CONSTRUCTION EFFECTS – TRAFFIC, NOISE & DUST

Dust

Submissions on conditions which are specific to air quality concerns focus on the adequacy of monitoring to assess dust and health related effects. Submitters request that the baseline dust monitoring is extended from one year to three, sealing of haul routes, wind monitoring and relocation of houses.

URS has adopted a one year baseline dust monitoring programme as this is in accordance with standard practice for similar construction projects in New Zealand. When undertaken using a continuous monitor (as proposed), this will provide sufficient information to establish background dust levels. This is also consistent with guidance provided by the New South Wales Department of Environmental and Conservation. URS have advised that the draft dust monitoring conditions are entirely appropriate and will provide for accurate, high quality monitoring. CM9 in the draft conditions (refer Appendix D) deals with background dust monitoring.

As detailed in evidence presented by Mr Andrew Curtis at the hearing, the monitoring would involve the establishment of the baseline Total Suspended Particulate (TSP) as well as dust deposition monitoring at two locations and establishment of a weather station. This is considered good practice and will provide the appropriate data. The requirement to undertake this is sufficiently provided for in condition CM9 (refer Appendix D). URS considers however that

there could be merit in undertaking a small amount of additional monitoring to quantify the level of variability of TSP within the Valley. This work could be undertaken as part of the requirement in condition CM9 to carry out background TSP monitoring. An amendment to CM9 is therefore proposed. Please refer to Appendix D to this report.

It has also been requested that the background dust monitoring data should be supplied to the Community Liaison Group. It is agreed that this is appropriate, and amendments to CL5 are proposed. Please refer to Appendix D.

Based on the local climatic conditions, and experience with other large scale construction projects, URS has recommended relocation of households within 100m of construction sites. URS considers that there are no air quality related reasons for properties further than 100m from construction areas of the Scheme to be offered relocation. Given the findings of URS there are no amendments necessary to Condition CM11 which provides for the relocation of residents where the construction of the Scheme is within 100m of their property. It is also noted that Condition CM15 also states that where construction activities are within 100m of a dwelling or where construction will be undertaken for more than six months within 200m of the notional boundary of any dwelling, TPL will offer to undertake cleaning services, air conditioning or clothes drying alternatives during this time.

Some submitters have requested sealing of haul routes, and/or reducing vehicle speed limits along haul routes close to residences. URS considers the current conditions CM13 and CM14 are sufficient in that CM13 requires real time monitoring at the properties that have the potential to experience the greatest dust effects. Should the level of dust exceed acceptable thresholds, the contractor will have to put in place appropriate mitigation to ensure that dust levels at these properties are maintained within acceptable thresholds. Mitigation methods to reduce levels of dust are specified in CM12 and include limiting vehicle speed to 20kph, and dewatering.

Wind monitoring has also been suggested by a number of submitters. URS considers that again conditions CM13 and CM14 are sufficient to provide adequate dust monitoring. These conditions will ensure that works cease if dust levels exceed the thresholds specified. There is a direct correlation to wind and the amount of dust generated and this is adequately provided for in the proposed conditions, with no amendments necessary.

It has been specifically requested that CM16 is amended to specifically define the Spring and Summer period. It is agreed that this amendment is necessary and accordingly amendments have been made to CM16, please refer to Appendix D to this report.

Traffic

Submissions on conditions which are specific to traffic related concerns focus on the perceived use of Church Lane as a haul road, increase in traffic and associated safety concerns, and similarly to the above dust concerns the

possibility of sealing haul routes. More specific concerns relate to bridges within properties should flooding restrict access.

Traffic Design Group (TDG) report that projections show that during the construction phase of the proposed Scheme there will not be a major increase in traffic volumes along public roads. Furthermore the proposed conditions will ensure that the consent holder prepares a traffic management plan. This plan will contain such matters as identified haulage routes, measures for ensuring the local road network is maintained in a satisfactory condition, all necessary temporary property and site access arrangements and overall ensure the community is kept informed and their health and safety is not compromised.

As previously identified concerns have been raised that Church Lane will be used as a haul route. TDG confirms that it is not proposed that Church Lane will be utilised as a haul route. A condition of consent has been prepared to ensure that Church lane is not used as a haul road.

TDG has considered the request to seal haulage routes. TDG advise that sealing such roads would encourage the increase in vehicle speed, which would result in decreased public safety. In regards to dust mitigation, the proposed monitoring requirements outlined above are considered sufficient in this regard.

With regard to property access, it has been confirmed that flooding due to use of an emergency spillway is highly unlikely. In this regard TDG do not find merit in establishing a bridge to provide for temporary property access in the improbable event of an extreme flood. In any event, it is considered that such a flood would be of a very short duration and access could be readily restored with only temporary disruption.

Noise

Submissions on conditions which are specific to noise related concerns focus on the perceived levels of construction noise and the potential for sleep disruption. It has also been requested that noise monitoring data should be made available to the Community Liaison Group.

Condition CM17, as proposed currently ensures that all noise emanating from the construction works shall be measured and comply with the New Zealand standard specific to construction noise (NZS6803:1999 *Acoustics – Construction Noise*). This standard sets a noise limit to reduce the likelihood of annoyance, nuisance and adverse health effects to people in the vicinity of construction work. The implications of this standard mean that no construction activity will be undertaken anywhere near houses during night time periods.

