

# Before an Independent Hearings Panel at Waimakariri District Council

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*under:* the Resource Management Act 1991  
*in the matter* the Proposed Waimakariri District Plan  
*of:*

Summary Statement – Colin James Roxburgh  
Waimakariri District Council

On behalf of Waimakariri District Council

Summary Statement on 3 Waters Servicing Relating to Hearing Stream 12D – Ohoka  
RIDL

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Dated: 1 July 2024

File Note: DDS-XXX

## **INTRODUCTION**

1. The purpose of this summary statement is to set out the key points from my evidence in relation to the Applicant's Evidence on the Proposed District Plan, Hearing Stream 12D.
2. My full name is Colin James Roxburgh and I am the Project Delivery Manager for the Waimakariri District Council. I am a Chartered Professional Engineer and hold a Bachelor Degree in Natural Resources Engineering. I have over 15 years of experience in 3 Waters engineering.
3. My summary statement has predominantly been based on assessing the information presented in the Applicant's Evidence to the Proposed District Plan, Hearing Stream 12D. I have reviewed the evidence presented for 3 waters, infrastructure servicing and hydrology by Mr. McLeod, Mr. O'Neill, Mr. Veendrick, Mr. Throssell and Mr. Steffens.
4. I have also received a copy of the supplementary evidence of Mr. Throssell, Mr. O'Neill and Mr. McLeod in preparing my summary statement, however I have not responded to that as part of this summary, in accordance with the instructions I have received.

## **DRINKING WATER**

5. For drinking water, I am satisfied that the site can be adequately serviced by way of deep groundwater sources.
6. I note however that I would not be confident in the safety and suitability of any shallow sources, which have been suggested as a possible alternative to deep drinking water sources.
7. Regardless of the above, provided the proposal remains to service the site by way of deep groundwater sources, I am confident that it can be adequately serviced for drinking water.

## **WASTEWATER**

8. For wastewater, I note there are some inherent challenges and compromises that need to be made in terms of either accepting a higher risk of inflow and infiltration into the gravity system (and the resulting downstream impacts that are noted in the evidence of the applicant), or accepting a lower than normal level of service for residents by accepting a pressure sewer system.
9. Regardless of the above, I agree with the overall conclusion that the site can be serviced.

## **STORMWATER**

10. There are two key elements of the proposal with respect to stormwater that I have some uncertainty around. These are outlined below.

### **Suitability of the Site for Rain Gardens**

11. I agree that rain gardens and bioscapes can provide an adequate level of treatment of stormwater, if used in suitable circumstances.
12. However, based on my understanding of available guidance (May 2016 Rain Garden Design, Construction and Maintenance Manual published by the Christchurch City Council (CCC)), it is not

typically intended that they be installed within areas of high groundwater table. In my opinion, this brings into question the suitability of the rain gardens for this site.

13. As well as guidance not recommending their use in such areas, I am not aware of case studies or examples of them being successfully used in such circumstances. This is based on my knowledge of the Waimakariri District, and through querying of relevant asset management staff at the Christchurch City Council.
14. I am aware of below ground concrete structures becoming susceptible to leakage over time, and therefore believe reliance of concrete structures to exclude water from the rain gardens / bioscapes carries inherent risk. While this is the case for any below ground infrastructure, this is of particular importance for infrastructure such as rain gardens and bioscapes that have a treatment function, where published guidance material recommends against this.
15. Due to the discrepancies between the published guidance material and their intended use at this site, and due to not being aware of sufficiently similar situations where they have been successfully used, I am uncertain as to their suitability.

#### Assessment of Downstream Effects

16. While efforts have been made to demonstrate that the 50-year average recurrence interval (ARI) flow will be no greater in the post development scenario, it is unclear whether the downstream and surrounding environment can adequately convey the full 50-year ARI flow, without some properties being negatively impacted.
17. When the immediate downstream and surrounding environment is known to have a susceptibility to flooding, it is expected that there be careful further assessment of the receiving system.
18. In the case of this proposal, I believe further consideration must be given to the ability of the downstream system to accommodate flow from the development up to the 50-year ARI event, and any changes in frequency or duration of flows that may negatively impact downstream properties if/when the downstream system cannot convey the flow from the site before being able to reach a conclusion as to whether there would be negative impacts associated with the proposal.