

Before Palmerston North City Council

Under the Resource Management Act 1991

In the matter of a proposed plan change to rezone
land at 611 Rangitikei Line to establish
the Whiskey Creek Residential Area

SUMMARY OF EVIDENCE OF PHILIP LAWRENCE WALLACE

FLOOD ISSUES EVIDENCE

1 JUNE 2022

Counsel Acting

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INTRODUCTION

1. My full name is Philip Lawrence Wallace. My qualifications and experience are set out in my brief of evidence dated 18 May 2022.

KEY POINTS IN EVIDENCE AND AREAS OF AGREEMENT AND DISAGREEMENT

2. The proposed Whiskey Creek Residential area is on a site that is in part subject to flooding from upstream spills of the Mangaone Stream and Whiskey Creek.
3. A detailed computer model has been developed in order to assess the flood hazard for the site as it exists now and then to guide design of site layout and earthworks required to avoid flood risk to the proposed residential development.
4. The design flood event considered is a 0.5% AEP¹ flood event, incorporating a Flyers Line spillway peak flow of 114 m³/s.
5. Over the past two months, the model has been refined and updated. The design option ("Option 6") outlined in the Plan Change application, incorporating earthworks, bunds and storage ponds, has also been refined to ensure that off-site impacts are less than minor.
6. I indicated in my brief of evidence that testing of design options with the model was ongoing. I can now confirm that a design option has since been found that reduces all off-site impacts, with all off-site impacts predicted to be less than minor.
7. The latest design revision removes two of the ponds of Option 6 (adjacent to the Benmore Avenue stopbank and just upstream of the site boundary with 247 Flyers Line), enlarges the linking swale between the two ephemeral stream channels and includes some site recontouring to lower levels just to the north of that.
8. With this latest design, predicted flood depths in the Benmore Avenue area are effectively unchanged from those of the existing situation. Over the property downstream and west/south of the site (i.e., 247 Flyers Line), there

¹ Annual Exceedance Probability. A 1% AEP also referred to as a "1 in 100-year" event, as a 100-year ARI (Average Recurrence Interval) event or more simply as a "100-year" event. A 0.5% AEP is also referred to as a "200-year" event.

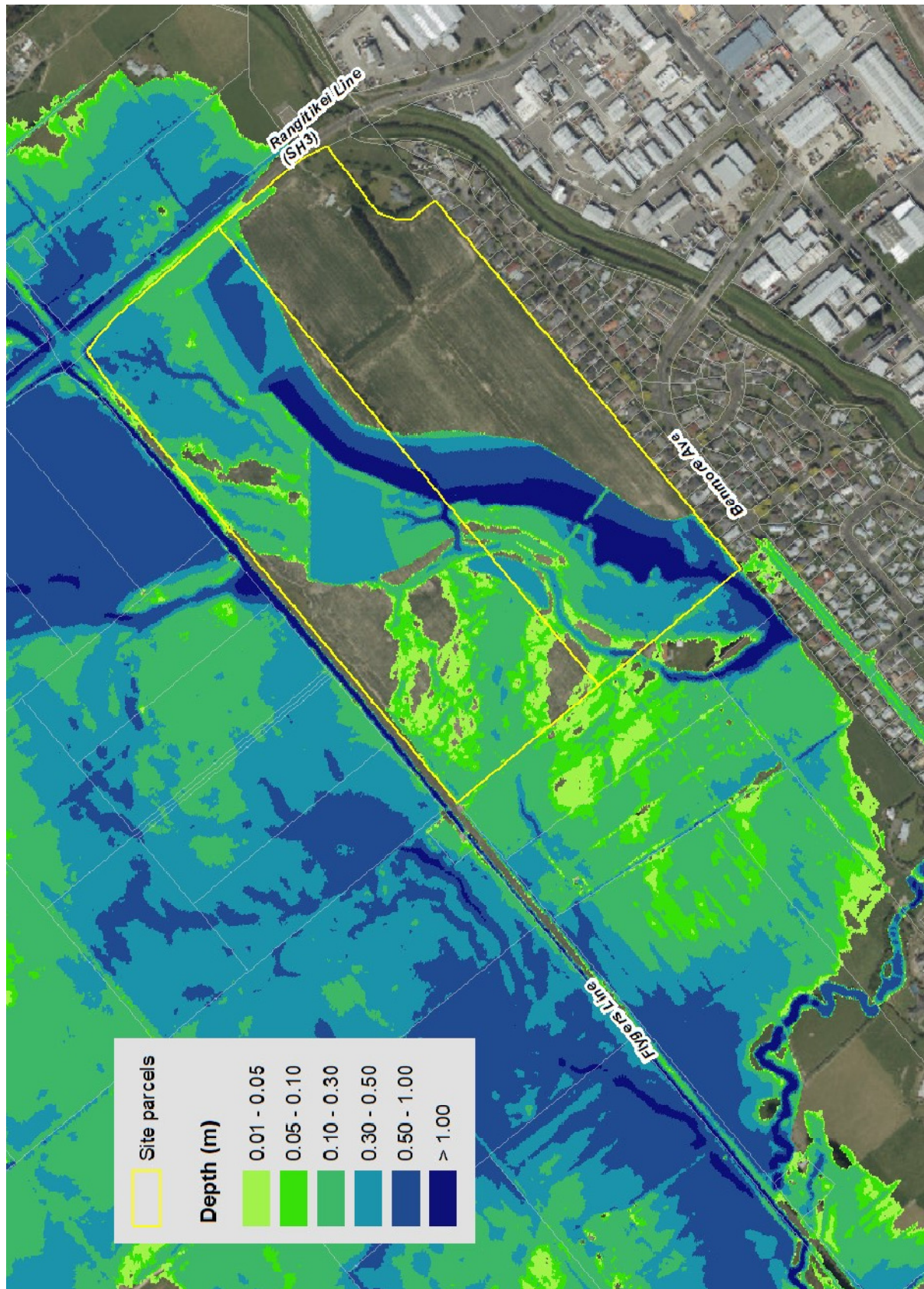
is a swathe of increased depth over an area of pasture, ranging from 0 to 50 mm, while levels around the house at that location show no increase. Elsewhere, no increases in depth are predicted.

9. I have attached two plots: one showing the predicted flood depths with latest design, the second shows the impact upon flood depth (compared to the existing situation). To assist in the understanding of how this area behaves in a major flood event, I have also prepared some computer simulations showing before and after the proposal is implemented which I will present.
10. I consider that these results satisfy the outcome sought by Horizons Regional Council, in paragraphs 14 and 16 of the evidence of Mr Jon Bell, that the proposed Plan Change and subsequent development do not create or exacerbate flood risk to any other property.
11. As with the original design proposal, earthworks are required to ensure that the new residential development area is raised to be out of the identified 0.5% AEP flood hazard area.
12. On-going liaison with both Horizons and PNCC will be required during the detailed design and consenting stages. Approved design and construction of earthworks will be needed before any residential construction can proceed.

Philip Lawrence Wallace

1 June 2022

Attachment 1: Predicted flood depths, 0.5% AEP flood, proposed situation



Attachment 2: Predicted flood depths, 0.5% AEP flood, proposed situation

