

Our Job Number: 220502
15 June 2023

Council Ref: DA2023/0185 & DA2021/1469

The Assessing Officer
Northern Beaches Council
PO Box 82 Manly, NSW 1655

c/- Stafford Architecture

STORMWATER MANAGEMENT REQUIREMENTS

RE: STORMWATER MANAGEMENT FOR THE PROPOSED AMENDMENTS TO THE APPROVED OUTBUILDING, PROPOSED NEW SWIMMING POOL AND ASSOCIATED LANDSCAPING WORKS

AT 23-25 LOCH STREET, FRESHWATER NSW

Thank you for your review as outlined in the information request dated 26 May 2023. Please refer to our stormwater plan and below for our response to the outstanding items in relation to the site drainage comments.

At the request of Darren Holland, RTS Civil Consulting Engineers Pty Ltd was engaged to prepare a stormwater management plan for the proposed new Dwelling at 23 Loch Street, Freshwater. The stormwater management plans are referenced below:

- SW001A - COVER PAGE, NOTES & CALCULATIONS
- SW100A - CONCEPTUAL STORMWATER MANAGEMENT PLAN
- SW101A - GROUND STORMWATER MANAGEMENT PLAN
- SW102A - LOWER GROUND & FIRST FLOOR STORMWATER MANAGEMENT PLAN
- SW103A - ROOF STORMWATER MANAGEMENT PLAN
- SW200A - STORMWATER DRAINAGE DETAILS SHEET 1 OF 3
- SW201A - STORMWATER DRAINAGE DETAILS SHEET 2 OF 3
- SW202A - STORMWATER DRAINAGE DETAILS SHEET 3 OF 3

The designed stormwater management plans (referenced above) are in general accordance with the intent of the Building Code of Australia, Australian Standards AS3500.3 – Stormwater Drainage, the National Construction Code, Australian Rainfall & Runoff, and Northern Beaches Council Water Management Policy (2020). The proposed concept has been peer reviewed by Taylor Consulting who also has extensive experience with stormwater management requirements in the local area.

Given the complexity of the site constraints and site topography, as well as receiving written easement refusal from all adjacent property owners except for 12 Ellen Avenue property owner who has agreed to an easement, we strongly recommend Council support and approve the

proposed stormwater management concept plan. Below is a summary of the stormwater requirements and recommendations.

Existing Site Conditions

1. The subject site is described as Lot 7 DP14040 & Lot 10 DP1257419, 23 & 25 Loch Street, Freshwater. Site levels range from approximately RL 47.9 AHD at Loch Street grading to the rear of the site at RL 38.6m AHD.
2. The total combined site area is approximately 1,383m² (23 Loch Street = 633m² and 25 Loch Street = 750m²). The total existing site contains two dwellings, a shed, a swimming pool and concrete driveways from Loch Street. The site is located to the eastern side of Loch Street, near the junction of Loch Street, Wyadra Avenue and Batho Street.
3. There is a large rock outcrop escarpment located at the rear of the properties along Loch Street. This escarpment provides very difficult site constraints in relation to gravity piped drainage solutions.
4. The existing drainage system for 23 Loch Street consists of the roof area and some of the hardstand areas being directed to Loch Street kerb and gutter. The remaining site areas are directed to the rear yard and runoff as sheet flow into the lower properties.
5. The existing drainage system for 25 Loch Street is currently directed to the rear yard and is assumed to runoff as sheet flow into the lower properties.

Proposed Development

6. The proposed development consists of a boundary realignment, proposed alterations to 23 Loch Street dwelling, a new swimming pool and pool house.
7. The proposed stormwater management concept plan for the development aims to maintain the existing drainage regime.
 - a. 23 Loch Street: Disconnect existing kerb connection and connect to Ellen Street via new gravity easement pipeline. Provide OSD system in general accordance with Council requirements.
 - b. 25 Loch Street: Redirect roof runoff to Loch Street via a new 600x600 grated boundary pit.

Previous Development Approval (DA2021/1469)

8. The Council approved stormwater management plans prepared by ITM Design (H-DA-00, H-DA-01 & H-DA-02 dated 13.07.2021) formed part of the Development Application approval, Development Consent No. DA2021/1469. The OSD system has been redesigned to accommodate the proposed alterations and additions proposed under DA2023/0185.
9. As previously noted, the previous 2021 approval excluded the on-site stormwater dispersal trench and incorporated a Deferred Commencement Condition (Condition no.1 - DA2021/1469 – “Stormwater Drainage Easements Downstream Properties”).
10. The DA2021/1469 Deferred Commencement Condition requires a stormwater drainage easement benefiting the development be obtained through a downstream property, conveying stormwater to Ellen Street drainage system.

