BEFORE INDEPENDENT HEARING COMMISSIONERS IN CHRISTCHURCH

TE MAHERE Ā-ROHE I TŪTOHUA MŌ TE TĀONE O ŌTAUTAHI

UNDER	the Resource Management Act 1991 (RMA)
AND	
IN THE MATTER	of the hearing of submissions on Plan Change 14 (Housing and Business Choice) to the Christchurch District Plan
AND	
IN THE MATTER	of Canterbury Regional Council (submitter 689)

SUMMARY OF STATEMENT OF EVIDENCE OF MATTHEW SURMAN ON BEHALF OF THE CANTERBURY REGIONAL COUNCIL

RIVERS – FLOODING (HALSWELL/HURITINI RIVER CATCHMENT)

22 April 2024

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Summary Statement

1 My name is Matthew Richard Surman. I am a Senior River Engineer at the Canterbury Regional Council (**Regional Council**) and have set out my qualifications and experience in my statement of evidence dated 20 September 2023.

2 I have prepared river engineering evidence in relation to flooding in the Halswell/Huritini river catchment on behalf of the Regional Council in relation to Plan Change 14 (**PC14**) to the Christchurch District Plan (**CDP**). My evidence addresses specific site characteristics of the Halswell/Huritini catchment, potential adverse effects of PC14 on the Halswell/Huritini catchment, available methods to manage adverse effects and responds to section 42A evidence.

3 I have also engaged in expert witness conferencing, and am a signatory to the Joint Statement of Infrastructure Experts dated 27 September 2023.

4 The main thrust of my evidence is to emphasise:

(a) the particular sensitivity of the Halswell/Huritini catchment to the volume of additional stormwater, land drainage and groundwater flows;

(b) the scale of cumulative effects of already consented, zoned and permitted activities (on top of anticipated climate change effects);

(c) the impracticality of remedying or mitigating against the effects of additional flow in this catchment; and

(d) the de facto passing of responsibility of addressing some effects permitted by PC14 to Regional Council.

Infrastructure expert conferencing and volume/duration effects

5 I took part in the expert conferencing for infrastructure experts in so far as it related to my area of expertise. For example, I did not participate in relation to some of the more technical parts of the discussion on issues of drinking water and wastewater provision, which are not in my area of expertise, as well as some location-specific matters.

6 Several statements from the JWS are particularly relevant to my statement: “On-site mitigation cannot practically be used to mitigate for increased volumes of stormwater generated as a result of intensification”

and "It is simply not feasible to mitigate for large scale volume increases from developed areas without measures to increase soakage/ evapotranspiration/ water reuse".

7 Mr Norton, in his rebuttal evidence of 9 October disagreed with me about the term "hydraulic neutrality" and whether or not the term includes volume (or duration of flow) effects. He presented several examples from around New Zealand that referred to peak flow rates only. I agree that in many contexts, the peak flow is often the most important aspect to avoid increasing, and that may well be close to an "industry accepted" use of the term.

8 Where I addressed "hydraulic neutrality" in my evidence, it was in the context of the use of this term in relevant policies in the Canterbury Land and Water Management Plan (**CLWRP**). The term is not defined in the plan and I relied on a plain English interpretation of the term and its context in the plan.

9 I was referring to the use of this term in the context of policies that start with "To prevent any increase in inundation…." and Policy 4.17:

> *"Stormwater run-off volumes and peak flows are managed so that they do not cause or exacerbate the risk of inundation, erosion or damage to property or infrastructure downstream or risks to human safety".*

The key part of the policies, in my view, is the requirement to prevent any increase in inundation and not cause or exacerbate the risk of inundation.

10 In the Halswell/Huritini catchment, I consider that causing an increased duration of inundation through potentially substantial additional volumes of stormwater discharge would carry a high risk of increasing damage to property.

11 For completeness, in my evidence I included the text of policy 11.4.34. Policy 9.4.10 (Christchurch West Melton zone) reads as follows:

> *To prevent any increase in inundation of land in the Halswell River/Huritini Catchment, the discharge to surface water of any stormwater or drainage water in the Halswell River/Huritini Catchment that is not within an area covered by a consented stormwater management plan will require specific evaluation to ensure hydraulic neutrality through a resource consent process.*

Draft revised Huritini-Halswell River Stormwater Management Plan

12 I was made aware of a draft revised Huritini-Halswell River Stormwater Management Plan (**SMP**) on 26 March 2024. It does not propose any limit on volumes despite the expectations of the hearings panel for the Comprehensive Stormwater Network Discharge Consent (**CSNDC**) (as set out in my evidence at paragraph 35):

> *"We agree that the need for a volume target, and what that target should be, is best assessed through the SMPs process. We would expect, based on the evidence we have heard, that a volume limit will be set for the Styx and Halswell catchments".*

13 This is also despite reference to volumes in Policy 4.17 of the CLWRP. Similarly, the draft Styx SMP submitted to Regional Council for certification in December 2023 does not contain limits on the volume of discharge. As it stands, the consent and SMP's do not limit volumes, and PC14 proposes to allow increased generation of stormwater. In my view, at present, this fails to meet policy 4.17 of the CLWRP.

