

Tabled at Hearing 03/05/2013

BEFORE THE CANTERBURY REGIONAL COUNCIL

In the matter of the Resource Management Act

and

In the matter of submissions on the Proposed Canterbury Land and Water
Regional Plan

**EVIDENCE OF AMANDA JANE LOEFFEN ON BEHALF OF THE
WAIPARA GROUP**

Introduction

1. My name is Amanda Jane Loeffen and I am the Project Manager for the Hurunui Water Project, and CEO of AL Resources Limited, a project Management Company based in Christchurch. My qualifications are a Bachelor of Science (Hons.) from Surrey University in the UK (1984) and an MBA (finance) from Chicago Booth University in the USA (1991). I have over 20 years' experience in large scale infrastructure development, both for project management and business development.
2. I have particular experience in the management of complex projects that require years of planning and engineering. This includes a range of projects in the resources sector ranging from large scale olefin aromatic refinery projects in northern Europe, providing feedstock for plastic intermediate products, to coal development projects for Solid Energy in New Zealand. In relation to the Waitohi Irrigation and Hydro Scheme, I have been involved in the project for the last 5 years which has included a wide review of options to achieve irrigation in the Hurunui District, including the original Lake Sumner and South Branch Project.
3. I provide the following evidence in support of enabling irrigation in the Waipara catchment. My evidence will cover the following matters:
 - 3.1 Overview of the Hurunui Water Project
 - My involvement
 - Structure of HWP
 - Economic Drivers
 - The Zone Committee
 - 3.2 How the Waipara catchment fits into the scheme
 - 3.3 How HWP can augment environmental flows in the Waipara
 - 3.4 Nutrient Management

OVERVIEW OF THE HURUNUI WATER PROJECT

My involvement in the Project

4. I became Project Manager for the project in May 2008, which at that time was still an unincorporated joint venture between the farmers trust (Hurunui Irrigation and Power Trust (HIPT)), Ngāi Tahu Property, MainPower and David Teece (represented by Lindsay Lloyd).
5. Over the past five years, I have reported to the board of HWP on a regular basis. My role has been to lead the development and implementation of the HWP through its feasibility, consultation, governance, funding and resource consent application process. I am responsible for undertaking work plans and assignments, as required and agreed with the company. Ultimately, my role is to assist in delivering a financially viable, environmentally sustainable irrigation scheme that has widespread community support and is consentable.
6. The HWP scheme proposes to enable the irrigation of 60,000 hectares in the Hurunui, Waipara and Kowai catchments. Four dams on the Waitohi River and 6.5 million m³ of on-plain storage will provide the reliability to irrigate the command area.

Structure of HWP and ownership

7. HWP is a limited liability company with 32,000 shares and 200 shareholders, of which the majority are landowners in the Command Area. The original investors (the founding shareholders) hold approximately 12,000 fully paid shares, and these founding shares are owned by HIPT members, Ngāi Tahu Property, MainPower and David Teece, the owner of Eskhead Station and the South Branch of the Hurunui.
8. These four founding shareholders have all been involved in the project since 2001, and have been searching for a viable scheme for this entire period. In the early days of the Canterbury Water Management Strategy (CWMS), the use of Lake Sumner was supported by the consultation process managed by the CWMS, and the main storage

was situated in the South Branch of the Hurunui River, as the circumstances at that time did not make other alternatives economically viable.

9. The remaining 20,000 ordinary shares were issued in September 2010 on a one per hectare basis to landowners in the Command Area. Approximately 75% of the shares are held by landowners.