A number of background surveys have already been undertaken so that the general noise environment is known. It is also proposed to monitor noise early in the construction program to ensure that the noise limits are complied with at all times. This information will be made available to the Community Liaison Group. Strict noise limits during the day will also ensure the minimum of

disturbance for residents from construction noise. This is consistent with the New Zealand Construction Noise Standard NZS6803:1999 Acoustics – Construction Noise which will be complied with at all times as per condition CM17. Operational noise will also be well within any potential nuisance level for residents.

3. OFFICERS REPORT

Mr Wilkes, reporting officer on behalf of the MDC has prepared a report on submissions received to draft conditions for the proposed scheme applications (the officers' report dated 19 October 2007). This report contains a summary of submissions and also recommends amendments to conditions in the light of submissions and advice received from the Council's experts (NIWA and Golder Associates).

3.1 SUMMARY OF RECOMMENDATIONS

TPL and its various experts have reviewed the officers' report prepared by Mr Wilkes, NIWA and Golder Associates. TPL's collective responses to the proposed recommendations are contained in the tables attached, as Appendices A, B and C to this report. A summary of only the key recommendations and responses follows.

3.2 OFFICERS REPORT - CONDITIONS

General

As a general matter Mr Wilkes notes that throughout the conditions, terminology such as "far as or where practicable" is used. It is the opinion of Mr Wilkes that such terminology is not enforceable and should not be used in conditions of consent. TPL disagrees and notes that such terminology is commonplace in conditions and needs to be maintained to ensure conditions are workable from a practical perspective. Please refer to the table attached as Appendix A which sets out the reasons as to why such terminology has been used in relation to each specific occurrence. Where such terminology is not appropriate this has been identified by TPL and it is agreed that it should be removed.

Mr Wilkes is also of the opinion that the use of the term 'commencement of construction' should be defined. The term 'commencement of construction' is extensively used in the consent conditions. It is intended that it refers to the first on-site construction work. Further definition is not considered necessary. The meaning of the term is self evident. However it is accepted that at times the terminology used throughout the conditions has not been consistent for example 'commencement of construction', 'commissioning of the scheme' and the 'operation of the scheme'. The conditions have been reviewed by TPL and such terminology is now consistent throughout. The preferred terms are 'commencement of construction' and 'operation of the scheme'. Please refer to the revised set of conditions attached as Appendix D.

Where typographical or grammatical errors have been noted by Mr Wilkes, TPL has generally accepted these recommendations and amended the condition accordingly.

New Conditions 'Flow Measurement'

It has been recommended that conditions requiring adherence to flow measurement and monitoring standards be inserted. TPL has discussed this issue with MDC staff and it was generally agreed that it is a reasonable requirement to measure flows using accepted/standard hydrological techniques. The proposed condition which requires international standards to be adhered to for all flow measurements is appropriate. This is referred to as condition Flow Measurement FM1.

Construction Management

Mr Wilkes recommends a number of amendments to the conditions which relate to construction management, in-river construction works, sediment control standards, dust management, and cultural and archaeological protocols. Key recommendations are discussed below. The table attached as Appendix A provides a complete overview of TPL's response to recommendations.

Mr Wilkes recommends including fish screen specifications into relevant consent conditions (CM5). This has been discussed above and it is agreed that the minimum mesh diameter of 5mm should be specified in the consent conditions.

Mr Wilkes also recommends that construction avoids all nesting areas with a setback provision of 100m. This aspect has been discussed above and TPL's experts consider a 50m setback to be sufficient.

Mr Wilkes has suggested that the use of Auckland Regional Council TP90 standards for control and treatment of runoff can stand alone as a condition, without the terminology "shall generally be adopted". TPL disagree with this recommendation because TP90 is specifically designed for Auckland conditions (which include fine clay soils, high rainfall intensity and other topographical and climatic controls) and as such all TP90 standards may not be applicable to the proposed scheme. Some discretion is required as to which might not be appropriate for the Wairau catchment. Therefore the conditions should not involve an explicit requirement to fully observe all aspects of TP90. The list (a) to (e) contained in CM6 should not be deleted as these provide the particular aspects that are to be adhered to in regards to stormwater control. Similar comments apply to CM7.

Mr Wilkes also recommends amendments to conditions which relate to stream crossings for construction of structures such as culverts. Mr Wilkes recommends that the condition CM8 needs to stipulate that it applies to both permanently flowing and ephemeral streams and that as a minimum the culvert

size should be 300mm in diameter. TPL accepts the recommendations put forward by Mr Wilkes in regards to CM8.

Recommendations relating to dust management conditions include increased background air quality monitoring duration to 24 months, timing of revegetation as a dust mitigation measure, maintenance on haul roads and dust nuisance conditions.

URS is confident that 12 months background air quality monitoring will provide an appropriate level of background data. Background air quality monitoring will continue to be gathered during the construction process and mitigation or avoidance measures will be established should any air quality parameter be breached.

Mr Wilkes recommends that the revegetation of any earthworks areas should be undertaken within 1 month of completion of construction works or if further work is not planned on the particular site for a period of more than 2 months. Mr Wilkes also recommends an additional condition which stipulates that if climatic conditions are such that revegetation is not successful then the consent holder shall undertake appropriate mitigation measures to ensure that dust nuisance does not occur. TPL generally agrees with the recommended amendments and the conditions relating to revegetation requirements have been refined accordingly.

