

BEFORE THE INDEPENDENT HEARINGS PANEL

UNDER the Resource Management Act 1991 (RMA)
IN THE MATTER of the Far North Proposed District Plan - Hearing 15D:
Rezoning Kerikeri-Waipapa

**STATEMENT OF REBUTTAL EVIDENCE OF ROBERT MATTHEW WILLIAM
(LADDIE) KUTA ON BEHALF OF KIWI FRESH ORANGE COMPANY
LIMITED**

FLOOD MITIGATION

24 September 2025

PO Box 2401 AUCKLAND 1140
Tel +64 9 300 2600
Fax +64 9 300 2609

Solicitor: M J Doesburg
(mike.doesburg@wynnwilliams.co.nz)

WYNN WILLIAMS

INTRODUCTION

- 1 My full name is Robert Matthew William (Laddie) Kuta.
- 2 I have been asked by Kiwi Fresh Orange Company Limited (**KFO**) to provide independent expert advice on the Proposed Far North District Plan (**FNPDP**).
- 3 This rebuttal evidence relates to the Council's section 42A report and the evidence of Mr Jon Rix in relation to flooding.

QUALIFICATIONS AND EXPERIENCE

- 4 I confirm I have the qualifications and experience set out at paragraphs 4 - 7 of my statement of evidence dated 16 June 2025 (**June evidence**).

CODE OF CONDUCT

- 5 I repeat the confirmation provided in my June evidence that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This evidence has been prepared in accordance with that Code. I confirm that the issues addressed in this rebuttal evidence are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

SUMMARY

- 6 The modelling to date was done at a proof-of-concept level of detail and I consider it acceptable for determining whether the land can be zoned for urban purposes without increasing flood risks.
- 7 The floodway will need to establish neutrality. The earthworks proposed in KFO's submission, including bunds, raised land and earth works are suggested in a manner to maintain natural flood conditions in the greater area. These modifications are likely to integrate with the site, reducing risk of failure that is present with a traditional stopbank. The natural raise of the land at the KFO site favours the raising of land outside the floodway as an alternative to stopbanks. Additional measures could be incorporated for broader benefit; however, they are not essential for flood protection at the KFO site. These measures can be worked through with stakeholders when the floodway is consented.
- 8 Although the flood modelling was based on 1% AEP due to availability of information, I agree that best practice is to consider over design events due to increasing extreme weather events. Preliminary low order estimates indicate that a rarer event such as a 0.1% AEP flood would require approximately an additional 1 metre of floodway dept or equivalent increases in height to manage

the extra flow. This is based on conservative estimates and further modelling is required at the resource consent stage. I consider that over design events can be catered for through floodway design.

- 9 The overall engineering goal for the KFO site is to ensure that the flood hazard both upstream and downstream of the property remain unchanged, again further technical modelling will be required at the resource consent stage.

BACKGROUND TO EVIDENCE

- 10 In response to information provided in the Section 42A report I would first like to qualify the subject of flooding, more specifically the subject of floods hazard, its seriousness and how it relates to the submission seeking urban zoning for the land. This has been, and continues to be, my primary focus of concern and caution regarding the evidence I have presented to date. Flooding and flood hazard in a changing climate is a subject that must be paramount in decision making related to matters such as the one discussed in this Section 42A report and as required by the relevant legislative and policy framework.
- 11 Many flood schemes and development throughout New Zealand have progressed through the manipulation of natural flood hazard. The construction of large stopbanks and concentration of floodwaters into somewhat narrow corridors has resulted in significant maintenance and the potential for failures, and in some circumstances a potential worse flood hazard compared to the one that was present prior to the scheme's construction. This is much the case for many of our regional flood protection schemes, with unfortunate consequences sometimes being realised like those seen in Edgecumbe in 2017 and throughout the Hawkes Bay during Cyclone Gabriel in 2023, amongst others. Again, understanding and treatment of flood hazard and the risk around it is vital in ensuring we develop safe communities well into the future, as was experience during the 2023 Auckland Anniversary Weekend floods where less impact was experienced in the more recently designed subdivisions (i.e., ones that have been well designed for flooding and stormwater) in contrast to many of the older and more severely impacted subdivisions.
- 12 It is well understood the land we are discussing today has a realised flood hazard upstream of the property, downstream of the property, the Kerikeri river on its northern edge, and a natural secondary, and critical, floodway passing over SH10 and through the midst of the property. The flood hazard associated with this property and its surroundings is not being created, it currently exists

and is relatively well quantified and technically understood through the investigations to date.

- 13 What is proposed with the floodway is to work with the land whilst maintaining the existing flood hazard upstream and downstream of the property. This approach is intended to maintain current level of flood protection for areas outside the property, so that these neighbouring areas continue to experience their natural flood conditions and are properly managed into the future.
- 14 Within the property itself, the objective is to use managed flood hydraulics to safely remove some land from current flood risk. This would be achieved by making modifications within the known secondary floodway that passes through the property, effectively balancing the flood hydraulics through engineered balancing of flood hydraulics. The intention is to ensure that any changes made within the property do not adversely affect flood hazards outside the property boundaries, and that the overall flood risk is managed appropriately both now and in the future.

