



Assessment of Environmental Effects Report

# The Kāpiti Water Supply Project

Prepared for Kāpiti Coast District Council (Client)

**Preliminary Draft for Council Circulation: Executive Summary Only**  
**Awaiting GWRC pre-application review and CH2M Beca final Review**

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# 1 Executive Summary

Providing a reliable water supply for the communities of the Kāpiti Coast that is sustainable and will meet the expectations of consumers is a primary responsibility of Kāpiti Coast District Council (Council). This Assessment of Environmental Effects (AEE) focuses on the water supply for Kāpiti Coast's largest urban area – the Waikanae, Paraparaumu and Raumati (WPR) communities. This area has experienced one of the fastest growth rates of any district in the country in recent times, and continues to develop as a great place to live, work and play. A reliable and sustainable water supply underpins that development and provides for people's social, economic and cultural well-being.

The current water supply for the WPR area is based on a run-of-river system on the Waikanae River. Water is taken from the Waikanae River and treated at the Waikanae Water Treatment Plant (WTP) on Reikorangi Road, before being distributed to the community for consumption via Council's reticulated system. In dry summer periods, when the river is at low flow the minimum flow requirements of the river mean that the run-of-river supply is supplemented or entirely provided by groundwater from a borefield in Waikanae. Water from the borefield, whilst meeting the New Zealand drinking-water standards, has been criticised by consumers for its taste and hardness. This has also caused problems with electrical appliances for consumers when Council switches to the 'harder' groundwater supply.

This existing water supply is under stress in terms of its capacity to meet the peak water demand in summer. The Waikanae River and borefield currently supply up to a consented limit of 23,000 m<sup>3</sup>/day. Due to population growth, peak daily demand over recent summers has approached this limit and the continued use of borefield water for consumption is unacceptable to the community. Within the next few years, population growth and high water consumption will result in demand that exceeds the Council's currently consented limit for water abstraction of 23,000 m<sup>3</sup>/day. In 2009 Council proceeded with investigating a solution to provide a secure long-term water supply to be implemented with relative urgency. Council wishes to establish a new water supply solution by 2014.

In consultation with the community, Council has developed a Sustainable Water Use Strategy (Water Matters Strategy) that sets out the vision for water management in the district over the next fifty years. The Strategy has a major focus on water conservation and commits the community to reduce peak daily consumption to 400 litres of water per person per day by the year 2014. This daily volume (plus an allowance for water losses of 90 litres per person per day) allows an estimate of future water needs to be determined for this project. In order to align with Council's long term water management strategy, a 50-year solution to water supply has also been sought out to the year 2060. By the year 2060 it is estimated that the WPR area requires a total of 32,300m<sup>3</sup>/day for water supply, based on high population growth and Council meeting its conservation targets.

The Strategy also specifies that as a preference, water supply should be from in-catchment sources, providing for communities to live within their catchment's means. For the WPR catchment this effectively means that the water source is either the Waikanae River surface water catchment or groundwater on the coastal plain.

Although the existing water supply for the WPR area is nearing its consented capacity, it is important to understand that the Kāpiti Coast in general terms has abundant water sources. There are a number of rivers, groundwater aquifers of varying depths, and a reasonably reliable level of rainfall. There are a number of different options to provide a water supply to the WPR area – some 40 options have been identified to varying degrees of detail over the years as set out in Volume 4 of this report suite. In reaching its decision to pursue the water supply option set out in this AEE, Council has undertaken a rigorous assessment of all 40 of these options in the last three years. The challenge and opportunity for the Kāpiti Water Supply Project was to identify a water supply solution that can overall best deliver on the full range of economic, social, cultural, technical and environmental requirements.

The Waikanae River is able to supply all the drinking water required over the next 50 years to meet the projected demands of the WPR community. However, during summer low flows, peak daily demand places a stress on the need to maintain a running flow of 750 L/s (or natural flow) in the Waikanae River. To implement a water supply solution for these times, Council proposes to use groundwater from the Waikanae borefield to ensure the minimum flow (or natural

flow) is maintained in the river downstream of the abstraction point. In this way, the river and groundwater work together to maintain a reliable water supply and a sustainable river flow.