Condition CM12(b) requires a 'high level of maintenance proposed for haul roads to prevent dust nuisance' and Mr Wilkes suggests that this should be amended to include a schedule of maintenance criteria. URS does not consider it appropriate to set out a schedule of maintenance given that the actual work on each road will depend on a wide range of factors including traffic volumes, and climatic conditions. The maintenance required will also depend on the contractors and the vehicles that they use. As such URS considers the existing wording of CM12(b) to be sufficient. The haul roads will be constructed and maintained so as to be fit for purpose, with dust management comprising an essential consideration at all times.

Mr Wilkes notes that MDC has a standard condition in regards to the discovery of any artefacts or historical, cultural or archaeological material during construction. TPL agrees to the use of the standard MDC condition, however TPL propose to also include Ngati Toa ki Wairau as iwi who would also be notified of any such discovery.

Landscape

Golder Associates has on behalf of the MDC provided comments with regard to recommended amendments to the landscape and visual amenity conditions. Mr Boffa (Boffa Miskell) has reviewed these comments and provided an amended condition LS1 which requires that the consent holder engages an independent landscape architect to prepare a landscaping plan. The plan is required to be submitted to the consent authority and approved prior to any work commencing. The conditions also state that where landscaping works are located on land

owned by other parties than the consent holder, the consent holder is required to consult with those parties about the proposed works. Please refer to Appendix D.

Health and Safety

Mr Wilkes recommends that it is necessary to define what is to be provided to the media in regards to construction progress updates as required by condition HS2(b). Mr Wilkes recommends a weekly notice in the local newspapers and a monthly update progress report. TPL does not consider it necessary to release a weekly update in local newspapers during the construction period. The purpose of this condition (HS2) is to inform the public of construction which could pose a risk to recreational users of the river, and not all construction works will pose such a risk. As such TPL is of the opinion that a weekly update report is unreasonable and unnecessary. TPL agrees to make monthly reports available.

Mr Wilkes also recommends that the consent holder shall advise user groups (such as Fish and Game, DoC, and others) on a weekly basis the upcoming programme of works. TPL does not agree that a weekly update is appropriate and, will prior to the commencement of construction, provide a construction programme to identified parties and if this programme should change then TPL will update the parties accordingly.

Recreation

Mr Wilkes recommends that alternative access should be provided at all locations where there is currently an access point and which will be restricted due to construction works. Given that this issue is temporary TPL does not consider it necessary to provide for alternative access on a temporary basis. TPL has been advised that notification and consultation with landowners in this regard is important. However TPL should not be required by a condition of consent to erect temporary access throughout the scheme.

Mr Wilkes also recommends that a new condition is inserted that requires TPL to inform people who may wish to access the river and its environs that construction activities may be occurring. TPL considers this to already be sufficiently addressed via condition HS2.

Scheme Design

Generally Mr Wilkes recommends the removal of the term 'commencement of construction' to the conditions specific to scheme design (SD). As previously stated TPL disagrees with this and in regards to scheme design, the NZSOLD Dam Safety Guidelines clearly set out the commissioning process including the procedures and requirements for documentation. The amendments therefore recommended by Mr Wilkes are not accepted by TPL.

Mr Wilkes also recommends amending SD5 to be more succinct and enforceable by removing the term 'ensure' and requiring TPL to undertake

inspections and safety reviews of all structures in accordance with NZSOLD Guidelines. Given that it will not be the consent holder who will physically undertake the inspection, the condition as worded which 'ensures' that the inspections and safety reviews of structures are carried out in accordance with the recommendations of NZSOLD Guidelines is more appropriate. TPL also proposes a new condition that prior to the commencement of construction a recognised engineer as defined by Section 149 of the Building Act 2004 is engaged to review the propose scheme design. The purpose of the review is to ensure the design is in accordance with accepted industry standards.

Community Liaison Group

Mr Wilkes recommends the following amendments to the conditions specific to the Community Liaison Group (CLG):

- that the CLG should be established as soon as possible following the grant of consent;
- that the group shall meet monthly during construction and then six monthly thereafter;
- that the term as soon as practicable in regards to complaints response should be deleted; and
- that the Community Complaints Procedure should be approved by the Council. Mr Wilkes also queries what is meant by the term 'social monitoring' as specified in Condition CL5.

TPL's responses to these recommendations are contained in the table attached as Appendix A and also discussed above in section 2.10.

TPL disagrees with the recommendation that the Community Complaints Procedure needs to be approved by the Council. TPL considers that condition CL4 contains sufficient detail for the consent authority to be satisfied that TPL will establish and implement such a procedure.

It is also important to note that TPL are already in the process of establishing the CLG, following the recommendations made by Taylor Baines Associates.

Walkers Stream/Mill Creek

Mr Wilkes recommends that the words 'shall not intentionally capture Walkers Stream or Mill Creek lack certainty'. As previously discussed these watercourses will be captured in a sense and as such condition ST2 is inappropriate. Mr Wilkes recommends amending ST2 to state the following:

The consent holder shall not reduce the low flow regime of Walkers Stream, or Mill Creek. For the purposes of this condition low flow shall be considered to be any flow below the median flow.

