

Engineering Referral Response

Application Number:	DA2021/1801
Date:	13/04/2022
To:	Nick Keeler
Land to be developed (Address):	Lot 23 DP 23447 , 55 Woolgoolga Street NORTH BALGOWLAH NSW 2093

Reasons for referral

This application seeks consent for the following:

- New Dwellings or
- Applications that require OSD where additional impervious area exceeds 50m² or
- Alterations to existing or new driveways or
- Where proposals affect or are adjacent to Council drainage infrastructure incl. watercourses and drainage channels or
- Torrens, Stratum and Community Title Subdivisions or
- All new Commercial and Industrial and RFB Development with the exception of signage or
- Works/uses in flood affected areas

And as such, Council's development engineers are required to consider the likely impacts on drainage regimes.

Officer comments

Supported, subject to conditions

The proposal is for the construction of a new dwelling including the relocation of the vehicular crossing and new access stairs.

Stormwater

The site falls to the rear and as such the stormwater disposal shall be in accordance with Clause 5.5 of Council's Water Management for Development Policy. All stages of the policy are to be addressed. Where an easement is not viable, evidence of refusal of easement shall be provided

The submitted stormwater plan with the proposed absorption system is unsatisfactory. The calculations assumes an absorption area of 41.5m² but on the plan only two trenches are shown with approximately 5.5m² of absorption area. Where multiple trenches are proposed they should be connected.

Based on the infiltration rate provided in the geotechnical report by Geo -Environmental Engineers dated 9/8/2021 and calculation shown on the stormwater plans peak flow has not been reached and the proposed volume is not sufficient. Where infiltration is proposed, particularly with a low infiltration rate, the calculations are to be carried out until convergence is reached. The calculation up to 120mins not sufficient as the volume is still increasing. The absorption system shall be designed in accordance with Appendix 3.

If an absorption system is not feasible due to the volume required then an alternate design should be considered such as a level spreader designed in accordance with Appendix 4.

Additional information required for assessment is as follows:

1. Evidence of Easement refusal.
2. Amended design for the absorption system providing adequate volume. Calculations are to be provided.
3. Where absorption is not achievable, an alternate design for the stormwater discharge in accordance with Clause 5.5.

Access

The proposal includes a new driveway that appears to be steep. The profile exceeds the maximum grade of 1 in 4. The Applicant shall provide a long-section at both edges of the proposed access driveway to the proposed garage and demonstrate compliance with AS2890. The driveway shall incorporate one of Council's standard vehicle crossing profiles.

Note to planner: The proposal includes a new access stairs in the road reserve and will require concurrence from the Road Asses team.

Additional Information Provided on 11/2/2021

The amended plans submitted have been reviewed.

Stormwater

The amended stormwater plan proposes to discharge to a level spreader via an OSD system. The OSD system proposed uses AUSTDRAIN 'Enviromodules'. Underground OSD systems require access for maintenance and as such Enviromodules are not supported. An alternate OSD system shall be provided in accordance with Council's Water Management for Development Policy.

Based on review of calculations the pre-developed state of nature flows is stated as 32l/s. However that is too high in considering this particular site area. Furthermore it is unclear if the bypass area of 240m² has been included in the discharge calculations. The plans are to be amended to clearly show discharge flows from level spreader as well as bypass areas. As per Appendix 4 the post developed total site discharge, including bypass flows and controlled flows through the level spreader, must not exceed the 20% AEP state of nature storm event.

Additionally an easement refusal letter has not been provided. In accordance with Water Management for Development Policy, Council requires either a written evidence of easement refusal by the rear neighbour or a statutory declaration from the applicant. Further information can be found in the above policy.

Additional Information Provided on 28/2/2022

A Statutory Declaration has been provided by the applicant detailing the discussion for the easement. Additionally it is noted that email correspondence has occurred between the applicant and the downstream neighbour regarding easement design and independent valuations etc. However the applicant's engineering consultant does not support the easement due to the site constraints. An email from the consultant has been provided to Council detailing the difficulty in the easement installation.

In this regard the applicant is proposing a level spreader design which significantly reduces the discharge rate from the subject site to the downstream property. As such Development Engineering have no objections to approval subject to conditions as recommended.

Review 13/4/2022

The level spreader design significantly reduces the discharge rate from the subject site to the downstream property from existing conditions. In the existing conditions the total 312m² of impervious area (hard surface) is discharging to the rear of the property without any visible any control. In the proposed level spreader design the discharge from the majority of the 526m² of impervious area is controlled by a 40m³ OSD system. This reduces the discharge to the rear from 52l/s to 26l/s in the 1% AEP event in accordance with the submitted plan. The level spreader design significantly reduces the discharge rate from the subject site to the downstream property from existing conditions and complies with the Council's policies. Development Engineering have no objections to approval subject to conditions as recommended.

