

Crystal Apartments Pty Ltd
Attention: Mr Jeff Butcher
66 Bardo Road
Newport NSW 2106
(sent by email only to jeff@crystalbayapartments.com.au)

8 December 2020

Updated Estuarine Risk Management Advice, and Overland Flow Flooding Advice, on Planning Proposal Application PP0003/17 to Permit Seniors Housing at 2-4 Nooal Street and 66 Bardo Road Newport

1. INTRODUCTION AND BACKGROUND

Seniors living apartments are proposed at 2-4 Nooal Street and 66 Bardo Road Newport, with the existing dwellings at these properties to be demolished. In September 2017, a Planning Proposal Application (PP0003/17) was submitted to Northern Beaches Council seeking to amend Schedule 1 of *Pittwater Local Environmental Plan 2014* (LEP 2014) to permit seniors housing on the consolidated development site as an additional permitted use.

On 15 September 2020, the NSW Department of Planning, Industry and Environment issued a Gateway Determination to permit this seniors housing use on the site, subject to a number of conditions. Condition 1k was that “prior to community consultation, the planning proposal is to be updated to reflect the Council’s 2019 Flood Study and to include a revised Estuarine Risk Management report to further assess the potential risk”.

Horton Coastal Engineering Pty Ltd prepared an Estuarine Risk Management Report for the subject site dated 28 December 2017 (“2017 report”). Horton Coastal Engineering was engaged by Crystal Apartments Pty Ltd to respond to Condition 1k, as set out herein. This includes consideration of Council’s 2019 *Newport Flood Study* (Section 2), and also advice on updates required to the Estuarine Risk Management Report since the 2017 report (Section 3).

The report author is Peter Horton [BE (Hons 1) MEngSc MIEAust CPEng NER]. Peter has postgraduate qualifications in coastal and water engineering and 28 years of coastal and water engineering experience, including numerous estuarine risk management studies along the Pittwater shoreline, and numerous overland flow flooding studies in the Northern Beaches Council area. He prepared the 2017 report.

2. REVIEW OF NEWPORT FLOOD STUDY

The *Newport Flood Study* (Catchment Simulation Solutions, 2019) has been reviewed, in particular:

- Figures 14.3, 15.3, 16.3, 17.3, 18.3, 19.3 and 20.3, which show that the 20%, 10%, 5%, 2%, 1%, 0.5% and 0.2% AEP floods respectively do not enter the subject site, and would

- not preclude access to the site from Nooal Street or the eastern end of Bardo Road adjacent to the site (based on a minimum floodwater depth of 0.15m);
- Figure 21.3, which shows that the 0.1% AEP flood only just enters the subject site at the SW corner, which is of no significance in terms of risk to future development, and would not preclude access to the site from Nooal Street or the eastern end of Bardo Road adjacent to the site (based on a minimum floodwater depth of 0.15m);
 - Figure 22.3, which shows that the Probable Maximum Flood (PMF) only just enters the subject site along the southern boundary, and over a distance of about 5m along the western edge of 66 Bardo Road at a depth less than 0.3m, which is of no significance in terms of risk to future development, and would not preclude access to the site from Nooal Street or the eastern end of Bardo Road adjacent to the site (based on a minimum floodwater depth of 0.15m);
 - Figure 35.3, which shows that the subject site has no flood emergency response classification for the 20% AEP event (and that adjacent roads are cut off by floodwaters for a maximum of 15 minutes in this event);
 - Figures 36.3 and 37.3, which show that the subject site has an “indirect consequences” flood emergency response classification for the 5% and 1% AEP events respectively (and that adjacent roads are cut off by floodwaters for a maximum of 30 and 36 minutes respectively in these events);
 - Figure 38.3, which shows that the subject site has an “indirect consequences” flood emergency response classification for the PMF event (at 2 and 4 Nooal Street) and a “Flooded Isolated Elevated” classification at 66 Bardo Road (and that adjacent roads are cut off by floodwaters for a maximum of 1.25 hours in this event);
 - Figure 42.3, which shows that the subject site has a Preliminary True Hazard of “Low” in the PMF;
 - Figure 43.3, which shows that the subject site has an H1-H2 Acceptable Flood Risk to Life for the PMF;
 - Figure 45.3, which shows that the flood extent in the subject site for the PMF is a flood storage area;
 - Figures 52.3, 53.3, 54.3 and 55.3, which show that the 20%, 10%, 5% and 2% AEP floods respectively (with 0.9m increase in ocean level and 30% increase in rainfall intensity) only extend into the western tip of 4 Nooal Street, which is of no significance in terms of risk to future development;
 - Figures 56.3, 57.3, 58.3 and 59.3, which show that the 1%, 0.5%, 0.2% and 0.1% AEP floods (with 0.9m increase in ocean level and 30% increase in rainfall intensity) only extend into the western tip of 66 Bardo Road, and lower third of 4 Nooal Street, which could be managed through setting suitable minimum floor levels and building locations (Figure 76.3 shows that the 1% AEP flood extent into the property is all Low Hazard); and
 - Figure 60.3, which shows that the PMF (with 0.9m increase in ocean level and 30% increase in rainfall intensity) extends as per the dot point above, plus an additional extent at the SE corner of the site, which again could be managed through setting suitable minimum floor levels and building locations (Figure 77.3 shows that the PMF extent into the property is all Low Hazard).

