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Northern Beaches Council  
Attention: Bernard Koon  
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4 October 2022

**Response to Sydney North Planning Panel on Items Raised in Deferral Letter dated 26 September 2022 in Relation to Newport SLSC (PPSSNH-301 – DA2021/2173)**

**1. INTRODUCTION AND BACKGROUND**

In a letter dated 26 September 2022, the Sydney North Planning Panel requested a response on 12 items on the above matter. A response to these items is set out herein, in turn.

The report author is Peter Horton [BE (Hons 1) MEngSc MIEAust CPEng NER], Principal Coastal Engineer of Horton Coastal Engineering Pty Ltd. Peter has postgraduate qualifications in coastal engineering and 30 years of coastal engineering experience, including numerous studies along the open coast of the Northern Beaches of Sydney. He is a Member of Engineers Australia and Chartered Professional Engineer (CPEng) registered on the National Engineering Register. Peter is also a member of the National Committee on Coastal and Ocean Engineering (NCCOE) and NSW Coastal, Ocean and Port Engineering Panel (COPEP) of Engineers Australia.

Note that all levels given herein are to Australian Height Datum (AHD). Zero metres AHD is approximately equal to mean sea level at present.

Reference is made herein to the following reports submitted as part of the Newport SLSC DA:

- Horton Coastal Engineering (2021), *Coastal Engineering and Flooding Advice for Newport SLSC Clubhouse Redevelopment*, Issue 3, 26 August (denoted as the clubhouse DA report herein); and
- Horton Coastal Engineering (2021), *Coastal Engineering Report and Statement of Environmental Effects for Buried Coastal Protection Works at Newport SLSC*, Issue 4, 27 August (denoted as the seawall DA report herein).

**2. RESPONSE TO ITEMS**

**2.1 Item 1 – Design and Location Options Considered by the Applicant**

Based on discussions with Rudi Valla of Newport SLSC, in around 2013, various redevelopment concepts were considered by Newport SLSC and Council staff. This included reconstructing the clubhouse further landward, or extending the clubhouse landward. Neither of these options was considered to be acceptable due to the impacts on the heritage building<sup>1</sup>. The first option would completely obliterate the heritage building, and the second option would entirely

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<sup>1</sup> Council was also concerned that there would be community opposition to any proposal that would consume existing public land outside the footprint of the existing clubhouse, which both these options suffer from.

remove the western façade of the building, neither of which is understood to be acceptable from a heritage perspective. Thereafter, all redevelopment options under consideration have had the requirement to retain key heritage aspects of the existing building. Alternatively, Council could have attempted the process of de-listing Newport SLSC as a heritage item, but this was not considered to be an acceptable outcome. The Sydney North Planning Panel could seek alternative heritage advice if it does not accept that key heritage aspects of the existing building should be retained.

When Horton Coastal Engineering first became involved in the project in 2018, the intention was that the retained and new portions of the clubhouse would be placed on conventional foundations (that is, not designed with deep piled foundations to provide support to the building if undermined by coastal erosion/recession), and there was no consideration of constructing coastal protection works (a seawall or revetment) to prevent undermining of the building by coastal erosion/recession. This was considered to be problematic given the risks to the clubhouse from coastal hazards. Accordingly, Horton Coastal Engineering prepared a report “Assessment of Options for Redevelopment of Newport SLSC, with Updated Consideration of Risk from Coastal Erosion/Recession” dated 17 February 2020, which is provided as Attachment 1. The purpose of this 2020 report was to inform the decision as to whether the redeveloped SLSC should be founded on piles or have seawall/revetment protection (or neither).

Given the necessity to retain the clubhouse in its current location, as it has heritage status and surf lifesaving functions, it was not a feasible option for the existing clubhouse to be demolished and rebuilt as a means of dealing with the erosion/recession risk (either by reconstructing the clubhouse on deep foundation piles such that it would remain supported if undermined, and/or by rebuilding the clubhouse further landward where there would be a reduced likelihood of erosion/recession reaching the clubhouse over the design life).

Given that it was not a feasible option for the existing clubhouse to be demolished and rebuilt, and given that it was considered unacceptable that the SLSC may be substantially damaged in a severe coastal storm (to the extent of having to be completely rebuilt) over its design life, the only option to enable the Newport SLSC redevelopment to occur while retaining heritage aspects of the building would be to have coastal protection works constructed seaward of the clubhouse, as has been adopted.

The Applicant is seeking the approval of the works as proposed, not an alternative design or location that has not been supported by heritage considerations, the community, Newport SLSC members or Council.