The proposal is therefore supported.

Note: Should you have any concerns with the referral comments above, please discuss these with the Responsible Officer.

Recommended Engineering Conditions:

CONDITIONS TO BE SATISFIED PRIOR TO THE ISSUE OF THE CONSTRUCTION CERTIFICATE

Traffic Management and Control

The Applicant is to submit an application for Traffic Management Plan to Council for approval prior to issue of the Construction Certificate. The Traffic Management Plan shall be prepared to RMS standards by an appropriately certified person.

Reason: To ensure appropriate measures have been considered for site access, storage and the operation of the site during all phases of the construction process.

Certification and Design of Elevated Parking Facility Work

The Applicant shall submit a Structural Engineers' design and certificate certifying that the elevated parking facility is designed in accordance within this development consent and the provisions of Australian/New Zealand Standard AS/NZS 2890.1:2004 parking facilities - Off-street car parking, in

particular Section 2.4.5 Physical controls.

Details demonstrating compliance are to be submitted to the Certifying Authority prior to the issue of the Construction Certificate.

Reason: Safety and Compliance with this consent.

On-site Stormwater Disposal Details

The Applicant is to provide a detailed drainage design and certification detailing the provision of an on-site stormwater detention (OSD) system in accordance with Clause 9.3.2 of Northern Beaches Council's Water Management for Development Policy.

The detailed plan must demonstrate the proposed OSD system is discharged to the downstream Council street kerb via an easement through a downstream private property, including evidence of the creation of the easement.

If the applicant is unable to form a reasonable agreement of an easement with the owners' of the downstream property(s), an onsite stormwater disposal system (level spreader) shall be designed in accordance with Appendix 4 of Council's Water Management for Development Policy and generally in accordance with the concept drainage plans prepared by ACOR Consultants, project number CC210510, drawing number C1 to C8, dated 24/2/2022.

The drainage plan for the level spreader must address the following:

- i. Level spreader design shall be in accordance with Appendix 4
- ii. Total site discharge including bypass flows and controlled flows through the level spreader must not exceed the 20% AEP state of nature storm event.
- iii. The level spreader should not be located within three meters of the side or rear boundary.
- iv. The level spreader must be placed parallel to the contours.

Detailed OSD system or level spreader plans are to be prepared by a suitably qualified Civil Engineer, who has membership to the Institution of Engineers Australia, National Professional Engineers Register and registered in the General Area of Practice for civil engineering.

Detailed drainage plans, including engineering certification, are to be submitted to the Certifying Authority for approval prior to the issue of the Construction Certificate.

Reason: To ensure appropriate provision for the disposal of stormwater and stormwater management arising from the development.

Submission Roads Act Application for Civil Works in the Public Road

The Applicant is to submit an application for approval for infrastructure works on Council's roadway. Engineering plans for the new development works within the road reserve and this development consent are to be submitted to Council for approval under the provisions of Sections 138 and 139 of the Roads Act 1993.

The application is to include four (4) copies of Civil Engineering plans for the design of the vehicular crossing, access stairs and associated works within the road reserve which are to be generally in accordance with the Council's specification for engineering works - AUS-SPEC #1. The plan shall be prepared by a qualified civil engineer. The design must include the following information:

1. A vehicular crossing 4.0metres wide at the kerb to 4.5 metres wide at the boundary in accordance with Council's standard drawing A4/3330/5EL.

2. Structural details for the elevated sections of the driveway and associated retaining structures. The first 1.5m of the driveway crossing to be similar to existing ground levels without barriers to maintain pedestrian access along the road reserve.
3. Safety barriers and sight distances are to be in accordance with AS/NZS 2890.1:2004.
4. Structural details of the new pedestrian access stairs. A 1.5m wide landing shall be provided at road level between the stairs and the kerb.
5. A services plan indicating all services in the road reserve. Where any services are to be adjusted as a result of the works, approval from the relevant service authority is to be provided with the application.
6. Structural Engineer's certification of the design of all retaining walls, access stair, elevated driveway and safety barriers.

The fee associated with the assessment and approval of the application is to be in accordance with Council's Fee and Charges.

An approval is to be submitted to the Certifying Authority prior to the issue of the Construction Certificate

Reason: To ensure engineering works are constructed in accordance with relevant standards and Council's specification.

