

Our Job Number: 230203
5 August 2023

Council Ref: DA2023/0995

Attn: Mr Adam Croft
Northern Beach Council
PO Box 82
Manly 1655 NSW

Dear Adam

RE: DEVELOPMENT APPLICATION 52-54 BRIGHTON STREET, FRESHWATER NSW STORMWATER MANAGEMENT RESPONSE

We refer to the Water Management Referral Response received on 2 August 2023. Please below for our additional response to the outstanding items in relation to the site drainage comments and in conjunction with our discussions with Mr David Hellot, the assessing Water Management Officer. This letter is to be read in conjunction with our previously submitted Stormwater Concept Design Statement dated 20 July 2023.

Below is Council response to the submitted information:

Reasons for referral

Council's Water Management Officers are required to consider the likely impacts.

Officer comments

Not supported

This application was assessed in consideration of but not limited to:

- *Supplied plans and reports;*
- *Relevant LEP and DCP clauses;*
- *Northern Beaches Water Management for Development Policy*

Council does not support the use of proprietary devices for pollutant removal if they do not achieve natural water cycle processes such as infiltration, evaporation or transpiration. Stormwater Cartridges as the sole water quality measure are not sufficient as they do not fulfill Councils WSUD objectives.

Consider incorporating WSUD elements onsite and investigate opportunities to place vegetated water quality system. Suggestions for WSUD optimisation includes, but is not limited to, incorporation of vegetated swale, tree pits, filter planter box, rain gardens or green roofs into design.

Additional information about WSUD can be found in the Northern Beaches Council Water Management for Development Policy and the WSUD & Music Modelling Guidelines.

The applicant is to submit a stormwater management strategy and plan based on a stormwater treatment chain.

Details of the rainwater tanks water demands used in the water quality model is required.

Below is our response to the items requested:

Based on our discussions with David Hellot, there are now five (5) designated Stormwater Quality

Improvement Devices (SQIDs) proposed. Please refer to the amended stormwater management plan for details. Plan number SW100 indicated the internal stormwater catchment plan proposed.

The following concerns have been addressed as follows:

1. **SQID1:** This is proposed to treat ground floor balcony runoff, surface runoff and runoff from SQID2 to SQID5. This system consists of the following treatment devices:
 - a. 1 x SPEL Stormsacks produced by SPEL or an equivalent approved device located within a 600 x 600 grated pit.
 - b. A 5m² area infiltration trench with a high-level overflow to Council stormwater network.
2. **SQID2 & SQID3:** Consists of two (2) raised planters located on the ground floor level that are now proposed to act as bio-retention treatment devices. The total combined area of these planters is approximately 33m³. These are proposed to treat upper-level balcony and planter runoff plus any roof areas not directed to the rainwater harvesting system.
3. **SQID4:** Consists of 1 x SPEL Stormsacks produced by SPEL or an equivalent approved device located within a 450 x 450 grated pit located in the basement to treat driveway runoff.
4. **SQID5:** A rainwater harvesting tank system to treat 659m² of roof runoff. The proposed volume has been increased from 10,000L to 15,000L. This is to be provided within a series of slimline rainwater tanks. The overflow is directed to SQID1. It should be noted that the roofwater is also proposed to be treated via a first flush system which is not reflected in the MUSIC model.
 - a. An irrigation reuse rate of 0.4kL/m²/yr and 0.1kL/apartment/day toilet reuse has been applied (see Figure 1.0 below).

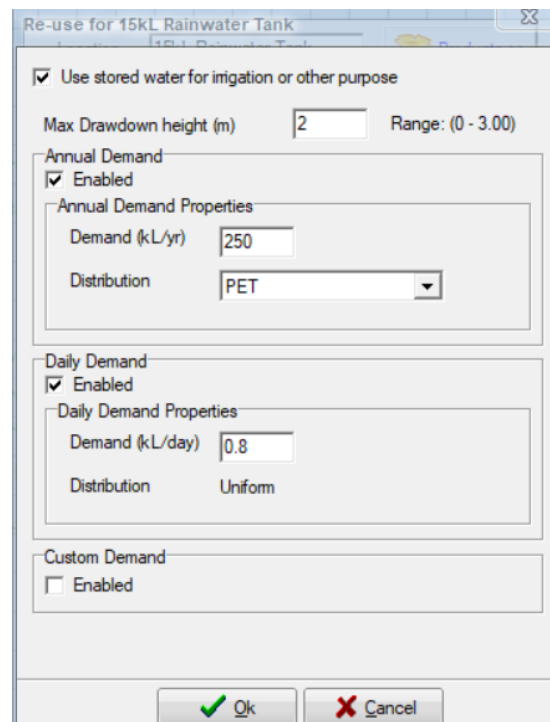


Figure 1.0 – Rainwater Tank Reuse Demands

Please refer to Figures 2.0 and 3.0 indicating the updated MUSIC model summary reflecting the amended stormwater management strategy and stormwater treatment chain. The proposed stormwater treatment chain meets the Council target removal requirements. A copy of the amended MUSIC model has been provided with this letter.