The recommended amendments by Mr Wilkes to ST2 are acceptable to TPL.

With regard to the monitoring of Walkers Stream and Mill Creek Mr Wilkes has put forward a suggested amendment to monitor the flows on Walkers Stream and Mill Creek to determine natural flow regimes. TPL considers the recommendations to ST4 – ST6 to be acceptable.

Mr Wilkes has also made specific recommended amendments to ST6 – ST9.. The recommendations by Mr Wilkes seek to remove the assessment with regard to Mill Creek flow data and the long term local rainfall records. The amendments also require monitoring to occur on Walkers Stream as well as Mill Creek. The recommendations by Mr Wilkes (subject to further amendments by TPL) are acceptable.

Mr Wilkes notes that there is some confusion regarding what is proposed for Walkers Stream. Mr Wilkes recommends the inclusion of conditions that provide for Walkers Stream to be flumed and/or the discharge of water into Walkers Stream need to be formulated.

It is also recommended that the conditions require the establishment of a flow recording site on Walkers Stream at Parsons Road and also the provision of a condition which outlines minimum flows with seasonal variance and also provides for the requirement of short term flushing flows. TPL advises that Walkers Stream will not be affected or disturbed by the construction and operation of the scheme (apart from in the unlikely event of emergency spills). Condition ST3 is sufficient in that it requires the consent holder to use reasonable endeavours not to disturb the natural flow of Mill Creek or Walkers Stream. Fluming of the canal above Walkers Stream is a method that TPL could adopt to ensure condition ST3 is complied with. Conditions ST6 – ST9 discussed above require monitoring of Walkers Stream and Mill Creek flow data and also require mitigation to be adopted should any variance to the anticipated flow regime of Walkers Stream and Mill Creek be detected.

Mr Wilkes also recommends that all environmental conditions should be amended so that monitoring commences within six months of final grant of consent and continue through to the lapse period until the end of the specified post construction monitoring period. TPL considers it inappropriate for the conditions to require monitoring within six months of grant of this consent, given that TPL may choose for whatever reason not to implement this consent. As such TPL opposes this recommended amendment.

Upland Bully Monitoring

Mr Wilkes recommends including reference to “both sexes” in regard to Upland Bully monitoring. This is acceptable to TPL.

Flow Regime

With regard to flow measurements Mr Wilkes recommends that the point of measurement should be specified. Mr Wilkes recommends a site location for the upstream flow measurements as the Wash Bridge site. This is considered

acceptable to TPL and the amendments to FR1 are agreed. TPL also notes that amendments to reflect this change are also necessary within FR2.

Mr Wilkes recommends that condition FR3 requires clarification. The Marchburn gauge is actually downstream of the proposed PS5 discharge and as such this conflicts if the intention is to monitor the residual flow immediately upstream of the proposed discharge point. TPL agrees that FR3 should be amended. However, the amendments proposed by Mr Wilkes are incorrect because the measuring point may be downstream by necessity (ie the channel is multi-braided above Marchburn PS5). Therefore it is necessary to measure the total flow (residual flow + PS5 flow) in the river downstream of PS5. Given this an amendment to condition FR7(c) is also required.

Mr Wilkes also recommends the deletion of FR6 as this provision appears to be an anomaly and does not achieve its purpose. TPL agrees that this condition should be deleted.

Mr Wilkes also recommends amendments to FR7(a) with regard to the proposed Branch River monitoring and considers it appropriate for the consent holder to establish a new hydrological monitoring site on the Branch River. TPL does not agree with the proposed amendment given that NIWA has already established a site (ref 60112) upstream, which could be adopted for this purpose. The establishment of a new site is not something that should be stipulated in the consent conditions. As drafted FR7 requires that the consent authority approve the monitoring site and this is considered sufficient. The condition as drafted is robust in that it achieves its intent, which is that Branch River monitoring will continue.

Mr Wilkes also considers that the reporting time stipulated in FR9 is not acceptable and should be provided to the consent authority on a real time basis given the level of public interest and the fact that in all likelihood the consent holder will be recording in real time. TPL notes that it was agreed that 'real time' was in fact hourly average. TPL is not opposed to providing the residual flows telemetered at hourly (average) intervals to the MDC website, but uploads would need to be stated and an acceptable occurrence would be twice daily. Please refer to Appendix D for the proposed amendments to condition FR9.

Power Station 5

Mr Wilkes recommends amendments to condition PS1 on the basis that there are no constraints proposed on flow above 15.5 cumecs, so at any flow over 15.5 cumecs, the fluctuations could be significantly greater than the +/-10% described in condition PS1. TPL disagrees with Mr Wilkes on this matter as the 50 percent baseline condition PS2 applies to all other times above 15.5 cumecs and this is considered sufficient with no amendments necessary to PS1.

Mr Wilkes also recommends amendments to PS4 in regards to protection of existing consent holders and that clarification is needed for such consents at the time of consent expiry. The amendments recommended by Mr Wilkes are not considered appropriate by TPL. It is inappropriate and unduly onerous to

provide protection for consent holders once their consent has expired. The condition should however be amended to say *“excluding those consents that were notified after the date of notification of the applications for which this consent was granted”*. This is a more accurate exclusion given that it has been accepted via case law that notification is the time during which priority is established.