MR RIX'S EVIDENCE IN RELATION TO FLOODING

- 15 I have reviewed Mr. Rix's assessment related to flooding in the Section 42A report and offer the following additional information for understanding and context:

Modelling

- 16 In response to Mr. Rix's point 3.2 that the design lacks the level of detail required and little certainty of outcomes – The modelling to date was done at a *proof-of-concept* level of detail and considered acceptable for determining whether the land can be zoned for urban purposes without increasing flood hazard. As noted in the introduction above, the assessment would be to ensure the flood hazard that currently exists both upstream and downstream of the property remains similar to the existing conditions following any change in land use. A condition on any future resource consent would be a technical peer reviewed modelled design that illustrates how this flood hazard inside and outside of the property is acceptably unchanged.
- 17 I understand that Ms Burnette O'Connor will cover the potential planning assessment associated with consenting the floodway.

Additional land requirements

- 18 In response to Mr. Rix's point 3.4 – I agree with Mr Rix that additional land could be required for the change in land use; however, like any green field transition to development the stormwater and runoff changes would need to be managed for both first-flush treatment and attenuation volumes outside of the floodway. Simply put, the floodway is not an uncontrolled discharge point for any development stormwater. There are a number of engineering solutions to ensure stormwater and flood effects are appropriately managed as part of the development, which could be confirmed at various development resource consenting stages as is standard practice.

Floodway

- 19 In response to Mr. Rix's point 5.9 – the noted bund/raised land in Figure C2 on the northern side of the property was done in the proof-of-concept modelling to block the shallow sheet flow that passes across the property when the Kerikeri river reaches the design level (as evident in Figure D1 of the e2 report). This blockage would not require an extensive amount of raising as the flow across this area has been shown to be shallow in both the e2 and NRC modelling. Therefore, this 'bund/raised land' would likely be included in earthworks of the overall area rather than a traditional stopbank concept. The inclusion of this in the overall earthworks and working of the site's topography mitigates the potential for failure that is present with a traditional stopbank concept. Further to this point, the shallow relief these areas currently offer the river during design events would be addressed at a resource consent stage in the design of the floodway's entrance upstream near SH10;
- 20 In response to Mr. Rix's point 5.10 – it is worth qualifying that much of the land rises as you move away from the natural floodway, as illustrated in Figure B3.¹ This natural rise favours raising of land to meet up with up-sloped land outside of the floodway rather than a traditional stopbank concept. If bedrock does present as a barrier to full recess, then a mix of both achievable recess and raising of land to meet up-sloped land could be an engineering approach to address this situation.
- 21 In response to Mr. Rix's point 5.15 – the potential benefit of working with NZTA to help protect the lifeline of SH10 from existing flood hazard, creating an ecological/hydraulic feature by including a minor controlled water take from the

¹ Appendix 4(g) Flood Scheme Investigation Part 1, e2 Environmental Limited, page 28.

Kerikeri River, and the potential working with other flood hazards in the surrounding area were originally noted as opportunities for betterment rather than necessities to address the flood hazard on the discussed KFO property. In my opinion the management of flood hazard on the property can be done so without the three outcomes noted by Mr. Rix; however, it would be unfortunate to not consider these outcomes and the potential additional benefit they could offer the area and I recommend (not as provisions but as a matter of good practice) that these options be explored at the time that consents are sought for the flood way.

- 22 In response to Mr. Rix's point 5.16 – As noted in the introduction of this response, flood hydraulics and maintenance of existing flood hazard are paramount for this area. Direction of how the floodway is planted, and its potential future aesthetics would need to be led by a qualified flood engineer with landscape architecture taking direction, which could also be a condition of future resource consents. This is currently, and would be in the future, a critical floodway and therefore would need to be managed as such.

Flood Hazard

- 23 In response to Mr. Rix's point 5.22 – The 1% AEP flood was used for the maximum design conditions as this was the information available from NRC at the time. I agree with Mr. Rix that an understanding of how the site would behave during over design events is important, as this is the more common practice we are adopting in a changing climate. Although over design modelling has not been completed to date, a low order over design estimate is provided in Figure 1 overleaf:

Flow over Rainbow Falls (m ³ /sec)	Flood Flow over the site and discharging back to Kerikeri River (m ³ /sec)	Combined total Flow U/S SH10 (m ³ /sec)	ARI (yrs)	
202.3	6.1	208.4	10	from e2 report
243.1	72.6	315.7	50	from e2 report
259.5	223.1	482.6	100	from e2 report
280.0	420.0	700.0	1000	low-order estimate

