IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of proposed Plan Change E: Roxburgh Residential Area to the Palmerston North City Council District Plan

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SUPPLEMENTARY STATEMENT OF EVIDENCE OF MARY WOOD ON BEHALF OF PALMERSTON NORTH CITY COUNCIL

STORMWATER

Dated: 25 JUNE 2025

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SUPPLEMENTARY STATEMENT OF MARY WOOD

A. INTRODUCTION

[1] My full name is Mary Wood.

[2] I prepared a s 42A report dated 24 April 2025 (**s42A Report**) and reply evidence dated 16 May 2025 (**Reply**) on stormwater management and flooding matters. I also prepared a summary statement of my evidence for the Hearing Panel, dated 19 May 2025.

[3] My experience and qualifications are set out in my s 42A Report.

[4] I repeat the confirmation given in my s42A Report that I have read and will comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023, and my supplementary report has been prepared in compliance with that code.

B. SCOPE

[5] My supplementary statement responds to a range of matters raised at the Hearing on 20 May 2025 and within Minute 3 from the Hearing Panel. Specifically, this statement covers the following items:

(a) The need for stormwater policies and rules in the subdivision and residential chapters of the District Plan, with respect to PCE;

(b) The management of permeable surface provisions;

(c) Permeable surfaces – transition from 45% to 30% over time;

(d) Stormwater management for Road E (road or a laneway); and

(e) Copper and zinc provisions.

C. STORMWATER MANAGEMENT – PROVISIONS

[6] Minute 3 of the Hearing Panel requested further information in relation to stormwater provisions being managed at the time of subdivision and land use development.

[7] The need for stormwater management controls has been identified in my s42A report and Reply.[1] I remain of the view that control of permeability is required to manage current and future stormwater system capacity (for effective stormwater management over the Plan Change area), to reduce the rate and volume of runoff (to align with Water Sensitive Urban Design (**WSUD**) principles), as well as to address the uncertainty in timing in regard to future upgrade works.

[8] I do not consider that these matters can be adequately addressed through Stormwater Management Plans, particularly noting that they all need to be considered in an integrated manner across the entire Plan Change area, and that the flat nature of the land can make stormwater management challenging.

[9] Timing of stormwater management is important in the circumstances I describe above. From an engineering perspective, stormwater management becomes increasingly difficult to implement effectively, the later in the design process that it is considered. This is because as development design progresses then stormwater management becomes more constrained, not less, with competing demands for space and as site contouring and geometrics are developed. If land is not set aside early, then it becomes increasing difficult to accommodate in design.

[10] Signalling the need for stormwater management to be considered at the subdivision and land use stage sends clear guidance to developers for the need to integrate stormwater management early into their design in the process. I continue to support this approach, particularly for the reasons noted above.

[11] Attenuation is not considered to be an appropriate option in the Plan Change area (the reasons having been explained in the Stormwater Servicing Report).[2] Managing permeability in the public and private realms is therefore important to ensure appropriate stormwater outcomes. Management of permeability, which would be typically expected as part of a residential development in any case, reduces runoff in the first instance and offers better alignment with WSUD principles.

1 At 76-96.
2 Section 3.3, page 21.

[12] With WSUD matters, it is my opinion that consideration of sufficient surface space and general layout for public and private land should be addressed (and provided for) at the subdivision stage. It can then be reassessed at the time of land use once development is being progressed at a more detailed level.

[13] It is also possible that there could be a land use consent separate from a subdivision consent. This is a matter highlighted by Ms Harris in the Planning JWS.[3] The inclusion of stormwater provisions in both land use and subdivision sections of the Plan Change enables stormwater requirements to be considered in this eventuality.

[14] Overall, I am of the view that locating stormwater provisions in only the land use (or conversely the subdivision) chapter runs the risk of poor stormwater management implementation across the PCE area and outcomes that may not achieve WSUD urban design objectives at a practical level. Therefore, I support the approach taken by PCE.

D. UPGRADE WORKS

[15] As the existing stormwater outfall has constrained capacity, PNCC have been investigating options to provide the necessary upgrades. One concept option is a new gravity main, in addition to the existing outfall. This is the option that has been presented in the Stormwater Assessment, my evidence and discussed at the hearing.

