STORMWATER MANAGEMENT REPORT

Alterations & Additions to an Existing Residence at
1 James Wheeler Place
Wheeler Heights, NSW, 2097

Prepared by:
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Proposed Use:	Residential
Address:	1 James Wheeler Place, Wheeler Heights NSW 2097
Lot No:	Lot 28 / DP 262862
Area:	4295m²
Street Frontage:	107.8m
Zoning:	R2 – Low Density Residential
Permissibility:	Dwelling houses permitted with consent

1. INTRODUCTION

This report has been prepared to accompany a development application for alterations and additions to an existing residential dwelling located at 1 James Wheeler Place, Wheeler Heights.

This stormwater report has been prepared in accordance with the Northern Beaches Council's Water Management for Development Policy (2021/154368). The report addresses relevant provisions for single residential development involving an increase in impervious area greater than 50m², and development located within 40 metres of a waterbody, as identified in Tables 1 and 2 of the Policy.

Based on Appendix 16 of the Policy, for alterations and additions to an existing dwelling in Region 2, on-site detention (OSD) is not required.

The proposed development includes:

- Alterations and additions to the existing dwelling
- Repurposing the existing swimming pool into a 60,000L underground rainwater tank
- Installation of a new swimming pool in a separate location
- Reworking soft and hard landscaping to reduce the extent of the existing driveway
- Collection of roofwater from the dwelling and garage, and pavement water from the driveway, hardstand and terraces into the new tank
- Construction of a new tennis pavilion and associated gym space with a roof area of 100 m²

This report outlines the approach to stormwater management for the site, including drainage, reuse, erosion control, and compliance with Council's policy objectives to minimise adverse environmental impacts.

2. SITE DESCRIPTION

The site is located at 1 James Wheeler Place, Wheeler Heights, a residential property within the Northern Beaches Council local government area. The property has an existing dwelling and a swimming pool. The site is within 40 metres of a waterbody.

The lot has an area of 4295 square metres. The current impervious cover on the site is 1943 m², which includes 580 m² of roof area, 380 m² of driveway and hardstand, a 700 m² tennis court, and sundry pathways and terraces.

The site is divided into two primary stormwater catchments based on existing topography and drainage patterns. The first catchment drains towards the street and comprises existing roofwater runoff and landscaping on the portion of the lot that falls to the street. The second catchment, approximately 2100 m² of the total lot area, drains away from the street. This catchment currently includes the tennis court, a portion of the driveway and hardstand, and landscaping within that area of the lot.

2.1. Existing Stormwater Conditions

- **Roofwater:** Currently drains directly to the street via surface and pipe flow.
- **Driveway and tennis court runoff:** The tennis court currently drains to the adjoining public land. Existing drainage grates and an associated pipe exist along one edge of the tennis court and exit into a shallow trench on the lot, which then discharges to the neighbour. The driveway currently includes a trench drain and pit. From this pit, a 150 mm diameter pipe takes the stormwater to the shallow trench associated with the tennis court drainage.
- No formal detention or stormwater quality treatment infrastructure is present on-site.
- The existing impervious area includes the dwelling, tennis court, swimming pool and driveway.

3. PROPOSED DEVELOPMENT

The proposed development involves alterations and additions to the existing dwelling. Key changes include:

- Conversion of the existing swimming pool into a 60,000L underground rainwater tank for water reuse.
- Installation of a new swimming pool in a separate location.
- Modifications to hard and soft landscaping, including a reduction in the existing driveway's impervious area.
- Construction of a new tennis pavilion and associated gym space with a roof area of 100 m².

Implications for Stormwater Catchments:

- **Rainwater Tank:** The main house roof water (700 m²) as well as runoff from selected portions of the driveway and hardstand(265m²), and the new pool terrace, will be collected and directed into the new 60,000L rainwater tank. Overflow from this tank will then contribute to the street-draining catchment.
- **Tennis Pavilion and Gym:** Roofwater from the new tennis pavilion and gym (100 m²) will not be directed into the tank and will also contribute to the street-draining catchment.
- **Tennis court runoff:** The proposal is to leave the tennis court drainage as is. The 150 mm pipe and pit associated with the existing driveway drainage will be removed. Stormwater runoff from the driveway will now be directed into the rainwater tank, any overflow will drain overland through landscaping and dispersal areas before eventually exiting downstream to neighbouring public land.

The proposed impervious cover on the site will be 2240 m². This includes 700 m² of roof area discharging to the water tank (from the dwelling and garage), 265 m² of driveway and hardstand, the existing 700 m² tennis court, and the new 100 m² roof area of the tennis pavilion and gym space.

