



Your ref: Your emailed dated 3 May 2024
Our ref: DOC24/342792-4

Mark Grogan
Planning Officer
Department of Planning, Housing and Infrastructure

By email: mark.grogan@dpie.nsw.gov.au

Dear Mark

Subject: Gateway assessment – 310 Terrigal Drive, Terrigal

Thank you for your referral, dated 3 May 2024, seeking Biodiversity Conservation and Science's (BCS) advice regarding the planning proposal for 310 Terrigal Drive, Terrigal. BCS understands that the proposal seeks to increase height of building permissions, increase floor space ratio, and permit an additional retail use at the site.

The intention of the proposal is to facilitate mixed-use development at the site. Concept plans submitted with the proposal suggest around 40 residential apartments (combination of 1, 2 and 3-bedrooms) would be constructed over 7-storeys, with ground floor retail space and basement carparking.

In preparing this advice, BCS has reviewed the Planning Proposal (Central Coast Council, April 2024) and Flood Impact Assessment (Civil Stormwater Engineering Group (CSEG), April 2024). The Coastal Lagoon Catchments Overland Flood Study (MHL, 2020), which has been adopted by Council, has also been reviewed.

BCS's comments are provided in **Attachment A**. If you have any further questions about this issue, please contact Neil Kelleher, Senior Team Leader, Water Floodplains and Coast at huntercentralcoast@environment.nsw.gov.au.

Yours sincerely

Joe Thompson
Director Hunter Central Coast Branch
Regional Delivery Division

26 June 2024

Enclosure: Attachment A

BCS' comments

310 Terrigal Drive, Terrigal – Gateway assessment

1. The proposal is inconsistent with Ministerial Direction 4.1 Flooding.

Ministerial Direction 4.1 Flooding issued under section 9.1(2) of the *Environmental Planning and Assessment Act 1979* contains provisions for planning proposals on flood prone land. This proposal is inconsistent with the following aspects of Part 3 of the Direction, stating that a planning proposal must not contain provisions that apply to the flood planning area which:

- permit development in floodway areas,
- permit a significant increase in the development and/or dwelling density of that land.

The most recent flood assessment for the site prepared by CSEG (2024) has not included assessment of flood function, including definition of floodway, flood storage and flood fringe areas. However, modelling undertaken for previous site investigations (Rienco Consulting, 2023) identified a significant portion of the site acts as a floodway during the 1% Annual Exceedance Probability (AEP) design flood event.

Increasing the maximum building height and floor space ratio to accommodate up to 40 apartments will result in a significant increase in the development and dwelling density of the land, compared to the existing development standards for the site as per the Central Coast Local Environment Plan 2022.

Recommendation 1

To be accepted by the planning authority, the proposal must demonstrate that the inconsistencies with Ministerial Direction 4.1 Flooding are of minor significance.

2. The Flood Impact Assessment (CSEG, 2024) does not contain the level of detail that is commensurate with the flood risk at the site.

The proposal must be supported by a Flood Impact and Risk Assessment (FIRA) that defines flood behaviour in sufficient detail to support the understanding and management of flood risk at the site. Review of the Flood Impact Assessment (CSEG, 2024) identified the following matters to be addressed:

- References to the Floodplain Development Manual (2005) are outdated. Current state government policy is set out in the Floodplain Risk Management Manual (FRMM) (2023) and its associated guidelines.
- The use of "Flood Planning Level" (FPL) terminology in Section 3.3 of the report is incorrect. The definition of FPL must be consistent with the definition in FRMM.
- When dealing with development of flood prone land, a merit-based approach must be adopted which considers the risks associated with the full range of flooding, up to and including the probable maximum flood (PMF). There is limited understanding of the flood risk at the site and on surrounding access roads for flood events between the 1% AEP and PMF events. The assessment should therefore include simulation of 0.5% AEP and 0.2% AEP design flood events.
- Flood function mapping, including definition of floodway, flood storage and flood fringe areas has not been included.

- Modelled flood behaviour must be compared to Council's adopted flood information at the site (MHL, 2020), with discussion and justification to explain where differences are observed.
- Manning's roughness coefficients for open spaces and dense vegetation are not consistent with those in Council's adopted flood study (MHL, 2020). Justification must be provided where model parameters are different to those in Council's adopted flood study. Sensitivity testing to understand the impact of changing Manning's roughness coefficients on flood conditions at the site should also be included.
- The impact of structure blockage assumptions on modelled flood behaviour at the site should be checked to confirm influence on local flood behaviour. For example, adopting 100% blockage of upstream culverts may attenuate flood flows through the catchment and could result in lower peak flood levels at the site.
- Elevated lagoon tailwater conditions may be masking peak flood impacts at or around the site. Assessment of a catchment flood event coincident with a lower tailwater condition may be required to comprehensively understand the range of flood impacts associated with the development.

Recommendation 2

The FIRA must be prepared in accordance with the Flood Risk Management Manual (FRMM) (NSW Government, 2023) and its associated guidelines, and should be updated to address the matters listed above.

3. There are residual risks associated with using shelter-in-place as the preferred emergency management response in locations of high flood risk.

Section A2.7 of FRMM guideline EM01 *Support for emergency planning* lists a number of principles to consider in assessing flood risk management options. Considering these principles collectively, along with broader flood constraints of the locality and the existing emergency response strategy, can assist in minimising the potential increase in risk to the existing and future community.

Although safe refuge is available onsite during an event, there remains a residual risk if people attempt to return to their homes or evacuate during a flood event. Flood related emergency management and risk to life must be assessed and managed for the full range of flooding and will involve understanding the:

- flood conditions at the site and on surrounding access roads for a range of flood events up to the PMF,
- expected frequency and duration of isolation now and in the future as a result of climate change.

The FIRA must be updated to provide an understanding of these factors, to allow assessment of the suitability of proposed emergency management response for the site.

Additionally, Section 5.3 of the report does not accurately capture the intended flood emergency response for the proposal, which is shelter-in-place. For "horizontal evacuation" to be the primary response, it must occur prior to the onset of a flood event (not after, as is stated in the report).

The proposal must also be referred to State Emergency Services for comment and incorporate flood risk management measures consistent with their advice.

Recommendation 3

The FIRA must be updated to provide an understanding the residual risk to life associated with sheltering-in-place during a flood event.

The proposal must also be referred to State Emergency Services for comment and incorporate flood risk management measures consistent with their advice.

4. **The high flood hazard may compromise the structural integrity of the building in an extreme event.**

High flood hazard is expected to occur at the site during the PMF event. Most of the site is classed as H5 hazard, with H6 hazard present at the south-eastern corner of the building in the currently proposed post-developed scenario. A H6 hazard classification is indicative of flood conditions where all building types may be vulnerable to failure placing residents who are forced to shelter during a flood event at risk.

As shelter-in-place is the proposed flood emergency management response for this site, the building will need to be designed to ensure the structural integrity will not be compromised in any flood event. The building structure will require confirmation by a suitably qualified structural engineer to ensure the structural integrity up to and including the PMF event. Building re-design may be required to limit encroachment onto the floodplain to remove areas of H6 hazard in the post-developed PMF scenario.

Recommendation 4

Any building to be used for shelter-in-place must be designed and checked by a suitably qualified structural engineer to ensure the structural integrity will not be compromised in any flood event, up to and including the PMF event.