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SERTUS civil engineering

CONSULTANT ADVICE NOTE - CIVIL	CAN #	003

From:	Daniel Reddy	Date:	08/03/2024
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Subject: Council SMP RFI Response

DISTRIBUTION			COMPANY	ATTENTION (Person, Fax, Email, Courier, Mail, Collect, Aconex)	
To:	X	cc:	Goodman	Phil Crampsie, Ben Shaw & Sarah Haydock	E
		X	Harrison Grierson	Neville Smythe/Song Khoo	E
		X	Barkers	Mary Wong	E
		X	Boffa Miskell	Rachel de Lambert	E

[ ] FOR YOUR ACTION [X] FOR INFORMATION

Hi Phil,

We have reviewed the RFIs received from the Council on 18 Jan 2024. Please refer to Table 1.1 for a detailed outline of our responses. Consequently, we have revised the Stormwater Management Plan to align with the provided feedback, to be submitted to Council. For the updated documentation, please refer to the link provided below.

240308 - RFI Response

Please do not hesitate to contact me if you have any questions.

Kind regards,

Daniel Reddy
Director – Sertus

Attachments:
- Table 1: RFI Responses
- Stormwater Management Plan – Revision 05

Table 1: RFI Responses

4 (a) Flooding	(a) Floodplain, flood management and peak flows (i) Please provide the hydraulic flood assessment of the plan change precinct area to identify pre and post development floodplains and peak flood levels, and clarify how development within the plan change precinct area will be protected from flooding and whether such development will cause adverse flooding risks to downstream and upstream properties. (ii) Please provide calculations to show how pre and post development peak flow rates are determined for both 10% and 1% AEP storm events. (iii) Please include the appropriate climate change adjustments in the flooding calculations: •For the primary system (designed for a 10% AEP), a temperature increase of 2.1° must be applied. •For the secondary system (those systems designed for events over and up to a 1% AEP), a temperature increase of 3.8o must be applied. (iv) Please update the SMP to consider and discuss the 'Oruarangi Outlet' stormwater discharge option given detention/attenuation may not be required for this option. (v) Please update the SMP to show post development landforms and assess floodwater displacement (vi) When addressing further information items (4)(a)(i)-(v) above, please update Section 3.8 of the SMP and Table 1.9 to include associated summary statements, including in relation to management of 1% flooding.	I. Refer to attached Flood Report showing the pre-development flood plan. Flood levels and how the flood will be managed in a post development context is discussed. Note that post development flood mapping can only be undertaken once the final development layout and finished level arrangement is complete. II. Refer to Appendix F in the SMP that contains the flow modelling calculations and Section 10 that shows a summary of the findings & recommendations. III. We confirm that all flowrate calculations allow for adjustments for climate change. Please refer to Appendix F of the SMP for detailed flow modelling calculations. IV. We acknowledge that selecting the Oruarangi outlet removes the need for detention/attenuation. Considering both cost-effectiveness and practical considerations associated with constructing the outlet, the preference is to reduce the pipe diameter to make this option feasible. Hence implementing peak flow mitigation through the centralised

		stormwater basin will facilitate the use of a smaller outlet diameter. V. Note that post development flood mapping can only be undertaken once the final development layout and finished level arrangement is complete. Refer to the flood report contained in updated SMP. VI. Section 3.8 and Table 1.9 has been updated to reflect the amended treatment train approach.
4 (b) Montgomeri Outlet	(b) Montgomerie Outlet Please clarify whether the Montgomerie outlet will be replaced by an open channel as per the plan below, or whether it is planned to upgrade the existing 1200mm dia culvert and also clarify how the peak 1% AEP flow rate of 8.53m3/s will be conveyed to the open channel downstream	The existing Montgomerie Road outlet will be retained (confirmed as 1800Ø). This will be achieved by attenuating the 1% AEP flow rate to less than pre-development flows. Therefore, the development will achieve net neutrality, allowing the open channel downstream to function in line with the current condition. The centralised stormwater basin will have an outlet structure along with and energy dissipation device i.e. rip-rap which discharges into the existing stream within the site and subsequently into the Montgomery culvert.
4 (c) Piping of Creek	(c) Piping of creek/open channel As per the survey plans and shown below, it appears that there is an existing creek along the south-eastern boundary of the site.	The current creek will remain intact for the indicated section up to the road bend. However, the artificial channels originating from the north, specifically the Weddings discharge, will be