[16] Since the hearing, more recent analysis undertaken by PNCC has highlighted that an alternative option such as a pump station, instead of the new gravity main, could potentially offer constructability advantages, as well as wider benefits. This option would require a new stormwater pump station (and associated infrastructure) to be located within the Plan Change area as well as a new pumped main. The pump station would most likely be a below ground structure. I understand that both the pump station (and associated infrastructure) and the pumped main could be located within existing or future Council-owned land within the Structure Plan area.

[17] While a final design for the necessary upgrades has not yet been confirmed, I do not consider that either upgrade option changes the need for permeability limits to be in place. Management of runoff in the short-term (through the use of 45% permeability)

[3] Joint Witness Statement – Planning (12 June 2025), Annexure A, Topic 7.

is required until the necessary upgrades to the existing stormwater network are installed. Longer-term, 30% permeability continues to align with other residential development across Palmerston North, allows for volume reduction and reduced runoff to support subsequent infrastructure sizing and aligns with a WSUD approach.

E. PERMEABLE SURFACE PROVISIONS

[18] As I have noted above, permeability surface provisions are required to manage current and future runoff as well as to implement WSUD practices.

[19] While runoff rates will be lower with residential development, I do not consider this reduction to be sufficient to mitigate the need for capacity improvements to the existing stormwater network, nor for the higher permeability requirements before network improvements are operational.

[20] WSUD is identified in PNCC's Engineering Code of Practice (5th Edition) and a fundamental aspect of this is to reduce runoff volume and flow rates generated in the first instance. There are other options available in terms of WSUD, but these options tend to focus on collecting and managing runoff after it has been generated.

[21] The requirement for 30% permeability under full redevelopment aligns with the nature of the proposed redevelopment – 30% is not unusual for residential development and aligns with the permeability requirements being considered in Plan Change I (medium density) currently underway.

[22] For the reasons noted above, I support the approach taken by PCE.

F. PERMEABLE SURFACES –45%-30% PERMEABILITY

[23] The question was raised at the Hearing whether a property which has been developed with 45% permeability (prior to the outfall being in place) could have on-site permeability reduced to 30% once the necessary upgrades are in place.

[24] Technically, the reduction in permeability could be an available option. The provisions do not prevent a lower permeability threshold on site once the upgrades are in place. The modelling undertaken to date has also considered 30% permeability across the PCE area once the upgrades are complete. This means that there is no technical stormwater

reason why this change could not be considered by the landowner. I do not understand there to be any planning implications of this change, given the permitted activity status.

[25] Whether or not, practically, landowners wish to reduce permeability in time will be a matter for them. In the meantime, those landowners would have had the benefit of subdivision and construction at an earlier stage than otherwise would have been the case. The 45% permeability standard was intended to provide an option for those areas within PCE that wanted to develop more immediately, recognising that there is some uncertainty in timing for the stormwater upgrade works.

G. STORMWATER MANAGEMENT – LANE OPTION

[26] I have considered the option of Road E (as it is now described on the Structure Plan) being a public lane instead of a road. I have reviewed as-builts of a recent example within Palmerston North where bioretention has been provided in a public laneway (Stage 1 of Centennial Park – refer to **Figure 1** of this document). I have also discussed the likely road section with Mr Groom. This road section is shown in **Figure 2**.

[27] There are specific challenges with use of a laneway in the context of PCE due to the length of road to be converted into a lane. Because the land is flat, I am of the view that this will require particular care in the stormwater design - for a gravity-based stormwater system, the longer the length, the deeper the system needs to be.

[28] Noting the restrictions in area/space, I am concerned that where flow is directed towards the intersections for treatment, this could require deeper bioretention systems to work, resulting in more space needed near intersections for the devices.

[29] While treatment at intersections remains an option to developers, I am of the view that treatment within the laneway should also be considered where possible. As such, should a laneway option be progressed, I recommend that flexible space is provided within the laneway so that developer can consider options for either landscape planting or bioretention to be provided within the lane. In my opinion, this provides flexibility to the developer as to where treatment can be provided within the development. Space has been allocated for bioretention devices or planting in Figure 2.

