**MEMO**

 Waiho River – Avulsion Development: January to July 2024

**Date**  9th August 2024

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**Purpose**

The purpose of this memo is to provide the Franz Josef Joint Committee Rating District with an update on the Waiho riverbed, based on the July 2024 LiDAR survey commisioned by the University of Canterbury (UC).

**Background**

The University of Canterbury contacted the West Coast Regional Council (WCRC) to advise that they were commissioning a LiDAR survey of the Fox River for their own research purposes and offered to re-survey the Waiho River Franz at no cost to WCRC and the Rating District. WCRC accepted this offer, and we have received the results and carried out a preliminary analysis of the changes since last surveyed in January 2024.

**Current Situation**

The change in the avulsion channel between January and July 2024 can be summarised as follows:

* The avulsion channel continues to deepen and widen as the Waiho is easily able to erode through the finer sediment of the Tatare fan. However, erosion appears to be less than the previous six months.
* As the channel continues to widen along the true right and erodes the vegetation buffer, there is potential for a secondary avulsion channel to form with upstream migration of this a risk to the farmland, the Treatment Ponds and existing infrastructure.
* The upstream extent of the channel (incision point) continues to migrate upstream as the Waiho works to create a smooth longitudinal profile through this reach. Cross sectional analysis and the longitudinal profile indicate that this has migrated a further 100 m.
* However, between a cross section approx. 650m below the treatment ponds and just upstream of Canavan’s Knob, multiple incisional braids have developed, and could be related to upstream migration of the incision point and /or the narrowing of the fan surface in this location.
* At the moment, there doesn’t appear to be any rapid undercutting along the Havill wall (true right). However, this could be hidden by the water level as the main flow was running along the Havill and Link stopbanks at the time of the July 2024 LiDAR collection.
* At the downstream end of the avulsion channel (immediately upstream of the Tatare cut) a fan had been forming. Over the last six months, the Waiho has incised down into this.
* The fan downstream of the Tatare Stream cut in the Waiho Loop continues to aggrade. This will likely lead to increased pressure on the farms on the Waiho Flats.

A presentation including a more detailed analysis of the outcome of the July 2024 LiDAR survey in relation to the previous survey carried out in January 2024 will be presented at the next Franz Josef Joint Committee Rating District meeting, to be scheduled over the spring months.