



RESPONSE TO EXPERT PANEL MINUTE 18 [P13] MT WELCOME, PUKERUA BAY

TO	Pukerua Property Group LP	DATE	7 September 2026
PROJECT NAME	Mt Welcome, Pukerua Bay	ENVELOPE REF	1753-02
ATTENTION	William Dorset	FROM	Kyle Dirse
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INTRODUCTION

This memorandum responds to the requests for information in paragraphs 13 and 14 of Minute 18 of the Expert Panel (FTAA-2603-1181, 4 September 2026) that relate to Envelope Engineering's flood and stormwater assessments.

Item	Matter
[13]	Extended flood modelling – Plimmerton urban area, Taupo Swamp
[13]	Sediment Accumulation – Onsite detention devices

PARAGRAPH [13] – EXTENDED FLOOD MODELLING

Mr Dirse discussed further flood modelling that he has underway. The applicant is requested to complete and supply same, extended to cover the Plimmerton urban area by 5pm on 7 September. We request that the modelling incorporate provision for both climate change effects and potential loss of on-site storage due to sediment accumulation and that the covering commentary detail any consequential mitigation of downstream flood risk that the applicant proposes. Once provided, Tiaki Wai have until 5pm on 14 September to provide a response.

Response:

The model extent has been extended so that results are reported for the Plimmerton urban area and the Taupō Swamp. The methodology and assessment are attached within M013-v2 1753-02 - Taupo Swamp Flood Assessment. In summary, peak flood depths reduce by 88–99 mm in the upper swamp and increase by 7–54 mm through the lower swamp and Plimmerton. These increases are localised and do not materially change flood extents or depths, and no additional properties or roads are affected.

PARAGRAPH [13] – POTENTIAL LOSS OF ON-SITE STORAGE DUE TO SEDIEMENT ACCUMULATION

The Panel's request does not state whether the potential loss of storage relates to the Taupō Swamp or to the Mt Welcome retention wetlands. We have addressed both.

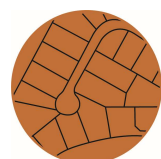
Taupō Swamp

A volume assessment of the Taupō Swamp has been provided separately in M013-v2 1753-02 - Taupo Swamp Flood Assessment. It compares the swamp surface in the flood model with the 2023 LiDAR and indicates that the storage available in the swamp is greater than the model allows. Sediment has not been directly assessed; however, the LiDAR-derived volume provides useful insight.

Mt Welcome Retention Wetlands

Sediment inflow to the wetlands is expected to be low once the development is established. The catchment is converted from grazed pasture to roofs, roads and planted areas; roof runoff is captured on lot and road runoff is treated in raingardens before reaching the wetlands. Accumulation during construction is managed under the erosion and sediment control plan, with the wetlands desilted at completion of the developer maintenance period, prior to vesting.

Notwithstanding, we need to account for it within the design. The way the ponds are designed, sediment accumulates in the permanent pool, below the primary outlet. The peak-event storage sits above the permanent water level, as shown in the pond



design outputs in Appendix 4 – Pond Controls Summary of the SMP. This shows the the initial depth and volume in each pond, which were excluded from the detention calculations. These same conditions are reflected within the flood model parameters.

The permanent pool could therefore fill entirely with sediment without affecting the storage relied on for peak-flow management. Above the live storage, a further allowance exists with storage and freeboard available prior to the spill way being utilised.

The table below shows the available storage outside what was used for 1% AEP storage, both below the permanent water level, and above the 1% AEP design level.

Pond	Permanent pool (m³)	Storage used to 1% AEP (m³)	1% AEP to spillway (m³)	Available sediment storage, prior to spill way (m³)
Retention A	770	2,910	2,020	2,790
Retention B	480	4,500	5,720	6,200
Retention C	720	3,330	2,900	3,620
Retention D	50	130	81	131
Retention E	1,090	7,060	3,500	4,590

Figure 1 shows Retention Wetland B as an example. The dark blue bands are the permanent pool storage below the outlet and the storage above the 1% AEP level up to the spillway; the purple band is the stormwater detention storage used to size the device. For Wetland B, 480m³ is provided below the outlet, 4,500m³ is used for stormwater detention, and a further 5,720m³ is available above the 1% AEP level before the spillway is engaged, consistent with the table above.

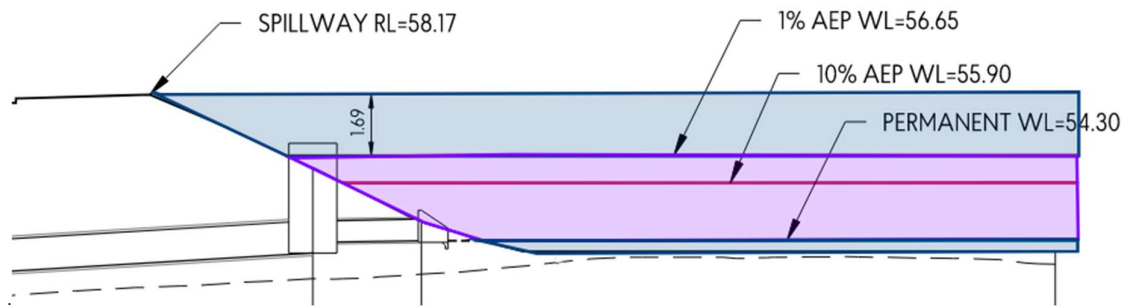


Figure 1