The Waikanae aquifers provide a natural underground storage system that provides water to top-up the flow of the Waikanae River during drought and low flow times, allowing more river water to be taken from the river for consumption (such that groundwater is feeding the river immediately downstream of the Waikanae WTP intake, while river water is being consumed by the local community).

Based on demand forecasts, River Recharge with Groundwater (RRwGW) provides a 50-year solution that can be efficiently staged over time as demand increases, with the added benefit of effectively using the significant community investment of the existing Waikanae borefield.

A range of water conservation and demand management measures are being implemented by Council to help ensure the efficient use and sustainable management of the precious water resource of the district – a conservation target of 490 litres per person per day has been set, consisting of consumption at 400 litres per person per day (L/person/day), with an additional allowance of 90 L/person/day for water losses. This includes the introduction of water metering, which is viewed by Council as an essential conservation tool to control the inefficient and wasteful use of water.

In addition to this RRwGW project proposed by this resource consent application, Council has identified a future water supply dam on the Maungakotukutuku Stream in the hills behind Nikau Valley. The required land has been purchased and this will secure a longer term (beyond 2060) option to build a storage reservoir in the future when required. The dam extends this water supply security out by a further 50 years. This combined 100-year solution is innovative, prudent and comprehensive as demonstrated by the various investigations that support it. Being an in-catchment solution, it importantly does not detract from the water supply to other parts of the district such as Otaki, Te Horo and Paekakariki.

Council seeks the following resource consents for the RRwGW proposal:

1. To take and use up to a maximum of 30,700m<sup>3</sup>/day of groundwater from within the Waikanae borefield as defined on Location Plan [Ref] for the purpose of supplementary public water supply through river recharge or emergency public water supply;
2. To construct and operate bores within the Waikanae borefield as defined on Location Plan [Ref] for the purpose of public water supply, including but not limited to bores N3, S1 and S2;
3. To take and use up to a maximum of 30,700m<sup>3</sup>/day of water from the Waikanae River at the Waikanae Water Treatment Plant for the purpose of public water supply;
4. To discharge groundwater up to a maximum of 30,700m<sup>3</sup>/day from the Waikanae borefield to the Waikanae River immediately downstream of the Waikanae Water Treatment Plant intake weir;
5. Works and structure within the bed of the Waikanae River – minor modifications to the existing intake structure and a new discharge structure at the Waikanae Water Treatment Plant site;
6. Works and structure within the bed of streams - stream crossings for Stage 1 (2014) only – construction of pipes within the beds of Kakariki Stream and Ngarara Creek; and
7. To discharge up to a maximum of 10,000m<sup>3</sup>/day of water from the Waikanae River into the Waikanae aquifer through bores within the Waikanae borefield abstraction area as defined on Location Plan [Ref] for the purpose of public water supply. Note that this amount of 10,000m<sup>3</sup>/day will be sourced from the overall river water take of 30,700m<sup>3</sup>/day, rather than being sourced in addition to that.

Council seeks a 35-year duration for the water take permits and the discharge permits, the maximum duration provided for under the RMA. A good portion of this project is already consented. Council has existing consents for the groundwater take from the Waikanae borefield and the Waikanae River up to a combined maximum take of 23,000m<sup>3</sup>/day. These consents expire on July 2025. Many of the borefield wells and pipeline are already in place, as is the existing Waikanae WTP. The project will build on that existing infrastructure and increase the amount of water being abstracted from the borefield and the River to provide for up to a 35-year public water supply.

This Assessment of Environmental Effects (AEE) in support of the resource consent applications addresses all effects both positive and adverse to meet RMA requirements. Overall, the AEE concludes that the environmental effects of this proposal are acceptable and can be sufficiently managed by way of conditions of consent, including a comprehensive monitoring and adaptive management framework to provide for sustainable management as required under Part II of the RMA.

The positive effects of this proposal are significant. The proposal is for a long-term community water supply that will enable people and communities to provide for their social, economic, and cultural well-being and for their health and safety. This RRwGW project will secure a reliable and sustainable water supply for the WPR area that best meets community expectations for quality of its drinking water. This proposal also provides additional resilience by using two sources of water. The project is readily stage-able to meet community water supply needs, providing a cost-effective solution that can be implemented over time to match demand. The importance of RRwGW as a reliable and cost-effective water supply solution should not be understated.

