

Ministry for the Environment  
Attention: Rebecca Perrett  
Acting Manager, Fast-Track Consenting Team  
[fasttrackconsenting@mfe.govt.nz](mailto:fasttrackconsenting@mfe.govt.nz)

20 April 2021

Dear Rebecca,

**COVID-19 Recovery (Fast-track Consenting) Act 2020 – Otawere Water Storage Reservoir – Response to request for further information # 2**

On 14 April 2021, under delegated authority from the Minister for the Environment, you requested further information about the Otawere Water Storage Reservoir (**OWSR**) project pursuant to section 22 of the Act. This letter provides, on behalf of Te Tai Tokerau Water Trust (**Trust**), an assessment of the project's consistency with policies 3 and 4 of the National Policy Statement for Freshwater Management 2020 (**NPS-FM**).

The policies are:

**Policy 3:** *Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole of catchment basis, including the effects on receiving environments.*

**Policy 4:** *Freshwater is managed as part of New Zealand's integrated response to climate change.*

The proposed OWSR, and the wider Mid-North Water Storage and Distribution Scheme (**Scheme**), is being designed to enable land use change mainly from pastoral farming activities to horticulture (kiwifruit, avocado, citrus, and potentially commercial vegetable production) through the supply of reliable water. The provision of reliable water provides an opportunity for landowners to take a holistic assessment of potential land use and identify and design land use systems that are diversified and suited to the soil type, climate, location and the community.

The Trust is required to deliver the Scheme in accordance with a set of principles under the Government's funding agreement, which include among others:

- Strengthening regional economies by shifting land use to higher value sustainable uses.
- Supporting land use that does not increase, and ideally reverses, negative impacts on water quality.
- Maintaining the health of waterways.
- Incorporating activities that improve water quality, e.g., activities that improve *E.coli* levels and ecological health, and soil health and sediment control.
- Supporting land use that does not increase, and ideally decreases greenhouse gas emissions.

- Considering the potential to contribute to community resilience to climate change.

#### *Integrated catchment management*

The command area of the Scheme falls across three catchments: Waitangi River, Punakitere River, and Lake Omapere. The catchments are 301 km<sup>2</sup>, 519 km<sup>2</sup> and 31 km<sup>2</sup>, respectively. The command area occupies 9.6%, 5.5% and 8.5% of the respective catchments (see **Figure 1**, attached). The OWSR is within the Waitangi catchment, along with the vast majority of land within its command area. Pastoral farming is the predominant land use in the catchment, covering 68% of the area.

It is understood that Policy 3 of the NPS-FM guides decisions regarding land use and discharge activities under the RMA. The policy is less relevant when it comes to the taking and use of water. Considering the end use of abstracted and stored water on water quality would appear to duplicate management decisions about the use and development of land and would be an indirect means of addressing potential issues.

The conversion of pastoral agriculture to horticultural land uses is not controlled by the National Environmental Standards for Freshwater 2020 (**NES-FW**), the Regional Water and Soil Plan for Northland 2004, or the Proposed Regional Plan for Northland 2017 (**PRP**). However, the PRP contains rules for horticulture related activities, such as earthworks, cultivation, discharges of vegetable wash water and wastewater from greenhouses. The Government has also amended the RMA to provide for compulsory freshwater farm plans for farms that have more than five or more hectares of horticultural land use. The farm plans must specify requirements that are appropriate for the purposes of avoiding, remedying, or mitigating the adverse effects of horticultural activities on freshwater and freshwater ecosystems.<sup>1</sup>

Northland Regional Council (**NRC**) is currently developing a plan change to give effect to water quality planning requirements in the NPS-FM, which is expected to be notified in late 2022. The plan change will contain target attribute states for most important water quality attributes (including nitrogen, phosphorus, sediment, and *E.coli*) and limits on resource use and other measures to achieve target attribute states. It is likely that existing and new land use activities and discharges will be the subject of NRC's plan change to give effect to the NPS-FM.

Water supply agreements have not been entered into yet so it is difficult to predict the nature and scale of the horticultural land uses that are enabled within the Scheme's command area, however it is expected that kiwifruit and, to a lesser extent, avocado growers will be the main customers.

The production of avocados, citrus and kiwifruit is low intensity horticulture in terms of impacts on water quality. The crops contribute little to no faecal microbes (e.g., *E.coli*), are not subject to frequent cultivation so have lesser sedimentation risks, and have relatively low nutrient leaching risk. The risk of nutrient leaching is easily managed because the fertilised needs of the crop can be more readily matched with available nutrients in soils. Furthermore, losses of nutrients in drainage under a water scheme scenario are minimal compared to private water supplies because the users can implement optimal irrigation practice due to the greater security of supply. Private water supplies do not have the luxury of a buffer storage to get them through the times when they cannot take the water and so the practise has often been to take and use when it is there but not necessarily with the soils and crop need it.

