Before the Hearings Panel
At Waimakariri District Council

Under	Schedule 1 of the Resource Management Act 1991
In the matter of	the Proposed Waimakariri District Plan
Between	**Various**
	Submitters
And	**Waimakariri District Council**
	Respondent

Summary of evidence of Mr Damian Debski on behalf of Waimakariri District Council (Coastal Flood Hazards)

Date: 24 July 2023

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1. My full name is Damian Debski. I am employed as a Principal Hydraulic Engineer at Jacobs New Zealand Limited. I have worked for twenty-eight years in the fields of hydraulic engineering and flood and stormwater management, including experience in flood risk modelling and mapping.

2. I have prepared my statement of evidence on behalf of the Waimakariri District Council (District Council) in respect of technical related matters arising from the submissions and further submissions on the Proposed Waimakariri District Plan (PDP).

3. My evidence relates to coastal flood hazard matters in Chapter NH - Natural Hazard and to seven specific submissions, relating to proposed rules NH-R15, NH-R16 and NH-R17 and to proposed standards NH-S1 and NH-S2.

4. The submissions to rules NH-R15 and NH-R16 questioned whether permitting natural hazard sensitive activities in the Coastal Flood Assessment Overlay on the basis of consented building levels specified up to five years previously, but no earlier than January 2021, could result in inadequate mitigation of flood hazard. It is my understanding that any floor levels specified by District Council for subdivisions in the coastal area subject to resource consent since January 2021 will have been informed by current flood hazard modelling data for the district which are also accessible through the Waimakariri District Natural Hazards Interactive Viewer and were available to Council prior to 1 January 2021. In that case I would consider this source of data appropriate for setting building floor levels.

5. In my evidence I have noted that the current data for coastal flooding presented in the Interactive Viewer appears to be that for the 1% Annual Exceedance Probability (or AEP) rather than the 0.5% AEP referenced in the Canterbury Regional Policy Statement. For consistency with the data presented for other sources of flooding and to support the proposed rules of the PDP, and amendments to those rules, I consider that the coastal flooding layer in the Interactive Viewer should be updated accordingly.

6. The submission to NH-R16 sought deletion of permitted status for new natural hazard sensitive activities in the Coastal Flood Assessment Overlay on the basis that this is not consistent with policy direction for high hazard areas in the Canterbury Regional Policy Statement (CRPS). In my evidence I have examined the definition of high hazard areas in the PDP and the CRPS and show that, in my opinion, the conditions for permitted status in NH-R16 do not pose a high

hazard from coastal flooding. I have discussed the need, in my view, to take account of combined sources of flooding and to apply common definitions of flood hazard. I provide my support for the proposal to amend the PDP definition of High Coastal Flood Hazard to align the fresh water and sea water flooding clauses and use a single probability of flooding for defining high hazard.

7. Submissions to NH-R17 seek deletion of permitted status for above ground critical infrastructure in the Coastal Flood Assessment Overlay and an amendment to apply the footprint area limit for permitted status to each individual structure within an infrastructure activity instead of that of the entire activity.

    a. With regard to the first submission, in my opinion the permitted status could be retained because the conditions to the rule limit permitted status to areas outside the high flood hazard area. However, I consider that the conditions to the rule and the advisory note to standard NH-S2, which provide control over the permitted status, could be clarified.
    b. With regard to the second submission, in my opinion the proposed amendment could potentially permit a single infrastructure activity composed of many individual structures – including buildings – each with footprints of less than 10 m^2 but an aggregate footprint much larger than 10 m^2 to be constructed within the Coastal Flood Assessment Overlay without appropriate consideration of the overall effect of the activity on flood risk.

8. The submission to standard NH-S1 seeks further definition of the criteria for setting freeboard levels and an amendment to the probability of coastal flooding used to define finished floor levels from 1% AEP to 0.5% AEP. I agree that further advice on required freeboard values would be helpful and that the probability of coastal flooding should be amended to reflect that of Policy 11.3.2 of the Canterbury Regional Policy Statement.

9. Submissions to standard NH-S2 seek deletion of permitted status for new natural hazard activities in the Coastal Flood Assessment Overlay for the same reasons as the submission to NH-R16, a review of the value of freeboard adopted (500 mm) which is considered excessive, deletion of the minimum land height requirement except for new subdivisions and a requirement for continued review of the accuracy of the flood map data supporting the PDP.

    a. Regarding the permitted status, I note that this is provided for by the proposed rules rather than the standard. The standard provides the necessary controls, such as minimum floor level and

in my opinion these are appropriate for the levels of hazard considered. I note that in high hazard areas, the standard will not provide a minimum floor level, a resource consent being required due to the greater level of risk in those areas.

b. Regarding the value of freeboard of 500 mm, I consider this appropriate and consistent with published guidance and practice elsewhere.

c. Regarding deletion of the land height requirement due to concerns over the large depth of fill that would be required in areas of greater flood risk, I understand that in such areas, where the flood water depth exceeds 1 m, activities would be non-complying status and the standard and requirement for land raising will not apply.

d. Regarding a requirement for continual review of the accuracy of the flood map data, I consider this unnecessary given the intent of the PDP to determine flood risk levels by reference to the most up to date models, maps and data held by the District Council and the Regional Council. In my evidence I have explained some of the limitations of large-scale flood modelling and mapping and how this is mitigated through site-specific assessments.

10. In summary, my evidence seeks to clarify the intent of these particular rules and standards of the PDP in relation to coastal flooding. I support the proposed amendments to apply a common definition of high hazard regardless of the source of flooding and to adopt revised probabilities for defining coastal flooding so giving effect to the Canterbury Regional Policy Statement.