4. STORMWATER MANAGEMENT

4.1. Stormwater Quality

To address stormwater quality objectives, the proposed 60,000L rainwater tank will serve as a primary treatment device. This large volume will allow for significant pollutant reduction through sedimentation and retention. The tank will be designed to meet the requirements of Section 4.1.1 of the Policy, given the increase in impervious area is greater than 50m². The rainwater tank will also incorporate a first-flush device on its inlet, designed to appropriate standards, to further improve water quality by diverting initial contaminated runoff from the roof, driveway, hardstand, and pool terrace. Adequate maintenance access will be provided for the tank and its components.

4.2. Stormwater Quantity

Based on Appendix 16 of the Northern Beaches Council's Water Management for Development Policy (2021), for alterations and additions to an existing dwelling in Region 2, on-site detention (OSD) is not required. Therefore, the primary focus for stormwater quantity management will be on minimising overland flow.

4.3. Water Conservation (Rainwater Reuse)

The 60,000L rainwater tank will facilitate significant water conservation through rainwater reuse. The collected roofwater from the dwelling and garage, along with runoff from the driveway, hardstand, and pool terrace, will be plumbed for non-potable uses such as garden irrigation and pool top-up, thereby reducing reliance on potable water supply in accordance with Section 7 of the Policy.

4.4. Disposal of Stormwater

Currently, stormwater from the driveway and hardstand is collected in a pit, passes through a 150 mm diameter pipe, combines with stormwater runoff from the tennis court, and exits the property to adjacent public land via a shallow trench within the lot. This existing discharge system was created and approved by relevant authorities concurrently with the construction of the tennis court and associated drainage, and is thus considered a lawful existing drainage system under Section 5.5.1.2.1 (a) of the Policy.

Under the proposed changes, stormwater from the catchment draining to the street, including the rainwater tank overflow, landscaping, and roofwater from the new tennis pavilion and gym, will be directed via gravity discharge to the street drainage system. The proposed changes to the driveway and landscaping will reduce the size of the driveway. A significant portion of stormwater from the driveway and hardstand, and the pool terrace will be

directed to the rainwater tank. Any overflow from these areas will be filtered through the landscaping as overland flow/dispersal. This vegetated filtration process, consistent with Water Sensitive Urban Design (WSUD) principles outlined in the Policy, helps to remove pollutants and reduce flow velocities before stormwater exits the property. The stormwater management for the tennis court will remain unchanged, continuing to drain away from the street as per the existing conditions. Overland flow from both catchments will be minimised and managed to ensure controlled release and prevent adverse impacts on adjacent properties, in line with Section 5 of the Policy.

4.5. Within 40m of Waterbody

Given the site's proximity to a waterbody (within 40m), particular attention has been paid to managing overland flow and ensuring controlled release of stormwater. The design ensures no direct discharge to the waterbody. Stormwater from the catchment draining to the street is directed to the street, while stormwater from the catchment draining away from the street discharges to adjacent public land via a lawful, existing approved system, consistent with Section 5.5.1.2.1 of the Policy. All flows are managed to prevent adverse impacts on downstream properties and waterways.

5. EROSION AND POLLUTION CONTROLS

Temporary erosion and sediment controls will be installed during construction in accordance with Section 4.3 of the Policy. An **Erosion and Sediment Control Plan (ESCP)** will be provided with the DA submission.

6. POLICY COMPLIANCE SUMMARY

Requirement	Compliance Strategy
Section 3 – General Requirements	Works designed to AusSpec, appropriate codes, local standards and specifications
Section 4.1 – Stormwater Quality	Rainwater tank captures runoff from roofs, driveway, hardstand and terraces. Filtration device installed per Section 4.1.1 (increase >50m² impervious area)
Section 5 – Disposal of Stormwater	Gravity discharge to street, minimised overland flow
Section 7 – Water Conservation	60,000L reuse system installed
Within 40m of Waterbody	Overland flow managed, controlled release, no direct discharge

7. CONCLUSION

The proposed alterations and additions at 1 James Wheeler Place implement effective yet minimal stormwater infrastructure. The inclusion of a rainwater tank with reuse capacity, incorporating runoff from roofs, driveway, hardstand, and pool terrace, addresses stormwater quality and water conservation objectives. The development responds to the increase in impervious area greater than 50m² by including appropriate treatment devices and flow control, in accordance with Northern Beaches Council's Water Management for Development Policy (2021). As per Appendix 16 of the Policy, on-site detention is not required for this type of development in Region 2. The existing lawful discharge to public land will be de-emphasised through site redesign and landscaping improvements to reduce reliance on this flow path.

Appendix 16 – On-site Detention Checklist

This checklist is to be used to determine the on-site stormwater disposal requirement for developments and must be completed and included with the submission of any development application for these works. Please read this form carefully for its notes, guidelines, definition and relevant policies.

For assistance and support, please contact Council's Development Engineering and Certification team on 1300 434 434.