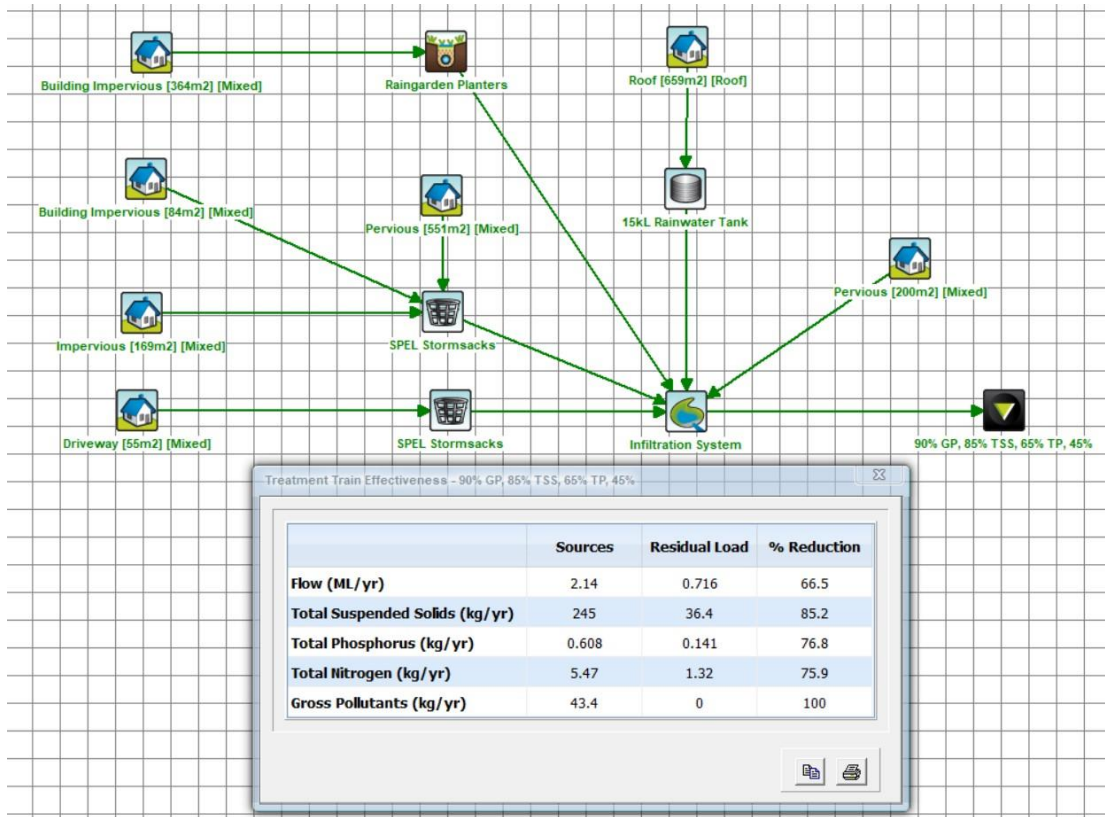


Figure 2.0 – Stormwater Management Strategy and Stormwater Treatment Chain MUSIC Model Results

ONSITE DRAINAGE CALCULATIONS – NORTHERN BEACHES COUNCIL WATER MANAGEMENT POLICY (2021)		
LOT A SITE AREA	1,037 m ²	
LOT 38 SITE AREA	1,016 m ²	
TOTAL SITE AREA	2,053 m ² > 1,000 m ²	
PRE-DEVELOPED IMPERVIOUS AREA	860 m ² (42 %)	
POST-DEVELOPED IMPERVIOUS AREA	1317 m ² (64 %)	
IS PROPERTY FLOOD AFFECTED?	YES	
AS THE DEVELOPMENT SITE IS IMPACTED BY OVERLAND FLOWS AND LOCATED IN CLOSE PROXIMITY TO DOWNSTREAM FLOODING, THE DEVELOPMENT SHOULD BE ONSITE STORMWATER DETENTION (OSD) IS EXEMPT. THIS HAS BEEN CONFIRMED AS AN ACCEPTABLE APPROACH IN PRINCIPLE ACCORDING TO COUNCIL ENGINEERS.		
WATER SENSITIVE URBAN DESIGN TO NORTHERN BEACHES COUNCIL: WSUD & MUSIC MODELLING GUIDELINES		
WSUD MUSIC SUMMARY	% REDUCTION	TARGET
TOTAL SUSPENDED SOLIDS (TSS)	90 %	85 %
TOTAL PHOSPHOROUS (TP)	83 %	65 %
TOTAL NITROGEN (TN)	80 %	45 %
GROSS POLLUTANTS (GP)	100 %	90 %

Figure 3.0 – Stormwater Aunty and Quality Calculation Summary

Should Council require a Stormwater Maintenance Plan, this could be conditioned into the approval to form part of the Construction Certificate and/or Occupation Certificate requirements.

We trust that this letter and corresponding documentation meets the requirements set by Council. We recommend this development for approval. Please contact the author if further clarification is required on 0448 448 960 or via email at rhys@rtscivil.com.au.

Yours sincerely

RTS CIVIL CONSULTING ENGINEERS PTY LTD



Rhys Mikhail

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