

SUMMARY STATEMENT

1. My name is **Robert Brian Norton**. I am a Senior Stormwater Planning Engineer at Christchurch City Council (**Council**).
2. I have prepared evidence on behalf of the Council in respect to stormwater and flooding issues associated with the proposed development controls in Plan Change 14 (**PC14**), and on proposed Qualifying Matters for the Flood Ponding Management Area, High Flood Hazard Management area and Waterbody Setbacks. I also prepared rebuttal evidence.
3. In my evidence, I assess the stormwater and flooding mechanisms and characteristics, effects of development, and the proposals in PC14. In summary, PC14 permits widespread redevelopment potential across the city and future stormwater patterns will change because of this intensification.
4. PC14-enabled development will increase imperviousness of affected land throughout the city and this will generate higher stormwater flows and increased stormwater runoff volumes. Without mitigation this will exacerbate flood hazards in many parts of the city, and contribute to an ecological decline of natural waterway and wetland systems. Some of these effects can be partially mitigated by:
 - (a) developments providing onsite stormwater mitigation systems (storage, treatment) at their own cost; and
 - (b) the Council engaging in reactive mitigation programmes to maintain minimum levels of service of its stormwater networks and relieve flood affected neighbourhoods.
5. In respect to onsite mitigation systems, there are physical limitations as to the range of storms and types of sites that can be effectively mitigated on an individual site basis, particularly on smaller developments. In addition, in respect to reactive flood mitigation measures, these will be costly and difficult to implement, and in some cases economically infeasible. The dispersed nature of intensification enabled by the large rezoned areas proposed in PC14 will make it more difficult for the Council to target its capital spending.
6. I support the proposed Qualifying Matters for High Flood Hazard Management Areas, Flood Ponding Management Areas and Waterbody Setbacks, as these will reduce intensification in those sensitive or hazardous areas of the city.

7. I consider there could be other areas of the city that would benefit from additional flood-related Qualifying Matters; however the Council does not yet have a comprehensive set of quality flood data that would allow it to effectively and equitably identify areas across the city that are suitable for additional Qualifying Matters. This scale of modelling is expected to be available within 3 years, at which time the Council may choose to undertake another plan change.
8. I agree with the submission by Environment Canterbury that development on hill land poses a higher risk to surface water contamination via eroded sediment disturbed by earthworks and mobilised by stormwater. These effects are exacerbated by the fine and dispersive nature of the wind-deposited loessal soils ubiquitous to the Port Hills, which are highly erosive and extraordinarily difficult to remove from stormwater. Any qualifying matter that reduces intensification (and disturbance) of hill land will be beneficial. Mr. Kleynbos will address the proposal to create a Port Hills Stormwater Qualifying Matter in hearing week 4.

Date: 18 October 2023

Robert Brian Norton