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Attention:	Mel Wykes
Company:	Beca
Date:	27 February 2020
From:	Jeremy Garrett-Walker
Message Ref:	Omāroro – Revegetation Buffer Zone Encroachment, Waitangi Tributary.
Project No:	W16117

As requested, the following memo considers the ecological issues associated with encroaching on the Waitangi Stream buffer zone for the stormwater inlet works, the installation of the valve and flow chambers, and the construction access track at the downstream end of the Waitangi Stream tributary for Omāroro Reservoir. This encroachment will require a change in WCC consent conditions (DC.33) prior to commencement. Maps and photos of the site are attached.

Description of Activity

The existing stormwater pipe, which the Waitangi Stream tributary flows into, is being replaced, as part of the NoR consented works. Through the design iteration process, and an assessment of alternative options, the location of existing stormwater pipe entrance has been modified. The new location(s) require the stormwater pipe to be extended approximately 3 m further upstream which encroaches into the Waitangi Stream buffer zone. Following placement of the new pipe and wingwall, the area will be backfilled and planted as specified in the Landscape and Ecology Management Plan.

The Waitangi Stream buffer zone is currently addressed in Designation Condition 33 (DC.33) which includes reference (part b)) to a 5 m buffer of the Waitangi Stream, tributary as follows:

"Confirmation of an appropriate buffer between the earthworks and waterways including confirmation of waterway location by longitudinal and cross-section survey. In the case of the Papawai Stream the buffer shall be no less than 10m on the stream's west bank (hillside). In the case of the Waitangi Stream Tributary, to the west of the project site, no buffer shall be less than 5m".

Due to the alterations in design, it is proposed to alter DC.33 as below:

"Confirmation of an appropriate buffer between the earthworks and waterways including confirmation of waterway location by longitudinal and cross-section survey. In the case of the Papawai Stream the buffer shall be no less than 10m on the stream's west bank (hillside). In the case of the Waitangi Stream Tributary, to the west of the project site, no buffer shall be less than 5m <u>unless otherwise agreed by Wellington City Council CMO</u>".

This memo addresses the potential ecological effects of encroaching into the buffer zone while considering the proposed revegetation.

Scope

We understand the scope is to:

- Familiarise ourselves with the 5m wide Waitangi Stream buffer zone and its purpose.
- Familiarise ourselves with the proposed works and the extent of encroachment into the buffer zone.

- Assess whether this encroachment will an ecological effect (i.e. reduce the ability of the buffer zone to
 protect the stream from earthworks associated with construction of Omāroro Reservoir through removal
 of vegetation).
- If there is an adverse effect, recommend measures to avoid, remedy or mitigation that effect.

We note our understanding that this assessment only considers the impact of the proposed works on the buffer zone that was set aside by conditions in order to protect the stream from construction of the Omāroro reservoir. This assessment does not assess the effect of the proposed works on the waterway which is assessed separately.

We refer to a project footprint. This relates to the area of the buffer zone that will be affected by the temporary works necessary for extending the proposed culvert.

Methods

- The site was visited, and the existing riparian condition was described.
- The existing "buffering" vegetation was described.
- We did not assess the ecological significance of this vegetation as this was carried out for the Ecological Impact Assessment (EcolA)¹ are was considered sufficient. However, at the time of the EcolA no works were proposed in this waterway. I have therefore provided some additional description of the area that will be affected, and its vegetation.
- The location of the stream buffer was confirmed on site, as well as the location of proposed buffer planting.
- The extent of the encroachment into the buffer was confirmed.
- Finally, we assess whether, the encroachment would reduce the ability of the buffer zone to protect the stream from works, and if so, how these might be avoided or remedied.

Current condition

Site visit

The site was visited on 19 February 2020 to assess the current condition.

Current Vegetation

The Waitangi Stream tributary, in its entirety, was described in the EIA as follows:

- A small waterway, perennial in its lower reach, reducing to intermittent pools and then an ephemeral waterway. The lower section flows through a dense weedland dominated by Tradescantia, rank grass and other vine weeds.
- Where it enters native vegetation, the weeds disappear and a bed of muds, cobbles, occasional boulders and bedrock is exposed. The stream has a diversity of widths from 300mm to 800mm. Water sheets over the muds and bedrock with an average depth of less than 5mm or disappears into boulders and cobbles at times. There are no pools or other fish habitat. There is abundant organic debris where koura shelter.

Within the proposed works footprint, the Waitangi Stream tributary riparian vegetation has a predominantly exotic undergrowth and canopy, with a developing native sub-canopy.

- *Tradescantia* dominates the undergrowth, with some larger weed species (e.g. montbretia) also abundant.
- Some native regrowth is occurring within the *Tradescantia*, made up of common and widespread species that may have been planted (flax, *Veronica stricta*, and *Coprosma robusta*).

¹ Boffa Miskell Limited 2017. Prince of Wales / Omāroro Reservoir Ecological Impact Assessment. Report prepared by Boffa Miskell Limited for Wellington Water.

- An open canopy is predominantly a mixture of ngaio, karo (which is not native to the Wellington region), and several very large eucalyptus trees.

Within the proposed affected area, the riparian vegetation is considered to have low ecological value.

Terrestrial Fauna

The existing vegetation within the footprint is not considered to provide important or core habitat for terrestrial fauna, including *Threatened* or *At-Risk* avifauna and lizard species

Summary of Ecological condition

- The affected area is dominated by exotic vegetation with some native regeneration within the subcanopy.
- The vegetation is not expected to provide important or core habitat for terrestrial fauna.
- Currently, the affected terrestrial environment within the buffer zone can be considered to have low overall ecological value.

Effects of the Encroachment on the Buffer

- It is assumed all vegetation within the footprint will be lost (approximately 100 m²).
- The vegetation that will be affected will be of low ecological value.
- However, the vegetation will be filtering sediments washing downslope to the waterway. Removal of the existing vegetation will reduce this function.

Recommendations:

The following actions are recommended to avoid and remedy the identified adverse effects.

Avoid / Minimise

- Effects can be minimised by reducing the works footprint. We understand the area will be entered from the north to minimise works in the buffer zone as much as practicable.

Remedy

- The removal of the predominately exotic vegetation will affect the function of this buffering vegetation. This can be remedied by rapid stabilisation of exposed soils following construction, and then by revegetation (which will be secured by the *Omāroro Reservoir Landscape and Ecological Management Plan*).

Mitigation / Offsetting.

- We are confident all effects can be minimised and remedied. No mitigation or offsetting is considered necessary.

Conclusions:

- The existing vegetation to be affected is considered to have Low ecological value
- The overall ecological effect of the loss of the vegetation is considered to be negligible.
- However, the buffering function of the vegetation will be adversely affected. This loss needs to be minimised in the first instance by careful site management. Any unavoidable loss then needs to be replaced by revegetation (which will be secured by the *Omāroro Reservoir Landscape and Ecological Management Plan*).

In summary, there are not expected to be any adverse ecological effects of any lasting nature within the Waitangi Stream buffer zone resulting from these works. Therefore, we have no issue with altering DC.33 to reflect these design changes.

Site Maps



Map 1: Approximate location of the proposed buffer encroachment works in relation to the Omāroro Reservoir works

Boffa Miskell

Site Photos





Photo 3: The riparian vegetation which is expected to be outside (upstream) of any earthworks where native canopy cover begins to dominate.