Mr Wilkes also recommends that there is a need for a condition of consent that provides for the consent authority to undertake ‘steady state’ monitoring/gauging of the Wairau River. It is recommended that such gauging would allow for Council to investigate for example flow loss gauging for groundwater investigations. A condition to this effect has been recommended by Mr Wilkes. TPL expert Dr John Male notes that the MDC does not undertake this monitoring presently and as such there is no baseline data established. It would be therefore difficult to determine whether any ‘loss’ is attributed to the scheme or other factors also contributing to this such as afforestation. Accordingly TPL does not agree to the inclusion of this condition.

North Banks Tributaries

Mr Wilkes recommends amendments to the north bank tributaries with regard to monitoring. This has been discussed earlier in this report and the amendments considered appropriate by TPL are contained as Appendix D.

Spill Ways

Mr Wilkes has recommended an amendment to SP1 to remove the term ‘best endeavours’ with regard to the maintenance of the maximum operational canal flow.

Mr Wilkes also recommends that all spill events should be reported to the consent authority and maps should be provided showing the extent of any spill. TPL disagree with this recommendation given that the use of emergency spills are most likely to occur during flood events, where there will be flooding from natural runoff and as such trying to map the spills is impracticable. TPL will provide the consent authority with records of all emergency spill events, however it may also be impractical to supply this to the consent authority within 48 hours of the spill occurring.

Mr Wilkes recommends a number of amendments to SP5(a) – (d). TPL experts have also recommended amendments to these conditions as discussed earlier in this report. A revised set of conditions specific to dewatering of the canal have been prepared, refer to Appendix D.

Sediment Flushing

Mr Wilkes recommends stipulating a permanent site to monitor turbidity so that the location is always consistent. This is considered acceptable by TPL and the

recommended site by Mr Wilkes, upstream of the Wash Bridge is an appropriate recording site.

Mr Wilkes also recommends that the type of monitoring technique to monitor turbidity is prescribed in the conditions and records of all flushing events should be kept, and supplied to the consent authority on a monthly basis.

Condition SF1 specifies a threshold for turbidity of 5.6NTU. It is inappropriate for the conditions to specify the technique used to measure this threshold as monitoring technology may evolve or improve over a consent term of 35 years and as such some flexibility is required. The conditions are robust in that they require TPL to achieve a certain threshold before sediment flushing can occur.

TPL is also of the opinion that monthly reporting of flushing is excessive, and would likely create a data management problem for MDC. TPL considers it more appropriate to keep reliable records that are accessible if needed, with a summary included in the annual scheme environmental reporting.

Groundwater

Mr Wilkes recommends the Groundwater Management Plan shall be prepared 'to the satisfaction of the consent authority', and that as part of the consent authorities role they should engage an independent reviewer to review the Plan and also ongoing consent compliance. TPL note that condition GW1 already requires the approval of the consent authority. The consent conditions do not stipulate that MDC engage an independent peer reviewer. TPL considers it appropriate that the consent holder (as opposed to the consent authority) engages an independent peer reviewer at the start of the pre-construction monitoring so that that person is familiar with the detail of the scheme. This is reflected in the amended conditions attached as Appendix D to this report.

Mr Wilkes has also recommended amendments to GW4 and GW5 with regard to monitoring periods. It has been suggested that six months is not considered sufficient to establish a robust set of data and a period of 24 months is proposed. TPL considers however that no matter how long the monitoring period extends, there will need to be some extrapolation of the data for extreme years. That requirement will apply for six months or 24 months of monitoring. However TPL does not consider a 12 month monitoring period to be unreasonable. GW4 has been amended accordingly (refer Appendix D).

With regard to conditions GW6, GW7, and GW8 Mr Wilkes does not consider the wording 'detailed design phase' to be appropriate and seeks that the conditions are redrafted or a definition provided. TPL accept that 'detailed design phase of the project' can be deleted from GW6, as condition GW8 contains the timing for completion of the further investigations. However GW8 should be amended to delete "as part of the final engineering design process" and replaced with "at least three months prior to the commencement of construction" to provide certainty in regards to timing. The second part of condition GW6 and condition GW7 also explain the additional investigations are

required. GW8 should also be amended so that it links to GW6 and GW7 to provide specific direction with regard to additional groundwater investigations.

Mr Wilkes also recommends amendments to GW8 with regard to trigger levels that will represent abnormal conditions that could be caused by scheme activities. Mr Wilkes suggests the addition of a new clause which states that the monitoring report shall fully characterise baseline and background conditions to allow the clear establishment of instances constituting breaches or exceedances during the construction or operational phase. TPL disagrees with the recommended amendments on the basis that the purpose of trigger levels in GW8(c) is to identify the circumstances where more detailed monitoring and/or mitigation steps should be implemented, and not to identify breaches and exceedances from a 'normal' situation, which may not necessarily result in an adverse effect as required by the amendments recommended by Mr Wilkes.

