

Clause 23 response

Auckland Council Healthy Waters,

RE: Request for Further Information under Clause 23 for Private Plan Change of 70, 70A & 70B Lisle Farm Drive

Thank you for your request for further information dated 28 August 2024. We have now completed the additional assessment and clarification of the items raised by Clause 23, and have responded below. Note: Response in **BOLD**.

SW 2: Please refer to comments below in relation to flood modelling and stormwater attenuation.

The flood modelling and stormwater attenuation clarification and assessment for outstanding SW13, SW14 and SW15 is summarised in this letter.

SW 13: A sensitivity assessment of device sizing with allowance for 3.8-degree climate change is now provided. However, the rationale behind how the Maximum Probable Development (MPD) was calculated is confusing and has the potential to underestimate the area of impervious surface that requires mitigation (refer to section 2.3.2 of the Modelling Report). The entire plan change area is proposed to be rezoned to Residential – Mixed House Urban. On this basis, a sensitivity assessment of device sizing should consider a MPD of 60% of the entire plan change area. This is to ensure that the worst-case scenario is identified and assessed.

Our inputs and assumptions for the calculation and modelling in the latest Stormwater Management Plan (provided in July 2024) allows for practical potential impervious area based on the site topographical features and earthwork. Appropriate precinct rules for the impervious area (building coverage and impervious) shall be prepared to support the SMP to the approval of Healthy Waters and Auckland Council. In general, the standard MPD for Mixed Housing Suburban/Urban is 60%, and our assumption for the modelled impervious area (residential lots) is approximately 54.5%, which is a reasonable development factor.

SW 14: The attenuation requirements for communal and "offset compensate" devices are still unclear. This information is required to enable assessment of whether appropriate and feasible flood mitigation is to be proposed so that downstream flooding risks are not increased. Please explain:

- *How the 76% figure has been decided on;*
- *Whether 76% attenuation is appropriate for the 1% AEP events and whether this requirement needs to be adjusted for communal and "offset compensate" devices (refer to sections 5.2.8 and 5.2.9 of the SMP). Please confirm the internal layout of the dwellings and accessory buildings. It has been advised a subsidiary dwelling has been identified in the internal layout as a part of building consent. Please confirm if there is an infringement against Rule 23A.1.3, if so, please provide an updated assessment accordingly.*

The designed 76% attenuation percentage is calculated based on the pre-development catchment area (70,738m² - Pre-catchment B, C and D under HEC HMS Section 2.3.3) divided by the post-development catchment area (93,481m² - Post-catchment B, C and D under HEC HMS Section 2.3.3), giving 0.76 or 76%. After the completion of the bulk earthwork, the post-earthwork catchment area which flows to the north is more than the pre-development catchment area. Given the impervious area percentage utilised in the current modelling were assumed, and the future individual lot owner will build the house and associated stormwater mitigation system at different time, applying the 76% attenuation requirement for the lots which discharge to the north is to ensure the post-development peak flows for all rainfall events up to and including the 1% AEP storm event is no greater than the pre-development peak flows, from the 224c stage (all the public stormwater assets, roading and other public assets are completed and no private development) up to the last house and its associated stormwater mitigation device is completed.

SW 15: Three Cirtex Rainsmart Modular tanks are proposed to achieve communal attenuation and to be vested with Healthy Waters. Healthy Waters is unlikely to accept a communal tank solution unless it is demonstrated as the Best Practicable Option (BPO). As a greenfield site it seems unlikely that better solutions are not feasible.

Tanks for stormwater attenuation can have limitations e.g. maintenance and appropriate orifice design can be challenging. Opportunity to provide an integrated approach to stormwater management with communal devices providing multiple functions e.g. end of catchment wetlands should be considered.

Please also demonstrate how stormwater flows will be conveyed to the tanks? Will all upstream connections to the tanks be sized to accommodate the 1% AEP storm events? Supporting information are required to demonstrate feasibility.

The feasibility and suitability of the proposed stormwater devices should be demonstrated. And hence to confirm if adverse effects associated with stormwater discharge will practically be able to be mitigated.

According to the latest provided SMP in July 2024, the proposed communal tanks are considered BPO. There are no better solutions for this PPC to achieve the proposed development potential. The maintenance and operation constraints for the designed tank are suitable and the orifice and weir structures are designed to be in a pre-cast inspection chamber which can easily be accessed to undertake routine inspection and maintenance. As per previous HW comment, an end of catchment wetland is not feasible nor practical to be placed/installed due to the significant

geotechnical constraints and steep topographical features, which is also identified in Section 5.2.5 of the SMP. For the stormwater flows, the individual tank for each lot is designed to capture 10% AEP rainfall events, as well as the SMAF equivalent requirement. All other rainfalls above 10% will overflow to the road reserve, follow the road flowing to the proposed communal Rainsmart tanks (at the low point of the catchments, post-development catchment B, C and D) at inlets designed to capture flows up to and including the 1% AEP flow with appropriate blockage factors.

If you have any queries, please feel free to contact me.

Yours faithfully,

A handwritten signature in blue ink, appearing to read "Skyward Hang".

Skyward Hang

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