Economic Drivers

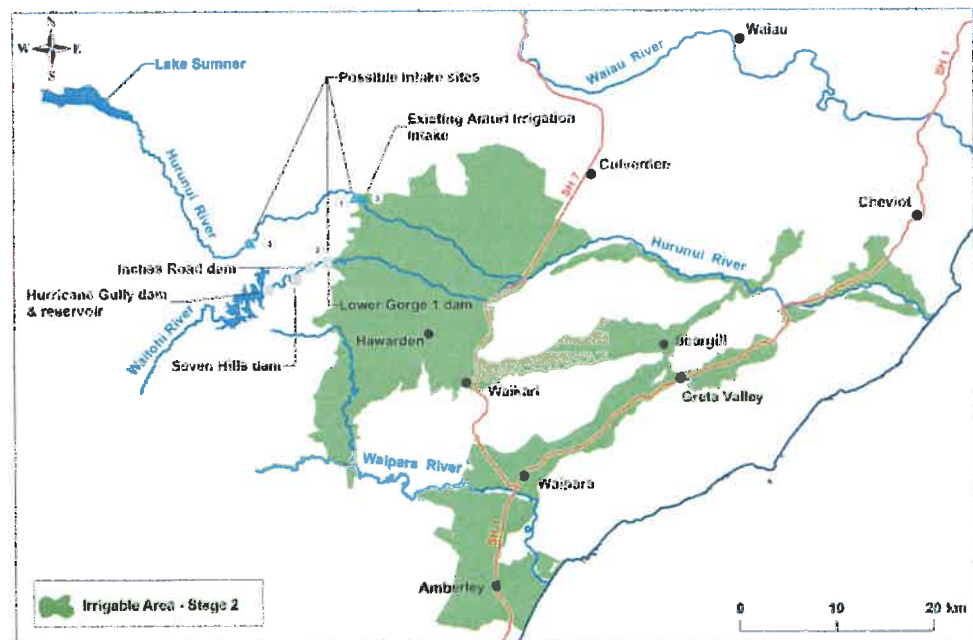
10. The project was conceived thirteen years ago, when the impacts of regular drought and difficulties with economic farming were already taking a toll on the district. Hawarden was listed in government statistics as having the lowest income per capita nationally, and the signs of economic hardship were recognised in the dwindling school numbers, the closure of the doctor's surgery, the lack of activity at the rugby club, and the general air of abandonment as young people went to school elsewhere, or grew up and moved away to find work.
11. The benefits of irrigation were becoming evident on the north bank of the river, where the existing Amuri Irrigation Scheme was already showing an economic benefit for the Culverden township, and the higher productivity on-farm was generating an improvement in welfare for the community at large. The contrast between north and south was stark. It was the difference between green and brown, and a thriving community centre with shops and cafes, versus a ghost township with everything starting to close down.
12. The economic study conducted by Simon Harris on behalf of HWP indicates that the HWP project, once completed, could increase net benefits for the district by \$200 million per year, increase jobs locally by over a 1000 people, and have an effect on Hurunui District Council GDP that would be more than a 50% increase, or \$160 million per annum. Regionally, the effects are approximately three times larger, but obviously a much smaller percentage change. The economic drivers are significant for Hurunui District, and the associated welfare benefits are likely to be substantial also.

The Zone Committee

13. The Hurunui-Waiiau Zone Committee was the first Zone Committee to be formed, and a high profile case due to the emotional reactions and media responses to the North Canterbury water storage issue. Most people recognised that we needed to find a solution for water storage to ease the economic strains in the district, and trigger a real change in economic growth through irrigation. However, many of the key stakeholders such as Fish and Game, Doc, Forest and Bird, and the kayakers were staunchly against considering the HWP original Lake Sumner/South Branch proposal, all for different reasons. Finding a collective solution was not going to be easy.
14. HWP worked very closely with the Zone Committee, presenting additional research and analysis to work through a reconsideration of all the alternatives, including Waitohi, Mandamus, storage in the Waiiau, and combinations of smaller storage solutions. The economic barrier was still very high for the alternatives.
15. During this period, HWP was conscious that it would be very difficult to get consensus on the South Branch/Lake Sumner option, and we had another look at the Waitohi options with a fresh eye. A number of changes occurred during this period which helped us to think differently:
 - 15.1 The price of dried milk and meat increased by 30-40% from 2010 to 2011, creating a larger economic envelope for consideration.
 - 15.2 The Zone Committee were trying to help make a Waitohi option work, and on the back of some other ideas for pumped storage, developed the "C" block idea, as a way of releasing more water for storage at less environmentally sensitive times of year.
 - 15.3 The Zone Committee wanted the scheme to be "future proofed". In other words, one scheme that would provide water for future generations such that we do not need to find

another storage location in 20 years time. This prompted HWP to think big, and find a location that could accommodate the 200 million cubic metres of water required to supply the whole area of 58,500 hectares.

16. It is also written into the ZIP (the Zone Implementation Programme) that they would like to see any water storage provided for in the district to include augmentation of the Waipara River for environmental flow reasons. The irrigable area includes the whole of the irrigable land in the Waipara catchment, as shown in the map below. The use of the Waipara as a conduit for transporting water to the areas south of the river, opens a further 10,000 hectares of land in Glasnevin and Amberley that otherwise would not have irrigation.