Vehicle Driveway Gradients

The Applicant is to ensure driveway gradients within the private property are not to exceed a gradient of 1 in 4 (25%) with a transition gradient of 1 in 10 (10%) for 1.5 metres prior to a level parking facility. Access levels across the road reserve are to comply with the allocated vehicle profile detailed in this consent.

Details demonstrating compliance are to be submitted to the Certifying Authority for approval prior to the issue of the Construction Certificate.

Reason: To ensure suitable vehicular access to private property.

Structural Adequacy and Excavation Work

Excavation work is to ensure the stability of the soil material of adjoining properties, the protection of adjoining buildings, services, structures and / or public infrastructure from damage using underpinning, shoring, retaining walls and support where required. All retaining walls are to be structurally adequate for the intended purpose, designed and certified by a Structural Engineer, except where site conditions permit the following:

- (a) maximum height of 900mm above or below ground level and at least 900mm from any property boundary, and
- (b) Comply with AS3700, AS3600 and AS1170 and timber walls with AS1720 and AS1170.

Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of the Construction Certificate.

Reason: To provide public and private safety.

Road Reserve

The applicant shall ensure the public footways and roadways adjacent to the site are maintained in a safe condition at all times during the course of the work.

Reason: Public safety.

Civil Works Supervision

The Applicant shall ensure all civil works approved in the Section 138 approval are supervised by an appropriately qualified and practising Civil Engineer.

Details demonstrating compliance are to be submitted to the Principal Certifying Authority and/or Roads Authority.

Reason: To ensure compliance of civil works with Council's specification for engineering works.

Traffic Control During Road Works

Lighting, fencing, traffic control and advanced warning signs shall be provided for the protection of the works and for the safety and convenience of the public and others in accordance with RMS Traffic Control At Work Sites Manual (<http://www.rms.nsw.gov.au/business-industry/partners-suppliers/documents/technical-manuals/tcws-version-4/tcwsv4i2.pdf>) and to the satisfaction of the Roads Authority. Traffic movement in both directions on public roads, and vehicular access to private properties is to be maintained at all times during the works

Reason: Public Safety.

**CONDITIONS WHICH MUST BE COMPLIED WITH PRIOR TO THE ISSUE OF THE
OCCUPATION CERTIFICATE****Positive Covenant and Restriction as to User for On-site Stormwater Disposal Structures**

The Applicant shall lodge a Legal Documents Authorisation Application with Council. The application is to include the original completed request forms (NSW Land Registry standard forms 13PC and/or 13RPA) and a copy of the Works-as-Executed plan (details overdrawn on a copy of the approved drainage plan by a Registered Surveyor) and Hydraulic Engineers' certification for the completed on-site stormwater detention system works. A guide to the process can be found on Council's website using the following link.

<https://files.northernbeaches.nsw.gov.au/sites/default/files/documents/pdf-forms/legal-documents-authorisation-on-site-stormwater-detention-systems/guide-submitting-ldaa-nov19.pdf>

The form for the application can be found on Council's website using the following link.

<https://files.northernbeaches.nsw.gov.au/sites/default/files/documents/pdf-forms/legal-documents-authorisation-on-site-stormwater-detention-systems/4023-legal-documents-authorisation-oct19.pdf>

The Applicant shall create on the Title a positive covenant in respect to the ongoing maintenance and restriction as to user over the on-site stormwater detention system within this development consent. The terms of the positive covenant and restriction are to be prepared to Council's standard requirements at the applicant's expense and endorsed by Northern Beaches Council's delegate prior to lodgement with the NSW Land Registry Services. Northern Beaches Council shall be nominated as the party to release, vary or modify such covenant. A copy of the certificate of title demonstrating the creation of the positive covenant and restriction as to user for the on-site stormwater detention system is to be submitted.

Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of final Occupation Certificate.

Reason: To ensure the on-site stormwater detention system is maintained to an appropriate operational standard and not altered.

Certification Elevated Parking Facility Work

The Applicant shall submit a Structural Engineers' certificate certifying that the elevated parking facility was constructed in accordance within this development consent and the provisions of Australian/New Zealand Standard AS/NZS 2890.1:2004 parking facilities - Off-street car parking, in particular Section 2.4.5 Physical controls. Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of the final Occupation.

Reason: Compliance with this consent.

Retaining walls and Suspended Slabs in Road Reserve

The retaining walls and suspended slab works in the road reserve shall be certified as compliant with all relevant Australian Standards and Codes by a Structural Engineer. Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of any final Occupation Certificate.

Reason: Public and Private Safety