H. COPPER AND ZINC

[30] Copper and zinc building materials represent a potential source of contamination. Where these materials are used, then treatment is necessary to avoid the risk to downstream receiving environment.

[31] Where these materials are used, the preferred approach is that they are sealed or coated in a way that avoids the contaminants from being released to the environment in the first instance. Where this is not possible additional treatment will be required.

[32] I consider that the copper and zinc building material provisions can reduce the likelihood of contamination runoff occurring to the receiving environment. From a technical perspective, I therefore support the inclusion of controls on these contaminants when managing stormwater from urban development within the City.

25 June 2025

Mary Wood

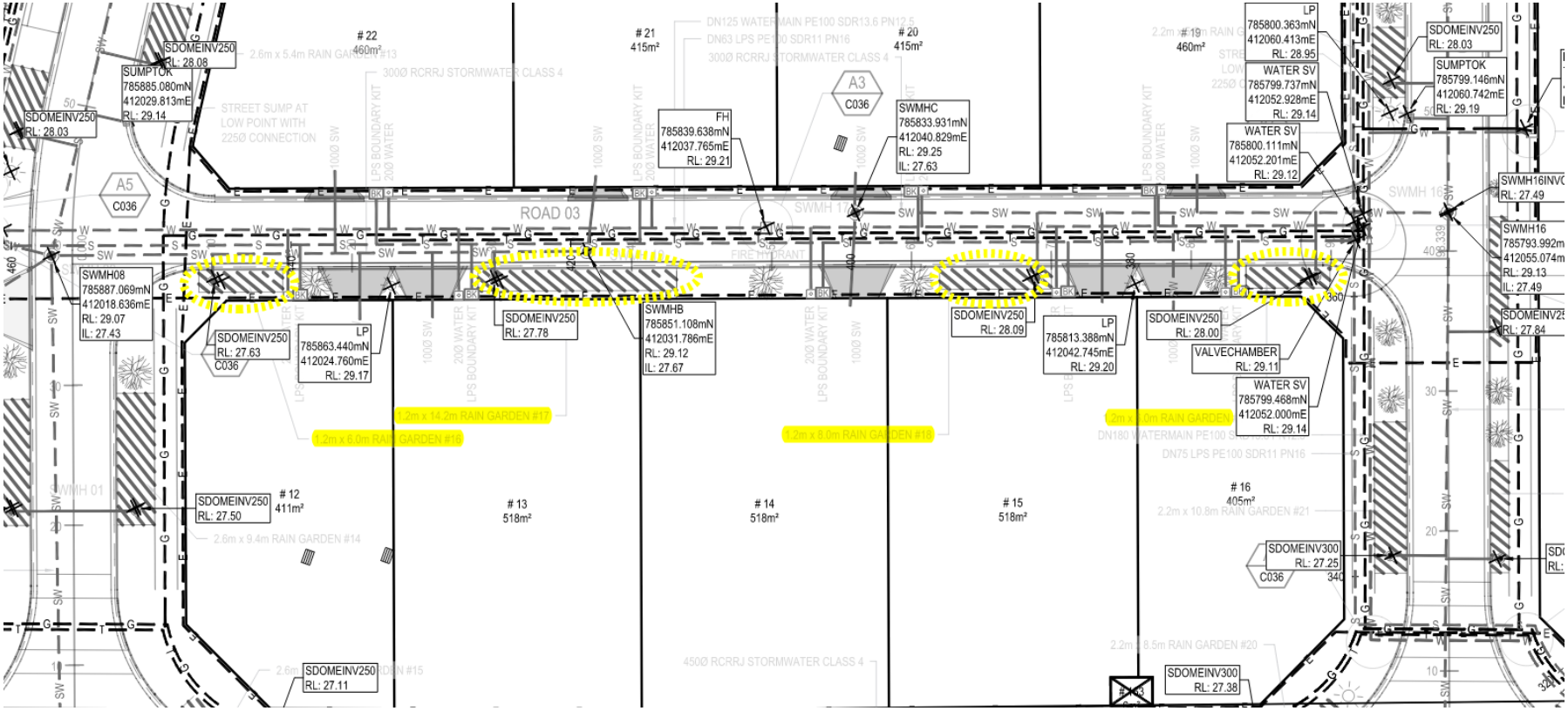

Figure 1 – Extract from an as-built showing rain gardens accommodated within a laneway (highlights added)

