IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF Private Plan Change 95 Pencarrow Estate Pongakawa to the Western Bay of Plenty District Plan

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REPLY EVIDENCE OF DANIEL HIGHT
(ENGINEERING, FLOODING AND NATURAL HAZARDS)
ON BEHALF OF KEVIN AND ANDREA MARSH

Introduction

1. My full name is Daniel James Hight. I confirm my qualifications and experience as set out in my statement of evidence dated 24 October 2024.

1. I also confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses, as contained in the Environment Court's Practice Note 2023. I confirm that this evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. My reply evidence addresses statements made in the evidence of Hamish Dean, Lucy Holden and Sue Southerwood.

3. In Hamish Dean's evidence, Mr Dean discusses the need for the stormwater discharged from the development to be treated for water quality, attenuated so as to prevent erosion and flooding downstream, and for discharge points specifically to be protected against erosion. I believe my evidence already

presented addresses his concerns. The stormwater solution proposed (being a combination of soakage and treatment wetland/attenuation pond will ensure that the runoff discharged from the site has been treated in accordance with the Bay of Plenty Regional Council Stormwater Management Guidelines and is discharged at flow rates less than that of the pre-development scenario. The extended detention provided for within the pond, and the provision of adequate armouring of discharge points will ensure that erosion of the receiving environment is kept to a minimum and in accordance with best practice.

4. In Lucy Holden's evidence, Ms Holden recommends some changes to the stormwater provisions of the stage prerequisites. I don't have any issue with her suggestions and the solutions proposed in my previous evidence would comply with her suggested clause wording.

5. In Sue Southerwood's evidence, Ms Southerwood sets out her concerns regarding the stormwater solutions proposed, specifically:

   (a) That the indicative soakage design done for the lots relies on an unreliable soakage rate assumption. As a sensitivity analysis, I've redone the calculation using her suggested parameters (7 mm/hr and no side soakage) and can still fit a soakage solution within the same site layout presented in previous evidence. If the stormwater provisions suggested by Ms Holden were to be adopted, I am confident that compliant soakage solutions can be found for all lots, even if the slow soakage rates suggested by Ms Southerwood prove to be accurate when detailed soakage analysis is done.

   (b) Ms Southerwood challenges the groundwater depth assumptions made. As previously explained, I don't believe this is an issue as the groundwater was found by CMW to be at approximately RL 2.6m, and the proposed ground level of lots is above RL 5m (leaving at least 2.4m

from finished ground level to the groundwater. In the revised sensitivity analysis soakage calculation note above, I have made the soakage systems shallower than before (880mm tall, with 500mm cover, for a total depth of 1.38m) and can still fit a compliant system within the small lots.

(c) Sue recommends that the secondary runoff rate from the development be limited to 80% of the pre-development scenario. The modelled runoff rates for the critical 60-minute 100-year storm are explained in the Lysaght Servicing Report (Revision 7, table 5, page 13), and the peak pre-development runoff rate of 5.33m³/s to a peak post-development runoff rate of 4.01m³/s. That is a reduction to approximately 75% of the pre-development rate. Therefore, the proposed stormwater solution for the site complies with Ms Southerwood's recommendation.

Daniel Hight
12 November 2024