

Basic Flood Management Report – Minor Works: Alterations & Additions

1. Description of development

Alterations & Additions to existing dwelling including:

Ground Floor Additions; New Upper Floor Addition; New Double Carport; Internal and External modifications; Rectifications and Improvements; External Storage Solutions; and Landscape Concept

2 New Street, East Balgowlah, NSW 2093

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| The building use is | RESIDENTIAL |
| The building Classification is | CLASS 1 and CLASS 10 |

2. Flood analysis

Flood Information Report Issued 22/01/2025

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| 1% AEP flood level | 18.13m AHD – Map B |
| Flood Planning Level (FPL) | 18.63m AHD – Map A |
| Probable Maximum Flood (PMF) level | 19.74m AHD – Map C |
| Flood Risk Precinct, ie High, Medium or Low | Low and Medium Risk |
| Flood Life Hazard Category | H5 - H1 |

The purpose of this Flood Management Report is to demonstrate how the proposed development at 2 New Street East, Balgowlah, will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses.

The design: Alterations and Additions to an existing single storey dwelling. The majority of the work will be for a New First Floor Addition, set above the existing ground floor, with minor ground floor additions to square off the rear of the house; Secondary Development will be a new Carport structure over an existing parking hardstand; Ancillary Development will be for a replacement Roof Structure and Landscaping.

Measures and controls needed to achieve compliance: Flood compatible materials – Fibre Cement Cladding, masonry, stone and lightweight steel framework to ensure the development has structural integrity during a flooding event, and these materials offer durability in finish and how the dwelling is maintained in the aftermath of a flooding event. Materials that are less likely to weather, or that can be re-surfaced (paint or render), to overcome floodwater damage.

The size, type and location of the development, proportionate to the scope of the works proposed, and considering its relationship to surrounding development:

CARPPORT: To be located to the upper front portion of the site, outside of any mapped flooding extent. RL of pavement to be approximately 19.73m AHD.

GROUND FLOOR ADDITION: 4m² of floor area at FFL 19.19m, minor impact given the extent of the existing dwelling. The area will be an extension of the Dining Room internally.

POOL STOREROOM: To be located to the rear boundary, aligned to the existing in-ground swimming pool. To be constructed of masonry to ensure structural integrity during a flooding event and to prevent debris entering the neighbouring property to the North and NorthEast. RL of base to be 18.33m AHD, with an overall height no greater than 2.5m (RL 20.81m AHD)

FIRST FLOOR ADDITION: New upper floor level to be set to FFL 22.49m AHD. Will provide refuge, place of evacuation and allow for the storing of goods and valuables during a flooding event.

The flood risk to life and property: The proposed development will offer two suitable design solutions that offer enhance protection of life and property. 1. A covered parking area, fitted with wheelstops and a slightly elevated platform. The design will assist in the secure storing of vehicles during a flooding event. The front fence and boundary walls will also assist with the reduction of debris causing damage to vehicles, and structural elements. 2. The new First Floor addition will offer refuge and elevated storage during a flooding event. The First Floor balcony will provide an area for evacuation – elevated rescue.

Mapping of relevant extents:



Image 1. Flood Risk Map - Low



Image 2. Flood Risk Map – Medium

MAP D: PROBABLE MAXIMUM FLOOD EXTENT



Image 3. Probable Maximum Flood Extent with areas of new development



Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the relevance to the proposed development:

PMF Maximum Depth from Natural Ground Level 1.25m

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| PMF Maximum Velocity | 2.69m/s |
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3. Assessment of impacts

Summary of compliance for each category of the DCP:

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| A) Flood effects caused by Development | Minor |
| B) Building Components & Structural Soundness | Compatible with floodproofing |
| C) Floor Levels | Existing. New to be above PMF |
| D) Car parking | Open Carport at highest point of site |
| E) Emergency Response | Place of refuge to new First Floor |
| F) Fencing | Existing configuration |
| G) Storage of Goods | No hazardous materials/goods Storage to new First Floor |
| H) Pools | Existing in-ground Pool |

Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy.

Refer to Statement of Environmental Effects, assessment to the LEP Part 5, 5.21 Flood Planning, 5.22 Special Flood Considerations, and to the DCP, Manly, Part 5.4.3 Flood Prone Land.

For any non-compliance, a justification for why the development should still be considered. Non-compliances with DCP flood clauses are only supported on very rare occasions.

No, non-compliances anticipated.

Calculations of available flood storage if compensatory flood storage is proposed.

Existing front yard and rear yard composition to remain and are the likely areas of flood water storage the lower lying parts of the site.