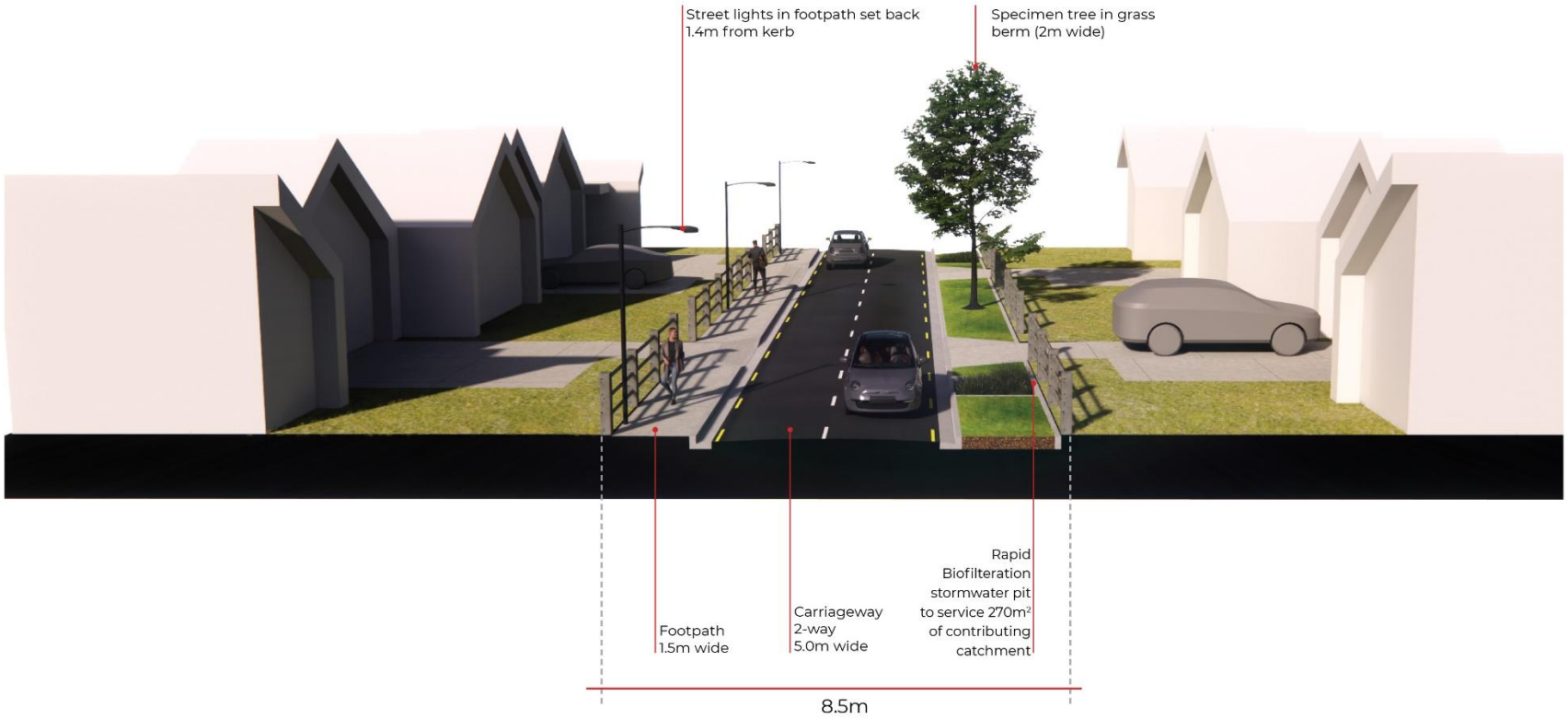

Figure 2 Proposed Laneway Cross-section