



10 February 2022

Chris Lin
Development Manager
Cappella

Dear Chris,

In parallel to the preparation of consent application for on-site wastewater treatment and disposal at Cappella Development's Karaka North Village site, the Ministry for the Environment has released proposed amendments to the Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 for consultation.

These proposed amendments aim to strengthen source water protection as a first line of defense against contamination of drinking water sources.

As the Karaka North Village development includes both new drinking water sources in the form of two new bores, and application of treated human sewage to land, consideration has been given to how the proposed amendments will affect these activities if, and when, they come into effect. The design process followed for this project already embodies the objectives of the proposed amendments based on already known learnings from the Havelock North Inquiry:

- The proposed Karaka North Village sewage treatment system uses a best available technology approach utilising a membrane bioreactor with multi-barrier disinfection to prevent almost all pathogens being released to the environment.
- The ESR viral transport model has been employed to determine required separation distances between wastewater treatment areas and drinking water takes.
- The bore construction will exceed the requirements of (NZS) 4411:2001 *Environmental Standard for Drilling of Soil and Rock* and implement the findings of the Havelock North Inquiry around above ground bore heads, sealing etc.
- The proposed SWRMA 1 exclusion zone around the bores will be a fenced off area with no access to unauthorised personnel or restricted activities.
- The bores are sufficiently deep that the proposed SWRMA 2 risk management area (1-year travel time) is not expected to reach ground level based on currently known hydrology.
- The wastewater land application field is down-gradient of the SWRMA 2 risk management area.

Based on these existing design considerations, we confirm that both the objectives of the proposed NES-DW, along with the existing objectives of NES-DW 2007 are met by the proposed water and wastewater systems at Karaka North Village.

Regards,



Dr Matt Savage | Principal Engineer