Mr Wilkes also recommends the addition of a condition which stipulates that the construction of any element of the scheme shall not commence until all the pre-construction groundwater conditions have been fully completed and approved by the consent authority. Mr Wilkes states that there is no condition preventing construction works from commencing until the pre construction groundwater conditions GW1 -9 have been satisfied by the consent authority. TPL disagree with this change on the basis that the consent authority already has control over the details of the groundwater management plan and an additional approval process is unnecessary.

Mr Wilkes recommends that groundwater monitoring results should be supplied to the consent authority on a monthly basis. TPL does not consider this to be unreasonable and agree to supply this to the consent authority on a monthly basis if it is available.

Mr Wilkes recommends that arsenic is included as an analysis parameter for groundwater samples. TPL agrees to this provision.

Mr Wilkes recommends that the groundwater peer review role is extended to include the review of the adequacy of mitigation measures proposed in regard to construction and operational groundwater effects. The role of the expert groundwater peer reviewer as described by condition GW15 is to determine any claim that changes to groundwater conditions arising from the scheme construction has caused a breach of the natural range of groundwater fluctuations whereby that breach removes or dewateres an existing well or groundwater take, or has caused an abnormal exceedance of existing levels of specified trigger values. If the expert reviewer determines that an adverse effect has occurred then mitigation, which will be detailed in the Groundwater Management Plan will be actioned. As such the mitigation measures will be effectively determined in consultation with key stakeholders and approved by the consent authority. The consent authority could elect at their discretion to engage an independent peer reviewer to assist with its functions in this regard.

Mr Wilkes also recommends amendments to GW16 so that it is not confined to adverse effects that are only brought to the attention of the consent authority.

TPL disagrees with the proposed amendments on the basis that the purpose of GW16 is to ensure that a procedure is established to address complaints from well owners/groundwater users. The process is that the affected well owner notifies the consent authority, as opposed to the consent authority being responsible for detecting a possible affect.

Mr Wilkes has also recommended that there is a need for ongoing monitoring during the operational phase of the proposed scheme to determine the effectiveness of any mitigation measures implemented. It is considered that this is sufficiently addressed in GW22 which requires the consent holder to prepare a report detailing the groundwater monitoring undertaken, the effects created by the scheme and also the mitigation measures that have been implemented. This report shall also detail any ongoing monitoring that is thought to be required in regards to ensuring the maintenance of long term mitigation measures. However, should the effects be considered minor then TPL considers it to be appropriate for this report to provide an end point to the monitoring.

Mr Wilkes also suggests that GW22 should specify a timeframe for completion of the report. It is agreed that GW22 should be also be amended to reflect a timeframe of three months for completion of this report.

Mr Wilkes also recommends that the s128 review conditions are redrafted to include a purpose. It is suggested that the s128 provision could be used to assess whether there are any actual or potential effects on the groundwater resource. TPL does not agree with this amendment on the basis that the review provision should not be to 'assess' whether there are any adverse effects. The purpose of condition GW23 and s128 is to deal with any adverse effect that has been detected and to require the consent holder to do something to adopt the best practicable option to remove or reduce any adverse effect on the environment. The monitoring and reporting regime will determine whether there are any adverse effects and the purpose of s128 is a mechanism to review the conditions of consent where an adverse effect has occurred.

Aquatic Ecology

Mr Wilkes recommends a number of amendments to the conditions which are specific to the formulation of an Aquatic Ecology Management Plan. It is suggested that the plan should be submitted to the consent authority at least six months prior to exercising this consent. The recommendations also state that the consent authority should be included as a party involved in the formulation of the plan. TPL disagrees with Mr Wilkes on the above points for the following reasons. The requirement to submit the plan 6 months prior to the commencement of construction is unnecessary and unreasonable as the existing AE1 condition relates to operational monitoring. As currently drafted condition AE1 requires that the Aquatic Ecology Management Plan is approved by the consent authority and as such including the consent authority as a party involved in the formulation of the plan is unnecessary as they have a key role in the formulation of the Plan. Mr Wilkes recommends minor word amendments to AE1 where indicated TPL accept these amendments, refer to Appendix D.

TPL proposes amendments to AE2 which is specific to periphyton, this has been discussed above. Refer to Appendix D for the proposed amendments.

Golder and Associates also make a number of recommended amendments to conditions which relate to Aquatic Ecology. The recommendations include the monitoring of fish size; connection between the main stem and tributaries; nutrient and indicator bacteria should be included in water quality monitoring; that results of operational monitoring be reported to recreational groups. These recommendations are generally considered acceptable to TPL and as such amendments where required have been made to conditions AE1 and AE2.

River Birds

As discussed above in section 2.10, TPL prefer the RBA conditions, (which do not require the safe island hypothesis to be proven statistically prior to the implementation of the Predator Management Plan. The Hearing Panel also preferred this approach adopted by conditions RBA as these are considered to be sufficiently precautionary in regard to river bird management. Neither Mr Wilkes nor NIWA have considered the RBA conditions and as such recommended amendments relate to the river bird conditions attached to Mr Kyle's rebuttal evidence referenced conditions RB. Where the recommended amendments apply generally to river bird conditions these are discussed below.

Mr Wilkes recommends listing the objectives of the river bird management plans in the consent conditions. TPL does not entirely object to this requirement it is noted that this is generally a matter covered in detail within the management plan. The consent holder must produce such a plan and liaise with key stakeholders in preparing it. It is considered that this is the most appropriate forum for setting objectives.