	Please clarify whether piping of the existing creek is intended as part of development proposed within the plan change area.	directed underground through piping. Additionally, a portion of the southeastern stretch will also be piped for a brief section, while the majority will be integrated into the basin
4 (d) Central Basin	(d) Central Basin (i) As the overall stormwater management strategy relies on the "Central Basin" to provide water quality, hydrology and attenuation functions, please provide further information and clarity regarding how this will work in practice and what stormwater devices will be incorporated into the "Central Basin" area. For example, is the "Central Basin" to be designed as a constructed wetland, dry pond, bioretention swale, "dry stream" or a combination of these devices? Note: The central basin area is variously referred to in the lodged plan change documents as a "stormwater pond", "stormwater basin", "central basin", or "flood storage wetland". Please pick a consistent terminology and update accordingly when providing the requested further information. (ii) When addressing further information item (4)(d)(i) above, please update Section 3.8 of the SMP and Table 1.9 to include associated summary statements.	The SMP has been updated to ensure consistency when referring to the centralised stormwater basin. Due to recent design developments, the centralised stormwater basin will not provide any water quality treatment. Treatment will be provided 100% at-source. The centralised stormwater basin is designed to provide hydrological and peak flow mitigation only. A portion of the retention volume will be retained at-source, depending on the operational reuse requirements of the specific lot. Section 3.8 and Table 1.9 have been updated accordingly.
4 (e) Water Quality	(e) Water quality (i) Please provide further information on the practical implications of implementing the SMP's proposition in Section 3.3 that 70% of the water quality management will be undertaken on each developed precinct site and adjoining roads, while 30% will be carried out within the proposed central basin, including consequential effects on the design and sizing of on-site stormwater devices i.e. does the SMP's proposition mean treating	I. Due to recent design developments, the design is moving away from the 70/30 split. The centralised stormwater basin will not provide any water quality treatment. II. Treatment will be provided 100% at-source. The centralised stormwater basin

	70% of the impervious area per site, and hardstand areas, while also sizing stormwater devices so they can treat 70% of the received flow? Note: clarifying this now will also prevent confusion during future resource consent stages and ensure successful realization of the intended SMP outcome, in addition to consequently incorporating the requested clarification within the proposed precinct provisions. (ii) As only Section 3.3.3 of the SMP makes reference to the bioretention swale, while other sections commonly refer to the central basin as the source of additional treatment, please provide further information on the expected water quality performance of the central stormwater basin, or clarify that a bio-retention swale is proposed as part of the basin which will provide the water quality mitigation. Please also confirm that the bio-retention swale would be designed in accordance with GD01 rather than being just a vegetated channel. (iii) As the description and definition of a 'high contaminant generating area' in section 3.3.2 of the SMP and Standard I1.6.6 (1) of the proposed precinct provisions does not align with the definition in Chapter J of the AUP, please provide further information which addresses this inconsistency and ensures consistency with the relevant AUP definition. Furthermore, as the SMP concludes that all hardstand areas (roads, car parks, yards) need water quality mitigation, not just 'high contaminant generating areas', please clarify what is proposed regarding water quality mitigation so the relevant measures can be effectively implemented with a sufficient degree of certainty.	is designed to provide hydrological and peak flow mitigation only. A portion of the retention volume will be retained at-source, depending on the operational reuse requirements of the specific lot. All devices to be designed in accordance with GD01. Please refer to Table 1.9 in the SMP outlining the design and compliance requirements. III. Section 3.3.2 has been updated to state "The carpark itself is likely to be designed for more than 30 vehicles" This aligns with the Chapter J definition for a high contaminant generating car park. Hardstand areas will be treated at-source though the use propriety stormwater devices i.e. stormwater filtration cartridges. IV. Section 3.8 and Table 1.9 have been updated to clarify the hydrological and water quality mitigation strategies.