Comparison of Halswell/Huritini catchment with other City catchments

14 Mr Norton has recommended in his rebuttal evidence that the Regional Council's relief be rejected on the basis that PC14-enabled development will not have a disproportionate effect on the Halswell/Huritini River catchment, when compared to the other river catchments within Christchurch City.[1]

15 Ms Mehlhopt has addressed the relevance of Mr Norton's "not… disproportionate" basis for rejecting a Qualifying Matter (**QM**) for the Halswell/Huritini catchment. I have nonetheless made a basic but direct comparison of the catchments.

16 To try and compare apples with apples, taking a very basic approach, using streams mapped on topographic maps and as-the-crow-flies

[1] Statement of Rebuttal Evidence of Robert Brian Norton on behalf of Christchurch City Council, Stormwater and Flooding, dated 8 October 2023 at [25].

round-number distances and elevation changes, the main catchments have the following gradients:

Pūharakekenui-Styx: 21m in 15km (1.4m/km)

Ōtākaro-Avon: 28m in 15km (1.9m/km)

Ōpāwaho-Heathcote: 21m in 13km (1.6m/km)

Halswell/Huritini: 18m in 22km (0.8m/km)

17 I acknowledge the basic level of this analysis and that a more fine-grained and detailed way of demonstrating the differences could be used, but the Halswell/Huritini is clearly a substantially flatter catchment. I believe it has characteristics that make it more sensitive to additional flows than the other City catchments, including the presence of several low-lying basins remote from the river but dependent on low river levels for adequate drainage. I documented a case of pasture damage in the Stackwoods Drain area that resulted from prolonged lack of drainage due to an extended period of high river levels (Appendix 2 of my evidence). The area damaged in that event (April 2014) I estimate to be of the order of 9 ha.

18 At paragraph 15 of his rebuttal evidence, Mr Norton refers to similarly low-lying rural areas in several City catchments to demonstrate that the Halswell/ Huritini is not a special case, though he does acknowledge the scale may be different. Neither of us know on what basis each other has derived the stated areas so we don't know if we are comparing apples with apples or not.

19 The conditions in the CSNDC for peak levels are more lenient in the Styx catchment than in the Halswell/Huritini, allowing up to a 100mm increase in peak flood levels in the Styx but zero in the Halswell (in a 2%AEP event).

20 Mr Norton (in his summary statement 18 October 2023) noted the partial, reactive, costly and limited nature of the possible mitigations for increased stormwater generation but considered that the available data and modelling was not sufficiently developed to single out specific areas for additional QMs. My evidence documented several rainfall events and identified the effect that additional flow would have on drainage times on a susceptible part of the Halswell/Huritini system in those events.

21 In short, the effects of PC14 on flooding and drainage can be modelled and understood across the City, but they have not yet been. Mr Norton expects such information to be available within 3 years. The effects will be difficult and expensive to mitigate and some effects cannot be fully mitigated. I expect that any future local reversal of PC14 with additional QMs would be more difficult and costly to implement than the alternatives that Ms Buddle has considered for the Halswell/Huritini catchment.

Potential scale of medium density development in the Halswell/Huritini catchment

22 To add some context, I have carried out some crude mapping and concluded that there are approximately 3500 properties in the 450 to 1500m^2 range in the proposed Medium Density Residential Zones in the Halswell/Huritini catchment, cumulatively covering approximately 234ha, as well as several larger parcels not yet subdivided. The potential for additional residential units in the catchment permitted by PC14 is of the order of 8,000.

23 Even if peak flows from additional units can be adequately attenuated and additional extent of flooding avoided (a tall ask if the catchment were ever to be fully developed at the density allowed for by PC14, given the limited available area for stormwater attenuation), the additional volume of runoff generated by additional impervious area would mean that already very prolonged drainage times would be further prolonged. Some areas (for example the 90ha identified with poor or very poor drainage and likely to take more than a week to drain in moderate events)[2], could become so wet as to be impractical for farming.

24 In my view, the issues identified in the Halswell/Huritini catchment are sufficiently intractable as to be impractical to fully mitigate. Given the scale of already-allowed cumulative effects, I remain concerned about the appropriateness of additional development. The options remaining are to avoid or remedy the effects. If a stormwater QM is not

[2] Statement of Evidence of Matthew Surman on behalf of Canterbury Regional Council dated 20 September 2023 at [27].

implemented so the effects can be avoided, I suspect options for remedy for affected properties will need to be explored.

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Matthew Surman

22 April 2024