Land cultivation associated with commercial vegetable production has the potential for sediment discharges. However, with the use of erosion and sediment control measures, losses are expected to be well below the equivalent area under pastoral grazing.

Commercial vegetable production also has the potential to result in an increase in nitrogen losses to water. The main sources of nitrogen in commercial vegetable production are fertiliser and

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<sup>1</sup> Section 217F of the RMA.

mineralisation of nitrogen in the soil resulting from cultivation. It is important to note that there is only likely to be a limited area of commercial vegetable production within the command area, and the reduction in nutrient losses associated with new low intensity horticulture is expected, on the face of it, to offset any increased nutrient losses.

It is reasonable to conclude that the conversion of pastoral agricultural to horticultural land uses in the command area of the Scheme will likely result in a reduction in sediment, nutrients, and *E.coli* loads to water, with consequential benefits to fresh and coastal water quality. However, the nature of improvements cannot be easily quantified at this point.

A reduction of loads of key contaminants (fine sediment and *E.coli*) is consistent with the outcomes sought by the NPS-FM, the Regional Policy Statement for Northland 2016 (RPS), PRP, and the Waitangi Catchment Management Plan<sup>2</sup>. The Catchment Plan, developed by a collaborative group<sup>3</sup> supported by Northland Regional Council contains objectives for reducing sediment and faecal microbes to water to improve ecosystem health and human health.

In summary, land use change to horticulture enabled through the access to reliable water within the command area is likely to lead to improvements in the quality of fresh water in terms of key water quality attributes.

#### *Response to climate change*

Climate change projections and impacts for Northland were assessed by NIWA. In summary:<sup>4</sup>

- Annual average temperatures across the region are projected to increase by between 0.7°C and 3.1°C by 2090.
- On average, the number of hot days (>25°C) is projected to increase from 25 days per year to between 55 and 99 days per year.
- Future precipitation projections indicate slightly less rainfall by 2040, with up to 10% less rainfall for some areas in spring.
- By 2090, more significant spring rainfall reductions and autumn/summer increases.
- There is an increased risk of drought.
- There will be longer growing seasons for crops in Northland due to higher mean temperatures, but higher temperatures and lower availability of water may lead to decreasing yields.

Such effects may have flow on effects for water supply and significant ramifications for local food production and associated social and economic effects in the absence of sufficient and reliable water storage.

Motu Economic and Public Policy Research's Report to the Biological Emissions Reference Group demonstrated that a large expansion in horticulture can mitigate greenhouse gas

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<sup>2</sup> Waitangi Catchment Group. 2 June 2017. Waitangi Catchment Management Plan. Northland Regional Council.

<sup>3</sup> The Waitangi Catchment Group is comprised of members representing a range of parties with an interest in freshwater in the Waitangi catchment (including dairy farming, beef farming, horticulture, irrigation company, forestry, tangata whenua, tourism, geothermal power, quarrying, Department of Conservation, Landcare groups, Fish & Game, and general public interests).

<sup>4</sup> Petra Pearce, et al. September 2016. Climate Change Projections and Implications for Northland. Prepared for Northland Regional Council. NIWA Client Report No: 2016072AK

emissions.<sup>5</sup> Horticulture land use generates considerably lower biological greenhouse gas emissions per hectare. Motu estimates that biological emissions from dairy are about 12 tCO<sub>2e</sub> per hectare, and between 2.1-3.5 tCO<sub>2e</sub> per sheep and beef. They estimate that biological emissions from horticulture range from 0.7-1 tCO<sub>2</sub> hectare.

The Climate Change Commission Draft Advice to Government states:<sup>6</sup>

Diversifying land uses and switching some land that is currently in livestock agriculture to uses like horticulture or arable cropping could reduce emissions. Transforming to alternative farming systems is unlikely to play a large role in the first few emissions budgets as the land area converted is likely to be a small percentage of that currently in pastoral farming.

The proposed OWSR is expected to improve resilience to climate change, including through the diversity available in land use options which would otherwise be difficult to achieve without the Scheme. It is also expected to contribute, albeit in a very small way, to New Zealand's efforts to minimise greenhouse gas emissions.