	(iv) When addressing further information items (4)(e)(i)-(iii) above, please update Section 3.8 of the SMP and Table 1.9 to include associated summary statements, particularly in relation to managing the water quality of stormwater runoff. Table 1.9 should also clarify the reference to detention in bioretention devices which is not mentioned anywhere else in the SMP, unless this means within the central basin, which should be clarified as well is this is the case.	
4 (f) Hydrology	(f) Effects on streams and hydrology mitigation (i) As Section 3.2 of the SMP states that the plan change precinct area should implement hydrology mitigation equivalent to the SMAF requirements, please provide further information explaining the rationale for the plan change proposal's scope not including application of the SMAF overlay over the precinct area. (ii) Please provide further information clarifying the SMP's preferred option for discharging stormwater from the plan change precinct area, including any associated hydrology mitigation requirements for achieving stream protection, noting that the 'Oruarangi Outlet' option is unlikely to require such mitigation given it would discharge to the stream's tidal reaches.	I. The site is not located within a SMAF zone, however due to the nature of the receiving environment at the Montgomerie outlet (into an existing stream), hydrological mitigation is provided in accordance with Auckland Councils Network Discharge Consent. Refer to the ecologist and hydrogeological reports for further information.

4 (g) Mana Whenua	g) Mana Whenua engagement Please provide further information regarding how stormwater recommendations received from Mana Whenua were reflected and given effect to in the proposed precinct provisions and contents of the SMP, otherwise please update accordingly and submit the revised precincts and SMP contents with the requested further information to demonstrate achievement of this outcome.	Consultations with Mana Whenua resulted in recommendations to promote the use of a treatment train approach with a mixture of at-source and centralized devices. These comments were integral to the development of the proposed stormwater strategy that responds the existing landform and desired treatment train approach. Refer to planner for further comment on the Mana Whenua consultation process.
4 (h) Asset Ownership	(h) Future ownership and operation/maintenance requirements and applicability of Regionwide Network Discharge Consent (i) As the SMP specifies that all stormwater assets are designated as private, please confirm whether this encompasses all components, including those within roads and lots (both existing and proposed). (ii) With reference to SMP Section 3.10.2, please confirm whether the proposed scheme plan for the stormwater basin provides sufficient space for ongoing operation and maintenance requirements, including regular inspections, maintenance access/procedures and space for sediment drying to facilitate desilting. (iii) As the SMP specifies that all stormwater assets are designated as private, please update its contents to address whether the regionwide network discharge consent is applicable and any future resource consent requirements in accordance with AUP Chapter E8. (iv) When addressing further information items (4)(h)(i)-(iii) above, please update Section 3.8 of the SMP and Table 1.9 to provide associated summary statements, in addition to clarifying the reference to 'AT road corridor' and whether the proposed are intended to be public or private assets.	The ownership status (public or private) of the proposed stormwater assets has not been currently determined by the applicant. As the SMP states, they are currently designated as private. However, the stormwater management strategy and asset design will adopt public standards (Auckland Council SWCoP, Auckland Transport, GD01 and GD04), as such the infrastructure outcomes will be the same regardless of public/private status including operations/maintenance provisions. Subsequent SMPs corresponding with physical development of the site will address the public-private ownership of the stormwater assets as more detail on development specifics and layout is determined.

4 (i) Schematic Update	(i) Stormwater management system schematic (SMP – Appendix D) (i) Regarding the reference to stormwater runoff from carparks and other impervious surfaces being directed to bioretention devices proprietary devices, please update to ensure consistency with the SMP which instead refers to the use of the rest of proprietary devices for this purpose. (ii) Please also update to reflect stormwater management for the plan change precinct area which doesn't drain to the central basin.	Appendix D has been updated to reflect design direction (percentages of treatment, mitigation, etc.)
4 (j) Healthy Waters Project	(j) Healthy Waters project at Montgomerie Road as Healthy Waters is currently designing a stormwater improvement project (new water quality wetland) immediately adjacent to and downstream of the proposed Montgomerie Road outlets, confirmation is sought regarding how the plan change precinct proposal will be designed to integrate with this project in the future which will need to be informed by ongoing discussions with Healthy Waters.	The design team has requested a meeting with Healthy Waters to discuss the downstream stormwater improvement projects at the Montgomerie outlet. Note that the outflows from the development will achieve flow neutrality (match or achieve reduction from the pre-development baseline). As such adverse downstream impacts for the are not envisaged.