Based on Chapter 3.11 of the *Pittwater 21 Development Control Plan (DCP)*, it is considered that the prescriptive controls for vulnerable uses (which includes seniors housing) would be able to be met through appropriate design of future development, such as minimum floor levels and driveway crest levels, and siting of buildings at the more elevated areas of the site. That stated, only the 66 Bardo Road site, and not 2 and 4 Nooal Street, are identified on the Flood Risk

Precinct Maps as being affected by flooding (and hence require consideration under Chapter 3.11 of the DCP).

Note that Chapter 3.13 of the DCP does not apply at the subject site, as it has an H1-H2 Flood Life Hazard category. That is, no emergency response controls are required for the subject site, for either “evacuation” or “shelter-in-place” emergency responses. Given that shelter-in-place is an appropriate response at the subject site, with the PMF not significantly impacting on the site, there is no requirement for evacuation. This is entirely consistent with Council’s approach to managing flood risk to life, eg as noted by Schwecke et al (2015), “the evacuation potential of [the former] Pittwater LGA in the event of flooding is considered to be limited....safe evacuation is not possible for the majority of floodplains in Pittwater LGA. In instances where localised evacuation is feasible, it is considered the preferred primary emergency response, however shelter-in-place is considered an acceptable alternative”.

Clauses 7.3 and 7.4 of *Pittwater Local Environmental Plan 2014* (LEP 2014) apply to the subject site from a flooding perspective. With appropriate design, future development could satisfy these Clauses. In particular, based on Clause 7.4(3)(j) of LEP 2014, “development consent must not be granted to development for the following purposes on land to which this clause applies unless the consent authority is satisfied that the development will not, in flood events exceeding the flood planning level, affect the safe occupation of, and evacuation from, the land - seniors housing”. It is evident from the dot points above that safe occupation of the subject site would be possible in the PMF with appropriate design.

Given that future development would be possible (in relation to flooding risks) at the subject site through appropriate design, would not be precluded by the DCP or LEP 2014, and given that no flood risk emergency response controls are required for the subject site, it is considered that the planning proposal can be supported in terms of overland flow flooding. The subject site is considered to be suitable for seniors living from a flood risk perspective.

3. UPDATED ESTUARINE RISK MANAGEMENT ADVICE

The conclusions of the 2017 report remain valid, and future development would be possible (in relation to estuarine inundation risks) at the subject site through appropriate design, eg by placing finished floor levels above the Estuarine Planning Level (as was achieved with the concept design developed in 2017, for a conservative 2100 Estuarine Planning Level).