17. Enabling pumped storage gave HWP the ability to build a much larger dam than previously envisaged in Hurricane Gully, as we were no longer constrained by the costs of pumping due to the introduction of a hydro-generation component which could offset the costs of pumping. The costs were still high, with estimated costs to the farm gate increasing by around \$2000 per hectare. However, the advantage of having consensus around the Zone Committee table, with all parties supporting the new location was considered to be a compelling factor in the decision to shift the storage location.

18. In summary then, HWP was able to be flexible as part of the collaborative process and re-locate the scheme. As project manager, I can clearly see the benefits of this change, as we have now have wide support.

HOW THE WAIPARA CATCHMENT FITS INTO THE SCHEME

19. Landowners in the Waipara catchment have also contributed to the scheme, although to a more limited level initially as it was thought that there was there was sufficient water for irrigation in the Waipara at that time. The decisions over the Waipara River Plan, and the increasing need to see an increase in environmental flow in the river before further irrigation can proceed has encouraged the area to form a Waipara River Trust. This group of local farmers in the Waipara is working actively with HWP to contribute to a further study that will identify the environmental benefits that can be gained by augmenting flows in the Waipara, while also looking at how to meet further demand for irrigation, particularly for storage.
20. The needs for the Waipara catchment are quite distinct from the central irrigable area, as some of the land is already developed as vineyards, with a low requirement for water volume, but a low resistance to unreliability. Little or none of the area is currently dairying, and the land uses are primarily low intensity sheep and beef. When we consulted with the local community in Waipara, the messages were strongly in favour of HWP enabling some augmentation of flow in the Waipara, to enable a wide range of uses. The main reasons to increase flows in the Waipara River through use of stored water from the HWP scheme were:
 - 20.1 Increases in flow to help the environment;
 - 20.2 Further reliability for existing uses;
 - 20.3 Increasing the area of irrigable land for vineyards, plus water for frost protection;

20.4 General irrigation of new pasture for a variety of stock or crops;
and

20.5 Future irrigation needs.

21. The land in Waipara has no other water source of water for irrigation, other than creating new storage, and it would almost certainly be more cost effective to use the existing storage scheme from HWP. Inclusion in the HWP scheme is an effective way to provide further stored and run-of-river water to the area.

HOW HWP CAN AUGMENT FLOWS IN THE WAIPARA

22. The irrigable area in the Waipara catchment fits at the lower end of the Hawarden flats, with further irrigable land downstream along both the north and south sides of the Waipara River. From the start, it has always been one of the options for HWP to use the river to convey water from the upper Waipara to the lower reaches of the river, since this would both enhance about 5-10 km of river with additional water flows, plus enable a significant area to access cost-effective stored water from the HWP scheme which may otherwise not have access to water for irrigation. The additional water over this length of river is considered to be an environmental benefit.
23. There is evidence to show that some additional augmentation of Waipara River flows could maintain flows during the dry periods, and contribute positively to the environment. The research to establish the exact qualities for this is not complete at this point.
24. HWP is working with the Waipara River Trust to establish the extent of the demand for water, both from an environmental and irrigation perspective. This work is at an initial stage but feedback so far is that there is a significant interest in completing this work.

NUTRIENT MANAGEMENT

25. Water quality was identified as a key risk for the project about two years ago when new legislation was proposed, and the Zone

Committee started to struggle with how to keep "water quality at or about the same" while still irrigating their goal of 100,000 hectares in the Zone (Hurunui and Waiau) and supporting economic growth. ECan experts were only able to say that it was "high risk" to irrigate the additional land but that we may be able to keep water quality the same if existing irrigators created head room. That was not enough certainty for HWP, and we set about finding out what to do about it.

