

Natural Environment Referral Response - Flood

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| Application Number: | DA2021/2557 |
| Date: | 08/03/2022 |
| To: | Phil Lane |
| Land to be developed (Address): | Lot 2 DP 541280 , 1 A Elvina Avenue AVALON BEACH NSW 2107 |

Reasons for referral

This application seeks consent for the following:

- All Development Applications on land below the 1 in100 year flood level;
- All Development Applications located on land below the Probable Maximum Flood levels.

And as such, Council's Natural Environment Unit officers are required to consider the likely impacts on drainage regimes.

Officer comments

The proposed DA generally complies with the flood controls in the LEP and DCP. The site currently contain a single storey dwelling and garage. The majority of site is affected by flooding and is located in a medium to high flood risk zone. The 1% AEP flood level adjacent to the existing building varies from north to south with a FPL on the south and north side of 3.41 & 3.32 m AHD respectively. The existing building FFL is 3.36 m AHD hence is below and above the FPL at the south and northern end respectively.

The development proposes to demolish the existing garage and laundry on the north side of the existing building and replace it with a new kitchen, laundry and patio. It is also proposed to extend the south side of the building to enlarge the existing bedrooms. The proposed extension will maintain existing FFL 3.36 m AHD and will be of bearers and joists on concrete piers with open sub floor allowing for free movement of flood water and also minimise flood storage loss.

The proposed development is to provide a shelter-in-place refuge above the PMF level in the attic space.

The proposal is therefore supported.

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

Recommended Natural Environment Conditions:

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

Flooding

In order to protect property and occupants from flood risk the following is required:

Flood Effects Caused by Development – A2

There is to be no filling of the land or any other reduction of the available flood storage which results in a net loss of storage below the 1% AEP flood level (2.96 m AHD).

Building Components and Structural Soundness – B1

All new development below the Flood Planning Level of shall be designed and constructed as flood compatible buildings in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).

Building Components and Structural Soundness – B2

All new development must be designed to ensure structural integrity up to the Flood Planning Level 3.32 & 3.41 AHD at the north and southern end of the building respectively, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. Chartered structural engineer's certification indicating compliance shall be submitted with the Construction Certificate Application.

Building Components and Structural Soundness – B3

All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level. All existing electrical equipment and power points located below the Flood Planning Level must have residual current devices installed to cut electricity supply during flood events. Electrician Certification confirming compliance shall be submitted with the Construction Certificate application.

Floor Levels – C1

New floor levels within the development shall be set at or above the Flood Planning Level of 3.32 & 3.41 AHD at the north and southern end of the building respectively. Accordingly, to achieve this the existing ground level, locally at the northern end shall be lowered by 100mm to allow compliance. Plans indicating compliance shall be submitted with the Construction Certificate application.

Floor Levels – C3

The underfloor area of the dwelling below the 1% AEP flood level is to be designed to allow clear passage of floodwaters. At least 50% of the perimeter of the underfloor area must be of an open design from the natural ground level up to the 1% AEP flood level. Accordingly, the proposed brick steps to the patio on the western elevation shall be replaced with open style timber steps or equivalent.

Car parking – D3

Car ports are to be designed to allow flood waters to pass through and are to have a minimum of 50% of the perimeter open.

Flood Emergency Response – E1

The shelter-in-place refuge must be incorporated in the attic space:

- a) Have a floor level at or above the Probable Maximum Flood level; and
- b) Have a floor space that provides at least 2m² per person where the flood duration is long (6 or more hours) in the Probable Maximum Flood event, or 1m² per person for less than 6 hours;
- c) Is intrinsically accessible to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants without reliance on an elevator.

Storage of Goods – G1

Storage areas for hazardous or potentially polluting materials shall not be located below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.

Recommendations

Unless modified by conditions of consent, the development shall be conducted in accordance with the recommendations outlined in the Flood Inundation & Risk Assessment Report prepared by Barrenjoey Consulting Engineers dated November 2021.

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

Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property and reduce public and private losses in accordance with Council and NSW Government policy.

CONDITIONS WHICH MUST BE COMPLIED WITH PRIOR TO THE ISSUE OF THE OCCUPATION CERTIFICATE

Certification of the Structural Stability of the Building (B2)

A Chartered structural engineer with NER registration with Engineers Australia is to certify the structural stability & integrity of the new development considering lateral flood flow, buoyancy, suction effects, wave action and debris load impact of the Flood Planning Level design flood depths and velocities. Details demonstrating compliance are to be submitted to the Certifying Authority for approval.

Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property and reduce public and private losses in accordance with Council and NSW Government policy.

Certification of Services (B3)

Certification that new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections are located above the FPL (3.32 & 3.41 AHD at the north and southern end of the building respectively) and waterproofing **of electrical equipment** and installation of residual current devices **below the Flood Planning Level**.

A suitably qualified electrical engineer or contractor is to certify that all new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections are located above the Flood Planning Level and any existing electrical devices, wiring and the like located below the FPL are protected from water egress or have residual current devices installed to cut electricity supply during flood events. Details demonstrating compliance are to be submitted to the Certifying Authority for approval.

Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property and reduce public and private losses in accordance with Council and NSW Government policy.

Undercroft Area below the 1% AEP Flood Level – (C3)

A restriction shall be imposed on the title of the land, pursuant to S88B of the Conveyancing Act confirming that the undercroft area does not impede flows and is not to be enclosed, with the perimeter having a minimum of 50% open area from the natural ground level up to the 1% AEP flood level of RL 2.96 AHD. The terms of such a restriction are to be prepared to Council's standard requirements at the applicant's expense and endorsed by Council prior to lodgement with NSW Land Registry Services. Northern Beaches Council shall be nominated as the party to release, vary or modify such restriction. Details demonstrating compliance are to be submitted to the Principal Certifying Authority prior to the issue of the Occupation Certificate.

Reason: To reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property and reduce public and private losses in accordance with Council and NSW Government policy.