Plan of the proposed development site showing the location of the development, predicted 1% AEP and PMF flood extents, as well as any high hazard or floodway affectionation:

MAP D: PROBABLE MAXIMUM FLOOD EXTENT



Image 3. Probable Maximum Flood Extent with areas of new development

Development recommendations and construction methodologies

Refer to the accompanying Flood Information Report, issued 22/01/2025 by Northern Beaches Council

For the purposes of Development Application for the extent and type of works proposed, this Management Plan has been prepared by Hargroves Design Consultants in consultation with Northern Beaches Council, the issued Flood Information Report and with guidance from the Flood Planning Controls

Planning Requirements for Development on Flood Prone Land

Development must comply with requirements set out in the relevant Local Environment Plan (LEP) and Development Control Plan (DCP).

Council's LEPs and DCPs have been prepared in accordance with the [NSW Government's Flood Risk Management Manual \(2023\)](#).

The clauses specific to flooding in the LEPs and DCPs are as follows:

LEP Clauses:

- Manly LEP (2013) – 5.21 Flood Planning
- Manly LEP (2013) – 5.22 Special Flood Considerations

DCP Clauses:

- Manly DCP (2013) – 5.4.3 Flood Prone Land

Development on flood prone land must also comply with Council's Water Management for Development Policy.

Refer to Statement of Environmental Effects

4. MATRIX

A. FLOOD EFFECTS CAUSED BY DEVELOPMENT

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| A1 | <p>The proposed development has been designed and can be constructed so that in all events up to the 1% AEP event:</p> <ul style="list-style-type: none">(a) There are no adverse impacts on flood levels or velocities caused by alterations to the flood conveyance; and(b) There are no adverse impacts on surrounding properties; and(c) It is sited to minimise exposure to flood hazard. <p>Complies. The development is sited and designed to be flood compatible with a new First Floor, and retention of the existing low lying parts of the site to ensure permeable space is able to hold and store floodwater temporarily and absorb that over time. The Carport is outside the mapped extent. The existing composition of the property is in its most part retained.</p> |
| A2 | <p>In all events up to the 1% AEP event there is no net loss of flood storage.</p> <p>Complies</p> |

B. BUILDING COMPONENTS AND STRUCTURAL SOUNDNESS

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| B1 | <p>All buildings shall be designed and constructed with flood compatible materials in accordance with “Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas”, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).</p> <p>Complies. Note: In addition, A Structural Engineer will be engaged for the Construction Certificate to design the structure for integrity and durability for development in Flood Prone Land</p> |
| B2 | <p>All new development must be designed and constructed to ensure structural integrity up to the Flood Planning Level, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. Where shelter-in-place refuge is required, the structural integrity for the refuge is to be up to the Probable Maximum Flood level. Structural certification shall be provided confirming the above.</p> <p>To future engineers’ details. The design intent is to ensure the new development complies with these requirements.</p> |
| B3 | <p>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 within the subject structure must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.</p> <p>To future contractors’ obligation. The design intent is to ensure the new development, wholly complies with these requirements.</p> |

C. FLOOR LEVELS

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| C1 | <p>New floor levels within the development shall be at or above the Flood Planning Level.</p> <p>FFL 22.49m AHD – FIRST FLOOR LEVEL ; RL 22.34m AHD – BALCONY Base of Pool storeroom RL 18.33m AHD</p> |
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| C3 | <p>All new development must be designed and constructed so as not to impede the floodway or flood conveyance on the site, as well as ensuring no net loss of flood storage in all events up to the 1% AEP event.</p> <p>For suspended pier/pile footings:</p> <ul style="list-style-type: none"> (a) The underfloor area of the dwelling below the 1% AEP flood level is to be designed and constructed to allow clear passage of floodwaters, taking into account the potential for small openings to block; and (b) At least 50% of the perimeter of the underfloor area is of an open design from the natural ground level up to the 1% AEP flood level; and (c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway |
| C4 | <p>A one-off addition or alteration below the Flood Planning Level of less than 30 square metres (in total, including walls) may be considered only where:</p> <ul style="list-style-type: none"> (a) it is an extension to an existing room; and (b) the Flood Planning Level is incompatible with the floor levels of the existing room; and (c) out of the 30 square metres, not more than 10 square metres is below the 1% AEP flood level. <p>This control will not be permitted if this provision has previously been utilised since the making of this Plan.</p> <p>The structure must be floodproofed to the Flood Planning Level, and the Flood Management Report must demonstrate that there is no net loss of flood storage in all events up to the 1% AEP event.</p> <p>FFL 19.19 – For small ground floor extension (4m²)</p> |
| C6 | <p>Consideration may be given to the retention of an existing floor level below the Flood Planning Level when undertaking a first floor addition provided that:</p> <ul style="list-style-type: none"> (a) it is not located within a floodway; and (b) the original foundations are sufficient to support the proposed final structure above them. The Flood Management Report must include photos and the structural certification required as per Control B2 must consider whether the existing foundations are adequate or should be replaced; and (c) none of the structural supports/framing of existing external walls of are to be removed unless the building is to be extended in that location; and (d) the ground floor is floodproofed. <p>The existing dwelling is masonry built and should conform to the above. A Structural Engineer will be engaged for Construction Certificate to investigate and report on the structural adequacy of the existing dwelling. Photographic survey of existing subfloor and supports where not available but can be conditioned if the development consent is approved.</p> |