Current Easement Conditions

11. We have been informed that written refusal was received for a drainage easement from all adjacent property owners except for the property owners of 12 Ellen Street and 19 Loch Street, Freshwater who have granted approval for the development to benefit from the existing drainage easement.
12. The property owners of 12 Ellen Street, Freshwater are currently burdened by an existing inter-allotment drainage easement and 100mm uPVC pipeline conveying stormwater to Ellen Street. The existing easement benefits 19 Loch Street, Freshwater.
 - a. The property owners of 12 Ellen Street, Freshwater have engaged an independent consulting stormwater / civil engineer (Taylor Consulting) to assess the existing easement conditions and the proposed concept stormwater management plan.
 - b. Ben Thatcher (Taylor Consulting) and Rhys Mikhail (RTS Civil) have met together onsite to review the existing site drainage and easement conditions. James Leigh and other Taylor Consulting engineers have also reviewed the proposed plans and corresponding DRAINS model.
 - c. Both RTS Civil and Taylor Consulting engineers are supportive of the proposed stormwater management concept plan.
13. Please refer to attached correspondence with Council engineers agreeing with the proposed stormwater concept in principle. Taylor Consulting however recommended the existing 100mm easement pipeline not be utilised for the development and that a new 100mm uPVC easement pipeline be provided within the existing easement, adjacent to the existing pipeline.
14. Inspection openings are to be provided at vertical drops and other locations that may require inspecting. Future details for Construction Certificate will be provided subject to further supply of easement alignment levels.
15. It is therefore not proposed to upgrade the existing pipeline due to the excessive amount of excavation works required to facilitate a 150mm or larger pipeline. Further to this, although the existing easement pipe appears to be functioning sufficiently, Taylor Consulting expressed concern in relation to the uncertainty of the integrity of the existing pipeline.

Onsite Stormwater Detention (OSD) Requirements

16. Onsite stormwater detention (OSD) is required according to Section 9.3.2 Council's Water Management Policy (2020) for region 2.
 - a. The OSD volume required by Council for the development according to Table 8 of Council's Water Management Policy is 17,700L for the developed site area.
 - b. The Permissible Site Discharge (PSD) required by Council for the developed site area is 35.4L/s according to Table 8 of Council's Water Management Policy. Council engineers (refer Council correspondence) recommended a lesser OSD discharge rate however this was based on utilising the existing easement pipeline. As a new pipeline is proposed this restriction is no longer recommended.
 - c. The DRAINS model indicates that a minimum OSD volume of 11,600L is required to

achieve Council's PSD rate for the total development. The maximum kerb discharge is 25L/s which has been achieved with a small amount of rear yard runoff discharging over the escarpment as sheet flow bypassing the OSD system.

- d. Figure 1.0 of this report considers a summary of the hydrologic and hydraulic calculations. Calculations indicate that the Council required PSD is achieved for the proposed development. It can be seen from the DRAINS model that the Council required volume exceeds the minimum OSD requirements. Therefore, it is proposed to adopt the DRAINS model results of 11,600L.

