

IN THE MATTER of the Resource Management Act 1991
("RMA" or "the Act")

AND

IN THE MATTER of a submission pursuant to Clause 6 of
Schedule 1 of the Act in respect of the
**PROPOSED WAIKATO DISTRICT
PLAN** by Pokeno Village Holdings
Limited (submitter no. 368 / further
submitter no. 1281)

SUMMARY STATEMENT OF EVIDENCE OF DALE SARAH PAICE

Introduction

1. My name is Dale Sarah Paice. I am a Technical Director in Civil Engineering at Beca Limited. I prepared a statement of evidence dated 10 March 2021. The purpose of this document is to summarise that statement.
2. I outlined my qualifications, experience and commitment to comply with the Environment Court Expert Witness Code of Conduct in my evidence in chief ("EIC").

Scale of stormwater changes arising from proposed zoning

3. To give an indication of the scale of stormwater changes that the proposed zone changes would cause, I assessed stormwater runoff from the Tanitewhiora catchment. This catchment contains a large proportion of PVHL's development and many of the submissions for zone changes.
4. I calculated that the proposed zone changes would result in an 88% increase in impervious area in the Tanitewhiora catchment which would cause an increase in runoff volumes of 12%-64% (depending on the rainfall event assessed). The magnitude of these changes is significant and similar in scale to those enabled by Plan Change 24 (PC24) which were assessed in a catchment management plan prepared by Franklin District Council (the 2010 SMP).
5. Figure 1 shows the extent of existing and proposed urban zoning overlain on the main catchments (Tanitewhiora and Helenslee) surrounding Pokeno.

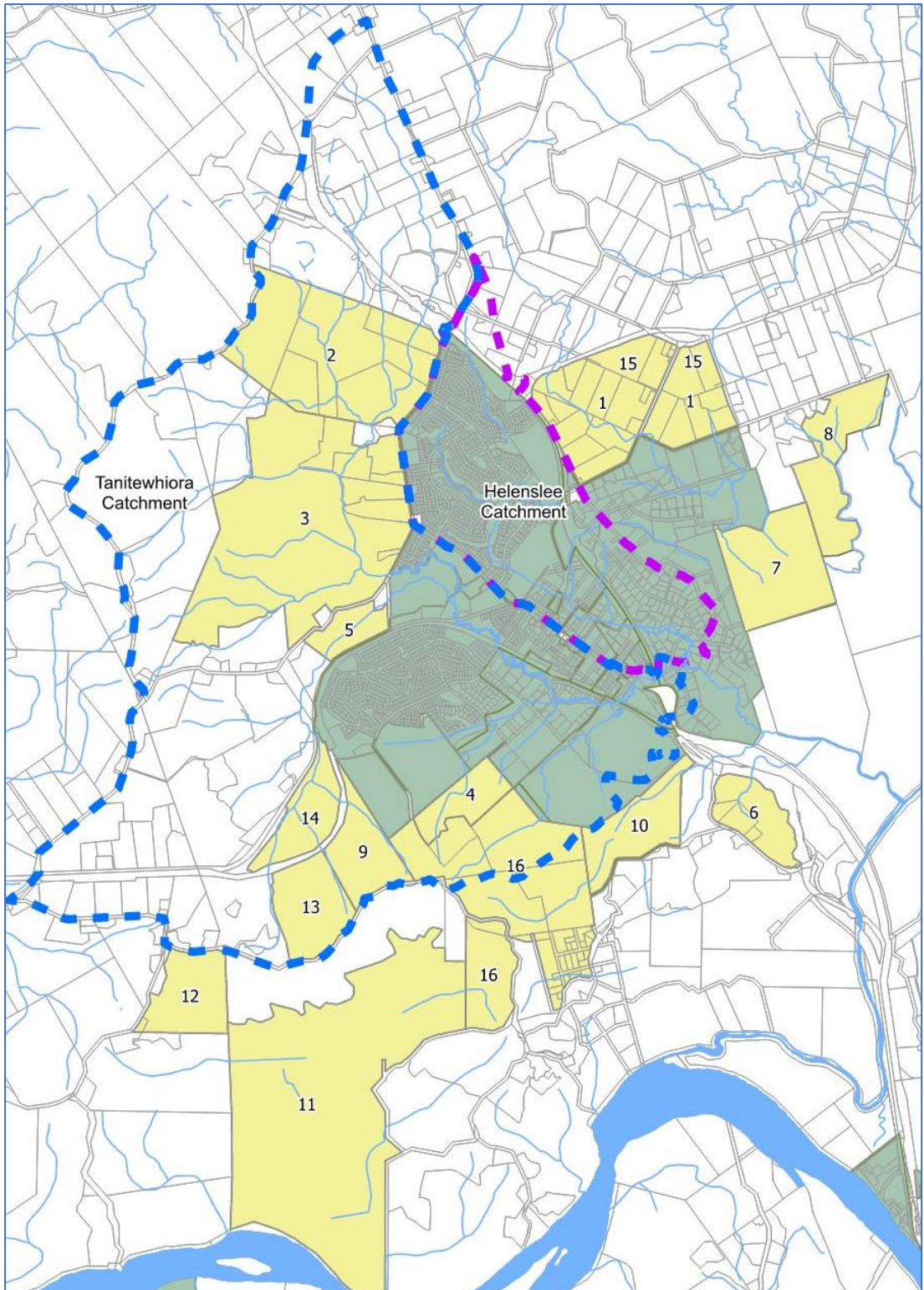


Figure 1 – Tanitewhiora catchment extent overlain on operative and proposed Pokeno zoning