D. CAR PARKING

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| D1 | Open carpark areas and carports shall not be located within a floodway. The Carport is positioned at the higher level of the site and is not within the mapped floodway. |
| D2 | The lowest floor level of open carparks and carports shall be constructed no lower than the natural ground levels, unless it can be shown that the carpark or carport is free draining with a grade greater than 1% and that flood depths are not increased. The level of the Carport is not lower than the natural ground levels |
| D3 | Carports must be of open design, with at least 2 sides completely open such that flow is not obstructed up to the 1% AEP flood level. |
| D4 | Where there is more than 300mm depth of flooding in a car park or carport during a 1% AEP flood event, vehicle barriers or restraints are to be provided to prevent floating vehicles leaving the site. Protection must be provided for all events up to the 1% AEP flood event The nature of the Carport design and the Front Setback will prevent cars leaving the site in a major flooding event |

E. EMERGENCY RESPONSE

E1 If the property is affected by a Flood Life [Hazard](#) Category of H3 or higher, then Control E1 applies and a Flood Emergency Assessment must be included in the [Flood Management Report](#).

If the property is affected by a Flood Life [Hazard](#) Category of H6, then development is not permitted unless it can be demonstrated to the satisfaction of the consent authority that the risk level on the property is or can be reduced to a level below H6 or its equivalent.

If the property is flood affected but the Flood Life [Hazard](#) Category has not been mapped by Council, then calculations for its determination must be shown in the [Flood Management Report](#), in accordance with the "Technical Flood Risk Management Guideline: [Flood Hazard](#)", Australian Institute for Disaster Resilience (2012).

Where flood-free evacuation above the Probable Maximum Flood level is not possible, new development must provide a shelter-in-place refuge where:

- a) **The floor level is at or above the Probable Maximum Flood level; and**
- b) The floor space provides at least 2m² per person where the flood duration is long (6 or more hours) in the Probable Maximum Flood event, than 6 hours;
- c) It 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; and
- d) It must contain as a minimum: sufficient clean water for all occupants; portable radio with spare batteries; torch with spare batteries; and a first aid kit

Class 10 classified buildings and structures (as defined in the Building Codes of Australia) are excluded from this control.

Note that in the event of a flood, occupants would be required to evacuate if ordered by Emergency Services personnel regardless of the availability of a shelter-in-place refuge.

The site is affected by H5-H1 Flood Life Hazard Categories. The proposed development provides for a shelter-in-place refuge to the new First Floor addition where the FFL 22.49m AHD is set 2.75m above the PMF level. The front facing (street facing) First Floor Balcony will offer access to outside, retaining safety and allowing for safe rescue.

F. FENCING

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| F1 | <p>Fencing, (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be designed so as not to impede the flow of flood waters and not to increase flood affectation on surrounding land. At least 50% of the fence must be of an open design from the natural ground level up to the 1% AEP flood level. Less than 50% of the perimeter fence would be permitted to be solid. Openings should be a minimum of 75 mm x 75mm.</p> <p>Fencing, (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) in its most part is an existing configuration on site and new more suitable materials are proposed.</p> |
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G. STORAGE OF GOODS

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| G1 | <p>Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.</p> <p>The New First Floor will allow for high level storage in the event of a major flood. The use of the site does not see the storage of hazardous goods beyond residential use.</p> |
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H. POOLS

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| H1 | <p>The pool is existing and is in-ground.</p> <p>All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the Flood Planning Level.</p> <p>All chemicals associated with the pool are to be stored at or above the Flood Planning Level.</p> |
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5. Conclusion

The above report and direct responses to the controls and guidelines of Flood Prone Land demonstrates that the proposed development at 2 New Street East, Balgowlah, will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses. The Alterations and Additions provide greater resolution to a site within Flood Prone Land, with a new First Floor offering better resolve to refuge, storage and protection of assets. The development should be considered for approval with conditions to ensure the proposal will satisfactorily address all requirements of the Technical Guidelines.

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