

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 PAUL MICHAEL MITCHELL
STORMWATER EVIDENCE
31 MAY 2022**

Counsel Acting
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Stout Street Chambers

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INTRODUCTION

1. My full name is Paul Michael Mitchell. My qualifications and experience are set out in my brief of evidence dated 18 May 2022.
2. I am the primary author of the Whiskey Creek Stormwater Management Plan (Appendix 12) supporting the Plan Change Application.

KEY POINTS IN EVIDENCE AND AREAS OF AGREEMENT AND DISAGREEMENT

1. I have been involved with the project since 2017. I have provided input into the 2-D floodplain modelling assessment (undertaken by DHL) and am responsible for the proposed stormwater mitigation concepts.
2. The relatively small 12.9 ha (0.13 km²) ephemeral catchment is affected by localised catchment flooding, and Flyers Line spillway events.
3. Predicted climate change effects on storm rainfalls have been considered over the life of the proposed stormwater infrastructure.
4. 'Hydraulic Neutrality' of stormwater discharges could be provided by:
 - (a) An approximate 5000m² flood detention pond located in the south-west of the development discharging to Whiskey Creek.
 - (b) Source controls including roof-water tanks, underground storages and reduced imperviousness that would reduce the size of the detention pond.
5. Stormwater quality effects as a result of the proposed development could be mitigated by:
 - (a) Rain gardens in the road berms or
 - (b) A constructed wetland downstream of the flood detention pond.
6. During a 10% AEP or lesser probability (i.e. larger) flood event:
 - (a) The Mangaone Stream catchment at the Milson Line gauge (154 km²) has a time of concentration of approximately 30-40 hours i.e. compared with a time of concentration of approximately 30-40 minutes for the much smaller Plan Change catchment (0.13 km²).

- (b) Peak outflows from the flood detention pond would therefore be very unlikely to coincide with the peak discharge from the Flyers Line spillway.
7. The design of the stormwater network including existing overland flow paths, conveyance of flows to the flood detention pond, and the outlet design will be confirmed during subsequent consenting stages.

RESPONSE TO SUBMITTER EVIDENCE

8. A review of the flood detention pond design¹ indicates that embankment and spillway crest levels would need to be raised by up to 0.5m.

RESPONSE TO SECTION 42A REPORT

9. I disagree with two of Mr Preston's conclusions i.e.
- (a) The flood detention pond volume is 'unconservative'. Mr Preston has not provided any catchment-specific evidence for his assertion, which is based solely on the application of the nested storm approach and does not consider the inherent conservatism built into the design rainfalls.
- (b) The Groves et al Stormwater (2020) paper should be adopted. It is the responsibility of the PNCC to periodically review its design standards, their suitability for the Manawatū region, and the consideration of other primary inputs including rainfall and geology.

RESPONSE TO EVIDENCE OF MR JON BELL (HORIZONS)

10. The initial discussions and understanding reached with Mr Bell (Horizons)² on assessing the floodplain effects as a result of the development concluded that a 50mm increase in floodplain levels was considered to be both '*within the accuracy bounds of the modelling*' and '*no more than minor*'.
11. Attenuating peak discharges from the flood detention pond will limit inflows to the PNCC stormwater network and resulting outflows to the Taonui Basin.

Paul Michael Mitchell

31 May 2022

¹ Mr. Brian Kouvelis (S25)

² Refer email Bell to Judd dated 4 December 2019 (Appendix A)

Appendix A Email Mr. Jon Bell – Mr. Kevin Judd (4 December 2019)

Paul Mitchell

From: Jon Bell <Jon.Bell@horizons.govt.nz>
Sent: Wednesday, 4 December 2019 16:22
To: Kevin Judd
Cc: Grant Higgins; Paul Mitchell (paul@mitchhydro.co.nz); paul@thomasplanning.co.nz
Subject: RE: 214115 - Flyers Line Flood Modelling Report

Hi Kevin,

Sorry for the delay in getting back to you.

The modelling approach taken is a good one and is based on the model that HRC have based our City flood protection on.

I agree with the report that the adverse effects beyond the development site should be no more than minor if Option 6 is pursued.

I agree with Veni's comment about the accuracy of the LiDAR data – my knowledge of the area suggests that there hasn't been any significant changes to the landform since the LiDAR was flown. So to use this data is both reasonable and appropriate.

The modelling has shown a minor increase in flood levels in the order of 50mm at the southern end of the site adjacent to Benmore Ave. I believe that this small increase is well within the accuracy bounds of the modelling and is not going to adversely affect the stopbanks that HRC have responsibility for along the boundary of the Benmore Ave properties.

I think that covers my thoughts on it all – if you need any more please let me know!

Many thanks

Jon

From: Kevin Judd <KevinJ@resonant.co.nz>
Sent: Friday, 22 November 2019 7:54 am
To: Jon Bell <Jon.Bell@horizons.govt.nz>
Cc: Grant Higgins <grant.h@hfhl.co.nz>; Paul Mitchell (paul@mitchhydro.co.nz) <paul@mitchhydro.co.nz>; paul@thomasplanning.co.nz
Subject: RE: 214115 - Flyers Line Flood Modelling Report

Hello Jon,

When can we expect feedback on the report?

Regards,

Kevin Judd

Chief Executive Officer

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e KevinJ@resonant.co.nz w resonant.co.nz