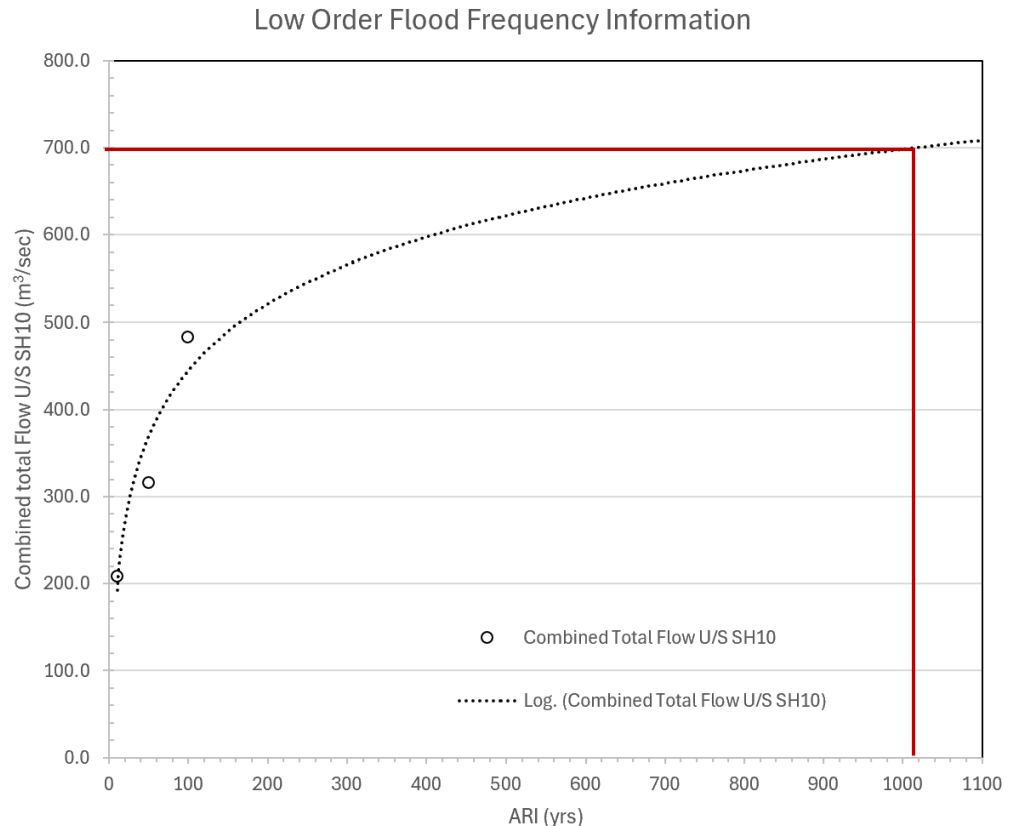


Figure 1: Low Order Flood Frequency for Kerikeri River near property of interest

- 24 This suggests a low order estimate of a 0.1% AEP combined total flow upstream of SH10 to be in the order of 700m³/sec. This would equate to an additional 200m³/sec going down the property's floodway. The velocities in the floodway are largely dictated by the floodway's grade with an average of 2m/sec, which would somewhat remain the same in the over design event. With an approximate floodway width of 100m this would equate to an additional depth of approximately 1m above the 1% AEP level that is illustrated throughout the current evidence. Again, since much of the land rises away from the floodway, this could be managed with raised land married into the up-sloping land outside the floodway. This above information is for context only and would need to be proven through a technical peer reviewed modelled design at a resource consent stage.

- 25 The estimate I have provided for overdesign is in my opinion on the conservative side and would still be possible to provide flood protection; however, keeping stopbanks out of the design is desirable and presence of bedrock could put more need on stopbanking/raised land. Further modelling of overdesign events during resource consent stage would be able to refine this amount of extra freeboard required for these less frequent extreme events.
- 26 In response to Mr. Rix's point 5.33 – the flood hazard that currently exists at Peacock Garden Drive as illustrated in Mr. Rix's Figure 1 is an unfortunate situation; however, this area is outside of the KFO property and the overall engineering goal for the KFO site with regard to floodwaters is to achieve a pseudo 'equal in equal out' condition as to ensure the flood hazard both upstream and downstream of the property remain acceptably unchanged, regardless of its current state. This again could be proven with the further technical peer reviewed modelling at the resource consent stage .

CONCLUSION

- 27 I have reviewed Mr. Rix's response in the Section 42A report and appreciate his diligence and scrutiny regarding flood hazard in this area. This subject has also been my primary focus in the evidence I have presented with regard to the environment that could eventuate in the long term within this area.
- 28 It is my opinion that the critical area of concern raised by Mr. Rix could be, and would need to be, confirmed at future resource consent stages through detailed peer reviewed technical modelling and design. The detailed resource consent stage would address the detailed civils required for flood management as well as other critical infrastructure needed for safe access and regress from the area during all-weather events.
- 29 In closing, it is my professional opinion that flood hazard, comprehensively and technically understanding it, and working within its limits are paramount in this situation. It is also my professional opinion from the information I have reviewed to date that the ability exists to thoroughly understand the hydrology and hydraulic potential within this area, develop workable engineering solutions, have the proper stop/check points in place through future resource consenting, and apply appropriate engineering factors of safety to ensure this area progresses in a manner that ensures a development can occur without increasing the risk of flood hazards for people and property.

A handwritten signature in black ink, consisting of stylized letters 'L' and 'K' followed by a horizontal flourish.

.....

RMW (Laddie) Kuta

24 September 2025