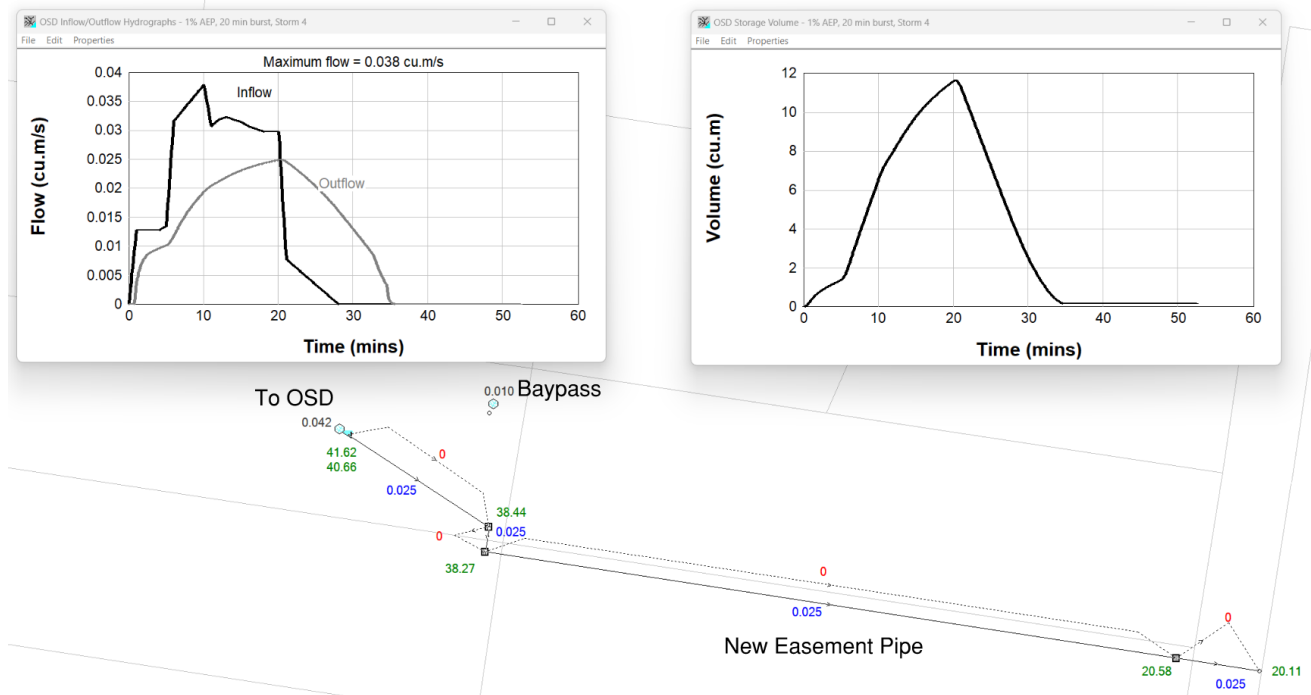


Figure 1.0 - Calculation Summary of the Development DRAINS Model

- e. The OSD is proposed to be contained in a belowground cast insitu concrete tank located adjacent to the pool structure.
- f. The OSD outlet pipe is proposed to be directed to Ellen Street via the new easement pipeline and grated boundary junction pit fronting 12 Ellen Street.

Onsite Rainwater Harvesting Requirements

17. Although there is no Council rainwater harvesting requirement, the development is required by BASIX to provide a minimum of 5,239L of rainwater harvesting. This is proposed to be located on the within the same structure as the OSD tank.
 - a. The rainwater tank shall provide for the development to service outdoor irrigation and toilet flushing in accordance with the requirements of the BASIX certificate, Sydney Water and AS3500.3.
 - b. The tank is to be installed in accordance with HB 230-2008 Rainwater Tank Design and Installation Handbook of Australia.
 - c. The rainwater tank is to overflow into the OSD tank.

We trust that this letter and corresponding documentation meets the requirements set by Northern Beaches Council. Again, we strongly recommend Council support and approve the proposed stormwater management concept plan especially considering the proposed concept has been peer reviewed by Taylor Consulting who also has extensive experience with stormwater management requirements in the local area.

Please contact the author if further clarification is required (or if the DRAINS files are required) on 0448 448 960 or via email at rhys@rtscivil.com.au.

Yours sincerely

RTS CIVIL CONSULTING ENGINEERS PTY LTD



Rhys Mikhail

Director | Principal Engineer | Design Practitioner
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From: Robert Barbuto <Robert.Barbuto@northernbeaches.nsw.gov.au>
Sent: Thursday, 18 August 2022 3:31 PM
To: Rhys Mikhail; Joseph Di Cristo
Subject: RE: 23 Loch Street, Freshwater (DA2021/1469)

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Hi Rhys please see my comments below:

- 1) The consent has the following deferred commencement condition

Stormwater Drainage Easements Downstream Properties

As the natural fall of the land is towards the rear of the site the disposal of stormwater drainage is to be through the downstream properties to the Ellen Street drainage system. The inter allotment stormwater drainage easements are to be created under Sections 88B and/or 88K of the Conveyancing Act 1919. The applicant must provide Council with evidence of the created easement on title in order to activate the consent.

Additionally Stormwater drainage plans are to be submitted to Council for written approval detailing the provision of On Site Stormwater Detention and the disposal of stormwater through the downstream easements for connection to the Ellen Street stormwater drainage system in accordance with Council's Water Management Policy.

Your option one is the preferred option subject to the following as discussed today:

- 1) The existing stormwater line within the easement(12 Ellen street) is to be upsized to either a 150mm or 225mm stormwater line depending on your calculations assuming all OSD systems are fully blocked .
- 2) If the existing 100mm stormwater line cannot be upsized then any overflows from the OSD tanks (19 and 23 Loch) be directed to the existing easement running through 12 Ellen street. Evidence is to be provided that these surcharging flows are kept within the easement and discharged to Ellen street. Evidence to be provided in terms of calculations that the overland flow will not flood downstream buildings. HEC Ras may be used.
- 3) The discharge for the OSD tank (23 Loch street) be limited to 5l/s therefore reducing sheet flow discharge to 11L/s.
- 4) A gutter capacity check be carried out in Loch street to identify that no street water enters low level properties via driveways entry points .

Kind regards,

Robert Barbuto

Principal Engineer - Major Developments

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