The effects on the Waikanae River can be sufficiently mitigated, remedied and managed to ensure that an unacceptable adverse effect on water quality and in-stream health does not occur. In terms of the quality and amenity of the Waikanae River, Council proposes to implement RRwGW in a manner that is largely unnoticed by people and has a no more than minor effect on aquatic life such as fish and the insects they feed on. The investigations undertaken to support this application demonstrate no more than minor effects and that those effects can be comprehensively monitored and managed. It is acknowledged that the discharge of bore water to maintain minimum flow will cause an increase in algal growth in the river. This is expected to be a temporary effect that will be limited to those periods when the recharge is occurring and impacts on ecology are expected to be minor and able to be sufficiently monitored and managed, including the ability of the Waikanae Water Treatment Plant to release a flushing flow to wash away algal growth from the bed of the river.

Equally, the effects on the Waikanae aquifer can be sufficiently mitigated, remedied and managed to ensure that a significant adverse effect on the aquifer system does not occur. Groundwater investigations have demonstrated that the proposed extended borefield can be successfully operated as planned over the 35-year period and meet the Council's objective of being able to meet demand in a 50-year return period drought. A key concern identified in our investigations was saline intrusion and this can be carefully monitored and timely response actions can be implemented to ensure that saline intrusion does not generate an adverse effect on the freshwater aquifer. Similarly, drawdown effects on existing well users and wetlands within the Waikanae borefield area can be carefully monitored and managed to ensure any adverse effects are avoided, remedied or mitigated. Any adverse effect over and above natural variations in groundwater levels and natural periods of drought are considered to be minor and able to be sufficiently managed through the adaptive management procedures proposed by Council.

Any other environmental effect, including temporary construction effects as the project is staged over time, effects on terrestrial ecology and visual effects, will be no more than minor.

In terms of cultural effects, Council and Te Āti Awa ki Whakarongotai are working together in the spirit of partnership to explore practical, innovative, culturally appropriate management of water, including the supply of potable water to all communities within the WPR catchment area. In the context of that partnership, and as endorsed by the shared Memorandum of Understanding in Relation to Water, the cultural effects of RRwGW are considered to be acceptable.

Council plans a comprehensive approach to managing the Waikanae River Catchment over the long term to both protect its water supply and improve the cultural values to local iwi by working in partnership with the community.

The process to assess alternative water supply options for the WPR community has been comprehensive and forward thinking. Council effectively has the means available to provide a 100-year solution, subject to being granted these consents. The process has involved an appropriate degree of technical investigations relevant to the scale and nature of the proposal and has benefitted from extensive stakeholder consultation, a partnership approach with iwi and independent scrutiny from the Technical Advisory Group.

Inherent to any project of this nature and scale, there is ultimately a degree of uncertainty around the actual effects of RRwGW over time. That uncertainty is acknowledged and accepted as being able to be well managed through the monitoring and adaptive management approach proposed. The public water supply system is already comprehensively monitored – both the river and borefield – and well managed by both KCDC and GWRC and a number of other organisations and groups with an active interest in this matter. The adaptive management approach proposed as part of this application adds to that current water management framework, including the formalisation of an Adaptive Management Committee that includes local iwi to specifically address and ideally reduce uncertainty over time in relation to RRwGW. The staged nature of RRwGW is well suited to adaptive management, particularly given that the assessed effects are considered to be minor and can be monitored. This adaptive management approach is precautionary and consistent with sustainable resource management as promoted by the RMA.

This AEE (Volume 2) includes a detailed description of the proposed activities and an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activities may have on the environment as required by the RMA. This AEE is supported by:

Volume 1: Summary Report

Volume 3: Technical Reports

- Demand Modelling
- Surface Water Modelling Report (Hydrology and Yield)
- Aquifer Testing and Groundwater Modelling Report
- NIWA River Investigation Reports
- Cultural Impact Assessment Report

Volume 4: Background and Option Selection Reports

Overall, these documents support the resource consent applications and meet the RMA requirements of Section 88 and Schedule 4.