Part 1 Location of the Property			
House Humber	1	Legal Property Description	
Street	James Wheeler Place	Lot	28
Suburb	Wheeler Heights	Section	
Postcode	2097	DP	262862

Part 2 Site Details			
Northern Beaches Stormwater Regions (refer to Map 2 of Northern Beaches Council's Water Management for Development policy)	2	Total Site Area	4295
Pre-Development Impervious Area	1943	Post-Development Impervious Area	2240
Is the site of the development located within an established Flood Prone Land as referred to Council's Local Environmental Plans? If yes, On-site stormwater Detention system (OSD) is not required and please proceed to part 5 of this checklist If no, please proceed to part 3 of this checklist.			Yes ☐ No ☑

Part 3: Northern Beaches Stormwater Regions (refer to Map 2 of Northern Beaches Council's Water Management for Development policy)
If the site of the development located within Region 1, please proceed to the part 4.1 of this checklist
If the site of the development located within Region 2, please proceed to the part 4.2 of this checklist
If the site of the development located within Region 3, please proceed to the part 4.3 of this checklist
If the site of the development located within Region 4, please refer to Council's Warriewood Valley Water Management Specification.

Part 4 Determination of OSD Requirements

Part 4.1 Northern Beaches Stormwater Region 1	
Is the additional impervious area of the development more than 50 m^2 on a cumulative basis since February 1996?	Yes ☐ No ☐
If yes, OSD is required and please refer to section 9.3.1 of Council's Water Management for Development Policy If no, OSD is not required and please proceed to the part 5 of this checklist	

Part 4.2 Northern Beaches Stormwater Region 2	
Part 4.2.1 Description of Work	
Residential flat building, commercial, industrial, multiple occupancy development and subdivisions resulting in the creation of three lots or more, will require OSD in all case. Please provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. Any single residential building development, please proceed to part 4.2.2 of this checklist.	
Part 4.2.2 Exemption	
Is the site area less than 450m^2?	Yes ☐ No ☑
Does the site of the development drain directly to the ocean without the need to pass through a drainage control structure such as pipe, bridge, culvert, kerb and gutter or natural drainage system?	Yes ☐ No ☑
Is it an alternation and addition development to the existing dwellings?	Yes ☑ No ☐
If yes to any of the above questions, OSD is not required. If no to all the above questions, proceed to part 4.2.3	
Part 4.2.3 Determination of OSD Requirements	
Calculation	a) Site area m^2 x 0.40 (40%) = ... m^2 b) Post- development impervious area = ... m^2 **OSD will not be required when (a) is greater than (b)** Is OSD required for this development (tick one only) Yes ☐ No ☐ If yes, provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5 of this checklist.

Part 4.3 Northern Beaches Stormwater Region 3	
Part 4.3.1 Stormwater Zone	
In the region, the method of stormwater control to be applied shall depend on the location of the site. Please refer to Map 3 of Northern Beaches Council's Water Management for Development policy.	
If the site of the development located within stormwater zone 1, please proceed to the part 4.3.2 of this checklist	
If the site of the development located within stormwater zone 2, please provide a design in accordance with the section 9.3.3.3 of Council's Water Management for Development Policy.	
If the site of the development located within stormwater zone 3, please provide a design in accordance with the section 9.3.3.4 of Council's Water Management for Development Policy.	
If the site of the development located within stormwater zone 4, please provide a design in accordance with the section 9.3.3.5 of Council's Water Management for Development Policy.	
Part 4.3.2 Determination of OSD requirements in Stormwater Zone 1	
Part 4.3.2.1 For A New Building	
1) Exemption	a) Is the site area less than 400? Yes ☐ No ☐ b) Is the post-development impervious area less than 190 m^2? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, please process to calculation
2) Calculation	a) Site area _____m^2 x 0.35 = _____m^2 + 50 = _____m^2 b) Post- development impervious area _____m^2 OSD will not be required when (b) is less than 250 m^2 and (a) is greater than (b) Is OSD required for this development? Yes ☐ No ☐ If yes, provide a design in accordance with the section 9.3.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5.
Part 4.3.2.2 For Alterations and Additions	
If the current impervious area of the site is more than 60% of the site area, OSD will be required. Alternatively, please proceed to the next calculation section.	
1) Calculation	Is the post development impervious area increased by less than 50 m^2? Yes ☐ No ☐ Is the post development impervious area less than 60% of the site area? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, provide a design in accordance with section 9.3.3.2 of Council's Water Management for Development Policy

Part 5 Disposal of Stormwater
Does the site fall naturally towards the street? Yes ☑ No ☑ If yes, provide a design in accordance with section 5.1 of Council's Water Management for Development Policy. If no, provide a design in accordance with section 5.5 of Council's Water Management for Development Policy.

Definitions	
Designed to help you fill out this application	**Site area:** This refers to the area of the land bounded by its existing or proposed boundaries. **Impervious area:** This refers to driveways, parking spaces, pathways, paved areas, hardstand areas, roofed areas, garages and outbuildings. **Pre Development Impervious area**: This refers all impervious areas of the site before the development. **Post Development Impervious areas**: This refers all the impervious areas within the site after the development is completed.