Stormwater infrastructure required to manage stormwater changes

6. I considered types of potential stormwater effects likely to arise from the proposed rezoning (being water quality, nuisance flooding and building flooding) and carried out a high-level assessment of the type and scale of infrastructure required to manage those effects in the Tanitewhiora catchment.

7. I specifically considered attenuation devices. That is, ponds, wetlands or basins that capture the additional runoff generated from new impervious areas and store it temporarily to slow down the rate it is discharged to the downstream receiving environment.
8. My analysis showed that approximately six hectares of land (spread across a number of locations) in the Tanitewhiora catchment may need to be set aside for attenuation devices to cater for the predicted additional runoff. This is a conservative estimate based on centralised public devices; a greater number of smaller devices tend to take up more space overall.
9. The location of attenuation devices within the catchment will be important. If incorrectly located attenuation devices are at best ineffective and, at worse, can actually worsen flooding in other parts of a catchment. This happens because attenuation changes runoff timing and can create coincident peaks. The phenomenon is widely recognised, including by Waikato Regional Council whose guidelines recognise “position in catchment” as a consideration and call for either a catchment study or attenuation to well below pre-development peaks.
10. In my review of the submissions and reports, I have not found overall direction on where additional attenuation devices to support additional growth are to be located (or avoided) within the Tanitewhiora catchment or the other affected catchments. In my opinion this is a gap that could result in:
 - (a) unnecessary infrastructure being constructed and vested, or
 - (b) an inefficient number of attenuation devices spread over a greater number of locations than necessary, or
 - (c) increased flood risk (possibly unintended) in the catchment due to peak flows increases and timing effects.

Suitability for growth

11. Notwithstanding the significant scale of proposed development increases in impervious area and stormwater runoff volumes and the significant scale of the infrastructure required I consider that the proposed growth can be accommodated from a stormwater effects management and infrastructure perspective.
12. I consider that the proposed stormwater management strategy (including infrastructure such as attenuation basins or culvert upgrades) should be considered at catchment (not site or subdivision) scale. That is, specific consideration should be given to the cumulative potential effects from all new development areas to consider how they interact with each other as a whole. This could be done through updating the existing Pokeno stormwater management plan (and hydrological model) to cover all proposed growth areas.

Response to submissions and section 42A report

13. I provide reviewed stormwater related evidence prepared by submitters on the PWDP, including evidence prepared for Pokeno West / Annie Chen Shiu as well as CSL and Top End Properties (prepared by Mr William Moore) and rebuttal evidence related to the proposed Havelock development (prepared by Mr Ryan Pitkethley).

14. It appears that site-by-site approaches have been proposed through individual submissions and that no catchment-wide studies have been undertaken yet to assess the cumulative effect of all of the development proposed. In my opinion, the stormwater management approaches (where provided) presented in the supporting technical evidence for individual submissions is generally appropriate. However, no individual submitter has been able to assess the cumulative stormwater effect considering all others. In my opinion, this is not a "total catchment management approach".
15. I note that both Mr Moore and Mr Pitkethley do agree that a total catchment approach / stormwater management plan is required ahead of development. They have suggested this could be done after rezoning, rather than before and have suggesting subdivision consent as an appropriate time. I acknowledge that this may be appropriate in some circumstances, such as where the scale of development is relatively small.
16. In my experience of large-scale rezoning (noting that some 1,000 hectares of rezoning has been sought through submissions) this sort of catchment-wide study has been completed before land is re-zoned to an operative urban zone. Specific examples are:
 - (a) Drury South (approximately 360 hectares, rezoned from rural to predominately industrial).
 - (b) Paerata Rise (approximately 300 hectares, rezoned from a "future urban" rural area to predominately residential).
17. I do not have direct experience of projects where land has been rezoned in the absence of a catchment-wide study assessing all proposed growth.

Conclusions

18. I consider rezoning is appropriate and recommend this is supported by catchment-scale spatial plans which consider all growth areas and present:
 - (a) Where different types of stormwater management devices (especially attenuation devices) are to be applied or avoided,
 - (b) Floodplain extents and levels and where specific controls on building floor levels are to be applied, and
 - (c) What new or upgraded public infrastructure is required linked to the areas of growth it enables.

Dale Sarah Paice

12 May 2021