3.3 OFFICERS REPORT – MANAGEMENT PLANS

TPL has adopted an approach to managing the effects of the proposed scheme by the use of management plans. The management plans are used to guide the way that a development or resource use occurs at the outset, which is coupled with comprehensive monitoring requirements and subsequent and on-going adaptation of management responses as more is learned.

As outlined in evidence of Mr Kyle adaptive management begins with the premise that:

“policy makers do not sufficiently understand natural and social systems to be able to predict whether their policies will be effective in practice”².

And further,

“adaptive management principles are derived from new scientific and ecological insights that interpret the natural world as dynamically changing, full of uncertainty

² A T Isles, Adaptive Management Making Environmental Law and Policy More Dynamic Experimentalist and Learning, Environment and Planning Law Journal August 1996

and continually surprising. Measures are designed to systematically monitor results and modify the measures through constant feedback. Management actions and monitoring programmes are carefully designed to generate reliable feedback, clarify the reasons underlying outcomes, and objectives are then adjusted based on this feedback and improved understanding”³

An adaptive management approach employs scientific monitoring and research to measure and explain the effects of management actions. Result of monitoring and research are then used to adjust future management. As such adaptive management plans are likely to evolve over time and while they are implemented to achieve certain key objectives, these objectives may also evolve over time as new data emerges and the project progresses. It is appropriate that the conditions require the development and implementation of such plans, however it is inappropriate for the conditions to specify exactly what the plan objectives are and how they will be achieved, given that the objectives might alter and so to the mitigation or management system.

It has been identified that a number of elements of the proposed Wairau HEPS could be sufficiently managed by way of an adaptive management approach. Adaptive management plans will be developed for the following aspects of the scheme:

- The effects of construction
- The effects on groundwater during construction of the scheme and ongoing operational monitoring.
- Effects on terrestrial wetlands.
- The effects on ground water during scheme operation.
- Effects on the aquatic ecology within the Wairau River, including the management of periphyton.
- Effects on avifauna habitat within the Wairau River.

During the hearing TPL put forward draft management plans to assist the committee in their understanding of how these plans might be formulated and actioned. These plans are currently in draft form until they are finalised in consultation with key stakeholders and approved by the consent authority. However it is important to reiterate that the key principle behind these plans is that they need to be able to adapt to changes encountered as the project progresses throughout the life of the scheme.

Mr Wilkes in his report has made some comments with regard to the management plans, specifically the avifauna predator control and black fronted tern monitoring plans, the aquatic ecology management plan and the construction management plan. The following section summarises these comments and TPL’s response.

³ Nyberg – An Introductory Guide to Adaptive Management for Project Leaders and Participants, January 1999

OFFICERS REPORT – MANAGEMENT PLAN RECOMMENDATIONS

Predator Control Plan

Mr Wilkes notes that in general the content of the Predator Control Plan, with respect to avifauna, is reasonable, practicable and clear. Mr Wilkes does state however that the overall effectiveness of the Plan to protect Black-fronted Tern in a braided river is limited by the heavy reliance on targeting control methodologies at a late breeding stage to established Black-fronted Terns (BF Terns) colonies. Black-fronted Tern colonies like most *Sterna* species are mobile with birds regularly moving colony location. This can result in the final location of colonies being not known until birds start laying, at which time predators are already pre-existing in the colony location.

Mr Wilkes notes that the key for success for the predator control programme is the need to “knock-down” predator numbers prior to the BF Tern breeding phase. Implementing such a regime would require targeting geographically a greater management zone which would inherently be more expensive.

Mr Wilkes states that the consent holder must be aware that the programme should not be reliant upon any Animal Health Board (AHB) vector control work. AHB programme in this area are carried out in February, which is post breeding for BG terns. Furthermore the future and ongoing nature of the AHB programmes are subject to achievement of non related outcomes and are constantly under review and are predicted to discontinue prior to 2013.

Mr Wilkes also notes that the Plan states that the feral cat-traps will include leg hold and live capture traps and that the traps will be checked twice weekly at the consent of control and thereafter once a week or fortnight depending on catch rates. Mr Wilkes advises that it is a legal requirement that leg hold and live capture traps are checked every 24 hours.

Black Fronted Tern Monitoring

Mr Wilkes again notes that the plan in general is reasonable, practical and includes measurements which would be used in most avian research projects. However Mr Wilkes is concerned that the monitoring programme has not been adapted for Black fronted tern species or for a braided river setting.

Mr Wilkes states that the plan provides a heavy reliance on fledging success throughout, without detail on how this will be measured. Black-fronted tern chicks, like all *Sterna* species are highly mobile at a week old and abandon their nests. Monitoring requires a specific approach to measure this variable. Mr Wilkes considers that the frequency of visits (1 per week) is not considered sufficient to measure the parameters set out in the plan.

Mr Wilkes also suggests that feeding observations set out in the plan need to be random, in location, time of day, and duration. Mr Wilkes considers that the failure to do random samples will bias any results.

Mr Wilkes also states that additional information on adult survival rates must be included. In addition consideration of recruitment is also important. Monitoring of population numbers, breeding success, recruitment and adult survival are the key parameters needed for population modelling. It is suggested that collection of this data is key to predicting the effects of the scheme on Black-fronted terns on the Wairau.