26. There is substantial information in Peter Callander's evidence in the HWP resource consent to explain in detail how to create a catchment model to calibrate the nutrient loadings on land with the measured effects in the river. From the HWP project management position, I would like to explain how HWP intends to achieve this goal.
27. We have started already. There is no time to waste, as it is important to benchmark the situation today, so that we can measure where we started from. Our goal is to have nutrient budgets for all shareholders in the Hurunui catchment by the end of this year, and update our current model with actual OVERSEER (OS) data. We have an environmental analyst in-house who is working with farmers, fertiliser companies and farm consultants to pull together the data in a reasonable time frame. We have started with the stage 1 area first.
28. Secondly, we need to increase the level of monitoring in the rivers, and we are proposing to work with ECan on this.
29. Thirdly, we are developing farm environment management plans (FEMPs) with the same farmers over the next two years. This will be an audited process, and the FEMP is the tool that enables HWP to work with farmers to improve nutrient performance and best practice.
30. We are proposing to have a calibrated model for stage 1 before we start any irrigation, and we intend to use the audited FEMP process to work proactively with farmers to improve performance.
31. Hence, if we find that we are not meeting water quality expectations as measured in the river for any reason (and it could be any nutrient or bacteria) we have a catchment model that enables the identification

of areas where opportunities to improve the overall performance as a company may exist. HWP will be constantly striving to move the "best practice threshold" for our farmers, and the OS tool will be one of our measures for achieving that. HWP is proposing a "whole of catchment" approach which will enable us to manage water quality more easily and target the areas that are more likely to provide efficient improvements.

32. For example, our approach to riparian management and wetland development will be on a catchment basis, rather than looking at isolated properties. The groundwater model used for the catchment model will also identify the suitable locations for wetlands and riparian planting to optimise their effects on water quality. Our approach with landowners to date has been very encouraging.
33. For example, the Waitohi Restoration Group was set up at the end of last year to enable a farmer group to collectively decide on the most constructive way to achieve substantive improvement in riparian management on the Lower Waitohi. The first large meeting included practically all the landowners on the Waitohi margins and with HWP's support the farmers are developing a collective vision and committing to the process of protecting the Lower Waitohi. The results are extremely encouraging, and while HWP will still play a role in planting various sections (or "nodes") and selective weed control, the farmers themselves have taken the responsibility to make sure it is fenced with a minimum 10 metre riparian margin.
34. HWP will also take a similar collective approach for wetland establishment. While the wetland strategy is considerably more complicated, involving a cluster approach to obtain the best water quality results, the use of community support is seen as a fair and collaborative way to achieve maximum effect.
35. HWP intends to follow a similar strategy with owners along the other tributaries in the Command Area, including the Waipara, for both nutrient management catchment plans and the approach to establishing mitigation and biodiversity plans. These areas are likely to be part of the Stage 2 of development, and the catchment plans will

be developed in the next few years, as landowners establish OS reports and FEMPs.

Periphyton issues

36. There are a number of other witnesses who have indicated that the causes of periphyton growth in the Waipara River are due to a combination of naturally high P concentrations in the water coupled with low flows, especially in summer. The key remedy for that situation is to augment flow in the Waipara River. HWP's irrigation proposal supported by the Zone Committee includes the augmentation of the Waipara.
37. The associated policy and rule provisions for Red zones frustrate HWP and the Zone committee's aims in this catchment because it will be a non-complying activity for landowners to change their land uses and they will have to show a sustained and enduring decrease in their nutrient discharges to get resource consent. Given that they are all dryland sheep & beef, forestry or viticulture, it will be almost impossible to do this with any change in land use.
38. Locking in current land use will not improve water quality in the Waipara Catchment, but adding irrigation will augment flows and this will improve various aspects of water quality. Improvements will include the ability to provide flushing flows for periphyton, increases in minimum flows and additional water that could reduce nutrient concentrations and periphyton growth. The introduction of further irrigation will also provide the incentive and financial justification for a more detailed catchment nutrient model, as HWP is doing in the Hurunui catchment, which will enable a more scientific understanding of the impacts of farming on the water quality, and thus enable better control of the outcomes.

Summary

39. In conclusion, the Waipara catchment is a pivotal section of the HWP Command Area, with a conduit to supply water to the Amberley and Glasnevin Districts. HWP is reacting to Zone Committee requests to

augment flows in the Waipara and proposes to augment flows in the river during dry periods with releases from storage. This dilution effect would almost certainly help with periphyton effects and nutrient problems that are currently experienced, but as yet the further studies to prove this have not been completed.

40. Additionally, HWP has identified a potential of up to 10,000 hectares of irrigable land south of the Waipara that could benefit from a supply of water for irrigation. The Waipara River Trust is collecting donations as we speak to take the studies to the next level. It is clear that there is a sizeable demand for water in the Waipara and towards Kowai, and augmentation of the Waipara is a potential option for meeting both environmental and economic needs for the area.

May 2013