

August 2022 Rainfall event summary

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**PC29 – S32 Report
Appendix 2C**

From 17 August 2022 to 20 August 2022, approximately four and half days of continuous rain occurred in the Nelson/Tasman region. The rain fell in three waves each a day apart, each being unexpectedly intense in the Nelson urban area.

The flooding of the Maitai River in the Nelson city area in August 2022 was the largest event since August 1970. Provisionally, it is estimated to be a Q50 to Q100 sized event (with lower return period downstream of the confluence with the Brook stream), except for the CBD and the Wood areas, which experienced less flooding than is shown on the planning maps. Flood mapping of other catchments is currently being reviewed, but many of the smaller urban catchments South of the city centre (e.g., Brook and York Streams, Stoke catchments) experienced flooding similar to or less than a Present-Day Q20 event. Smaller urban catchments North of the city centre (Oldham Creek, Todd Valley) experienced flooding similar to or in excess of Present-Day Q100 event, which was partly due to blockage of stream intakes and culverts.

The total rainfall for the 16-20 August 2022 was 742 mm (measured in The Brook stream catchment). The Maitai at Forks rain gauge had 694mm over the same period. The hills behind Nelson received at least double the expected rainfall. The image below shows the Maitai River at the Trafalgar Street bridge, in the city centre mid-afternoon 17 August 2022. The flow is approximately 322m³/s. The second image is of The Brook also on 17 August 2022, the day of the highest Maitai River flows.

Figure 1 - Trafalgar Street bridge, Nelson City Centre, mid-afternoon 17 August 2022, approximately 322m³/s



Figure 2 - The Brook stream, Nelson, looking downstream towards Wards Reserve 4pm 17 August 2022



During the event, 507 properties were evacuated due to inundation by flood waters and landslides affecting properties. A total of 757 building assessments were completed and there remain a number of properties that require extensive work or will not be able to be inhabited again.

In addition to residential properties, local roads, water networks, lifeline utilities, and other key infrastructure were impacted. The state highways between Nelson and Blenheim as well as in Tasman were severely impacted. It also left some communities isolated, disrupted economic activities and caused significant damage to the natural environment with over 350 landslips recorded and significant contamination of streams, rivers, estuaries, and Tasman Bay.

The damage to the region's property, infrastructure, public amenities, and the environment, particularly in Nelson, was extensive and recovery is expected to take months, if not years. Fortunately, no-one was injured and there were no fatalities. A State of Emergency was declared which lasted two weeks. A rāhui relating to coastal waters was also in place for several weeks.

The river flooding affected properties in the following areas adjacent to the Maitai River

- Hanby Park/Clouston Terrace and Nile Street East
- Avon Terrace and Milton Street
- Shakespeare Walk
- Collingwood Street/Riverside in the Malthouse Lane

Aside from the Maitai catchment, the North Nelson catchments of the Wakapuaka and Whangamoā Rivers were also severely impacted. Smaller hillslope catchments in Atawhai (Todds Bush and Oldham Creek) as well as in the Tāhunanui Hills also suffered flash flooding and multiple landslips.

Overland flow and the movement of sediment led to the blocking of stormwater intakes resulting in roads and properties being affected by water, sediment, and debris.

Potential work to be undertaken on HPC webmap

A considerable amount of data (flows, water levels and images including photographs and LiDAR) was collected during the event. This data will be used to review the river flood maps that are included in PC29.

Potential work to be undertaken in the future

In relation to the management of river flood and stormwater, Council will be reviewing the Nelson-Tasman Inundation Practice Note (a guidance document for determining building ground and floor levels). The review will also include the consideration of the NZSeaRise data (the latest sea level rise projections).