Response

As previously discussed the management plans specific to avifauna will be developed in consultation with the Department of Conservation, the Royal Forest and Bird Society and the Ornithological Society and must be submitted to the consent authority for approval. It is considered that the final set of parameters will be determined in consultation with the parties listed above will ensure that the appropriate triggers within the Plans are defined. During this phase the issues outlined by Mr Wilkes can be discussed in further detail and taken into account when revising the draft Predator Management Plan and the draft Black Fronted Tern Monitoring Plan.

Aquatic Ecology Management Plan

Mr Wilkes considers the overall the management plan is reasonable and it contains measurable trigger levels for reporting and undertaking contingency actions, however a number of issues remain.

Mr Wilkes considers that the purpose and objectives of the plan must be clearly defined and included in the specific consent conditions. The purpose is defined as "providing clarity and certainty to the adaptive management strategy". One objective is defined as ensuring that "all potential adverse effects are identified" but no other objectives are mentioned elsewhere. As previously discussed the objectives of the management plan might evolve over time and while it is important that the plan sets out objectives, it would be inappropriate for the conditions to specify exactly what these are given that may need to be changed over time. The conditions should state that the consent holder shall ensure that the management plan is prepared in accordance and seek to achieve the objectives set out within that plan. Also note that the plan is currently in draft form and through consultation with key stakeholders and the final approval process the objectives may alter.

Mr Wilkes states that the plan has pre-operation, construction and operation monitoring but does not provide for any pre-construction "baseline" set of data. Mr Wilkes suggests that this could be because it is believed that the pre-construction baseline data already exists in the form of the applicants AEE and/or hearings evidence. Mr Wilkes states that if this is the case then it is appropriate that an update of the AEE (incorporating hearings evidence and any additional R & I completed post application) be included in this plan as a mechanism of defining the baseline condition. The Aquatic Management Plan will set out methods to assess water temperature changes, abundance of fish and macroinvertebrate communities and water quality changes once the scheme is operational, and will reflect the most relevant and up to date baseline

data available. It is also important to note that the Plan is to be prepared in consultation with key stakeholders and approved by the consent authority prior to the operation of the scheme.

Mr Wilkes also notes that it is proposed that the flushing events be monitored in detail during the first year. Mr Wilkes states that there needs to be clear direction to decide if that is enough monitoring or whether it should be continued. The conditions do not in anyway limit what can be included in the Aquatic Ecology Management Plan and this aspect can be discussed in further detail and taken into account when revising the draft Plan.

Construction Management Plan

Mr Wilkes states that the proposed construction management plan contains details of the range of events that are likely to occur during the scheme construction as well as identifying key roles and responsibilities. Mr Wilkes also notes that importantly the plan provides the framework for the Community Liaison Group which will be integral in the ongoing success of the project from a consent holder, consent authority and community point of view. However Mr Wilkes also suggests that much of the Plan will require amendments in conjunction with the proposed amended conditions described above.

The construction management will set out the ongoing framework for the CLG, however the consent conditions are also robust (refer conditions CL) and ensure that the consent holder establishes this group prior to construction. TPL has already taken steps to establishing this group. The conditions are specific in that they require the establishment of the construction management plan but purposely do not repeat the conditions of consent to determine the content; the draft construction management plan is in outline form so that the contractor can have significant input into the plan. It is not considered that the amendments to conditions contained as Appendix D to this report require significant amendments to the content of the draft management plan. However it is also important to note that again this plan is to be approved by the consent authority prior to its implementation.

4. CONCLUSION

TPL has completed a comprehensive assessment of the environmental effects which has been outlined during the hearing process and has determined appropriate standards for mitigation across the relevant matters. This proposed mitigation is seen in the conditions attached as Appendix D and a marked up copy of the Conditions against those presented during the Hearing as Appendix E.

The conditions put forward by TPL during the hearing are considered to be largely robust. Where amendments have been made by TPL to the conditions these seek generally to provide greater clarity and interpretation as to how they are to be implemented.

There are a number of areas where it is more appropriate to impose conditions which set in place environmental process standards such as the preparation and implementation of an adaptive management plan, rather than reliance on performance standards. This relates to the conditions which require the preparation and implementation of a management plan. Concern has been expressed over a purported lack of detail in the conditions in regard to the content of the management plans. However the conditions are robust in that they require the plan to be prepared in consultation with key stakeholder and also require the approval of the consent authority prior to the implementation of that plan. As previously outlined the management plans need to be able to evolve and adapt to changes as the scheme development progresses, this is provided for by the conditions.

Overall it is considered that the conditions put forward by TPL during the hearing are robust, appropriate and represent good planning practice. Where amendments have been made by TPL to the conditions, these seek generally to provide greater clarity and interpretation as to how they are to be implemented.

APPENDIX A

Table containing TPL's comments on the MDC Officers' Report prepared by Mr Wilkes

APPENDIX B

TPL's comments on the NIWA suggestions to consent conditions

APPENDIX C

TPL's comments on the Golder and Associates suggestions to consent conditions

APPENDIX D

Table containing amendments to conditions acceptable to TPL

APPENDIX E

Marked up copy of consent conditions

APPENDIX F

Amended consent templates - land use and discharge consents