In the 2017 report, Section B3.8 of the DCP was assessed, and the conclusions therein remain valid. Therefore, future development would be possible at the subject site to meet these DCP requirements.

In the 2017 report, Clause 5.5 of LEP 2014 and Clause 8 of *State Environmental Planning Policy No 71 – Coastal Protection* were assessed, which have now both been repealed. *State Environmental Planning Policy (Coastal Management) 2018* (SEPP Coastal) is now applicable to the subject site, as it is in the “Coastal Environment” and “Coastal Use” areas.

With appropriate design, future development could satisfy SEPP Coastal. Based on Clause 15 of SEPP Coastal, “development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land”. Development could be constructed above the Estuarine Planning Level at the subject site in the future such that it would not be likely to cause increased risk of coastal hazards on that land or other land, and would not be at significant risk of estuarine inundation.

Given that future development would be possible (in relation to estuarine inundation risks) at the subject site through appropriate design, and would not be precluded by the DCP or SEPP Coastal, it is considered that the planning proposal can be supported in terms of estuarine inundation risks. The subject site is considered to be suitable for seniors living from an estuarine risk perspective.

4. SYNTHESIS

Given that the subject site is considered to be suitable for seniors living from a flood risk (Section 2) and estuarine risk (Section 3) perspective, it is considered that Condition 1k has been addressed.

5. CONCLUSIONS

At 2-4 Nooal Street and 66 Bardo Road Newport, seniors living apartments are proposed. A Planning Proposal Application (PP0003/17) has been submitted to Northern Beaches Council seeking to amend *Pittwater Local Environmental Plan 2014* (LEP 2014) to permit seniors housing on the consolidated development site as an additional permitted use.

On 15 September 2020, the Department of Planning, Industry and Environment issued a Gateway Determination to permit this seniors housing use on the site, subject to a number of conditions. Condition 1k was that “prior to community consultation, the planning proposal is to be updated to reflect the Council’s 2019 Flood Study and to include a revised Estuarine Risk Management report to further assess the potential risk”.

Council’s 2019 Flood Study has been reviewed. Given that future development would be possible (in relation to flooding risks) at the subject site through appropriate design, would not be precluded by the *Pittwater 21 DCP* or LEP 2014, and given that no flood risk emergency response controls are required for the subject site, it is considered that the planning proposal can be supported in terms of overland flow flooding. The subject site is considered to be suitable for seniors living from a flood risk perspective.

Horton Coastal Engineering prepared an Estuarine Risk Management Report for the subject site in 2017 (“2017 report”). The conclusions of the 2017 report remain valid, and future development would be possible (in relation to estuarine inundation risks) at the subject site through appropriate design. Given that future development would be possible (in relation to estuarine inundation risks) at the subject site through appropriate design, and would not be precluded by the DCP or *State Environmental Planning Policy (Coastal Management) 2018*, it is considered that the planning proposal can be supported in terms of estuarine inundation risks. The subject site is considered to be suitable for seniors living from an estuarine risk perspective.

Given that the subject site is considered to be suitable for seniors living from a flood risk and estuarine risk perspective, it is considered that Condition 1k has been addressed.

6. REFERENCES

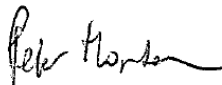
Catchment Simulation Solutions (2019), *Newport Flood Study*, Final Report, Revision 4, 17 July, Volume 1 and Volume 2

Schwecke, M; Thomson, R and M Griffin (2015), "Risk to Life Policy – Shelter or Flee? A Case Study in Pittwater Council", *Floodplain Management Association National Conference*, Brisbane, 19-22 May

7. SALUTATION

If you have any further queries, please do not hesitate to contact Peter Horton via email at peter@hortoncoastal.com.au or via mobile on 0407 012 538.

Yours faithfully
HORTON COASTAL ENGINEERING PTY LTD



Peter Horton
Director and Principal Coastal Engineer

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