Yours sincerely,



**Ben Tait**  
Senior Planner  
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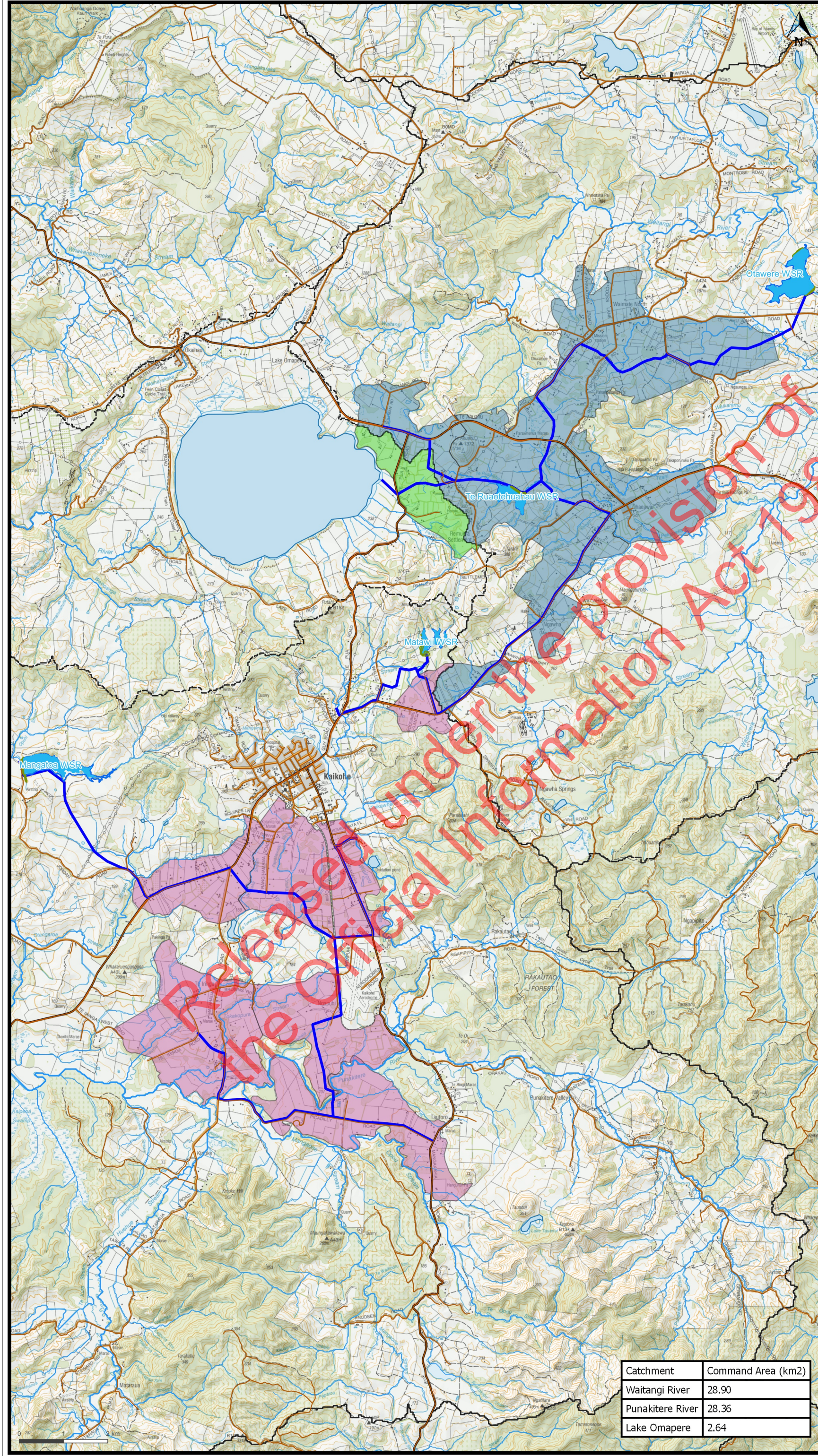
[www.wyla.kiwi](http://www.wyla.kiwi)

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<sup>5</sup> Zack Dorner, et al. December 2018. Land-use Change as a Mitigation Report to the Biological Emissions Reference Group. Motu Economic and Public Policy Research.

<sup>6</sup> Climate Change Commission. 31 January 2021. Draft Advice for Consultation. Page 120

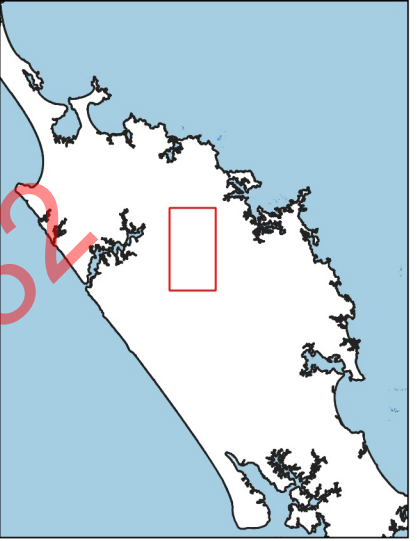




Map Title:  
**Command Areas and Corresponding River Catchments**

Project:  
**Northland Water Storage and Use**

Client:  
**Te Tai Tokerau Water Trust**



- Legend**
- River
  - Road
  - State Highway
  - Primary Pipeline
  - REC Catchment
  - Lake
  - Reservoir
  - Reservoir Embankment
  - Command Area**
  - Lake Omaperere
  - Punakitere River
  - Waitangi River

**Data Provenance**  
 Topographic Data derived from Land Information New Zealand

**Layout & Project File**  
 Location Overview Map  
 Command Area Maps.gxz

Catchment	Command Area (km2)
Waitangi River	28.90
Punakitere River	28.36
Lake Omaperere	2.64



**Figure XX.**