The Sydney North Planning Panel made reference to Section 3(g) of the *Coastal Management Act 2016*, namely “to recognise that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline, may result in the loss of coastal land to the sea (including estuaries and other arms of the sea), and to manage coastal use and development accordingly”. In devising the proposed development concept, the ambulatory and dynamic nature of the shoreline has indeed been recognised. The proposed development has buried coastal protection works to provide an acceptably low risk of damage to the clubhouse from erosion/recession over the design life, with the expectation also of significant beach width seaward of the proposed works for most of the time, in the order of 50m to 60m (on average) at the end of the design life.

The Sydney North Planning Panel suggested consideration of “suitable alternate locations for the Project given storm inundation will continue to increase as the sea level rises”. Over the

design life, the proposed clubhouse would be at an acceptably low risk of damage from coastal hazards. Furthermore, there is the expectation of significant beach width seaward of the proposed works for most of the time, in the order of 50m to 60m (on average) at the end of the design life. The Sydney North Planning Panel is requested to assess the DA over the design life proposed, not at some infinite timeframe into the future.

The Sydney North Planning Panel suggested that “additional facilities could be accommodated in a new building that was further landward”. It is reiterated that the proposed clubhouse would be at an acceptably low risk of damage from coastal hazards over the design life, so there is no requirement to build the proposed clubhouse further landward. It is also reiterated that the Applicant is seeking the approval of the works as proposed, not an alternative design or location.

## **2.2 Item 2 – Assessment of Beach State Following Severe Storms Now, in 2050 and in 2080**

Without the proposed works being undertaken, if the design event occurred now, in 2050 or 2080, the existing clubhouse would be severely undermined and would be expected to collapse, leaving a beach state with debris scattered over the area seaward of the clubhouse. The existing rock works could also be exposed and scattered over the public beach. Hazard lines were depicted in Figure 20 of the clubhouse DA report.

If the proposed works were undertaken, these hazard lines would not be realised landward of the proposed seawall.

It is important to understand that hazard lines are not shoreline positions. At times of severe erosion, there can be significant landward cut into the dune, but for most of the time there would be a healthy beach width seaward of the clubhouse due to beach recovery after storms. There is the expectation of significant beach width seaward of the proposed works for most of the time, in the order of 50m to 60m (on average) at the end of the design life.

## **2.3 Item 3 – Anticipated Life of Development**

The adopted design life of the proposed works is 60 years. The Applicant is not seeking consent for works beyond this design life. Indeed, to meet the requirements of Section 27 of the *Coastal Management Act 2016*, a time limited consent may be considered appropriate by the consent authority. An example of the wording used by Council in consents for private coastal protection works at Collaroy-Narrabeen Beach is as follows (this wording may need to be adjusted given that Council is a public authority, and not the consent authority in this instance):

The consent operates for 60 calendar years from the date of the issue of the occupation certificate and such other period as may be extended with the written approval of Council in accordance with the following.

A minimum of three (3) years prior to the date of 60 years after the issue of the occupation certificate for the works, the owners shall jointly and severally procure, at no cost to Council, a review report, by a suitably qualified independent coastal engineer to ensure the works do not pose a risk to public safety (Review Report).

The review report must consider, consistent with the evidence and coastal hazard predictions at the time, whether:

- (a) The works are satisfactory in their current state to not have an adverse impact on public safety and recommend an extension to the consent, or
- (b) Upgrades to the works are recommended to ensure they will not have an adverse impact on public safety to extend the consent for a further period of time, or
- (c) Removal and replacement of the structure with an alternative design is recommended to ensure they do not have an adverse impact on public safety, or
- (d) Demolition and removal of the coastal protection works in the interest of public safety is recommended

The Review Report shall be submitted to Council for approval not later than twelve (12) months prior to the date of 60 years after the issue of the occupation certificate in the first instance, or 12 months prior to the end of such other period identified in any written approval from Council, in accordance with this condition.

If the Review Report concludes that the structure is satisfactory in accordance with (a) above, and based on any other relevant information, Council will, in writing, approve an extension of the term of the development consent for the period recommended in the Review Report, or such lesser time as the Council considers appropriate.

If the Review Report recommends any upgrades or alterations to the works in accordance with (b) above, those upgrades must be dealt with under the planning laws at that time.

If the Review Report recommends removal and replacement of the structure with an alternative design in accordance with (c) above, the replacement structure will be the subject of a further development application for consent to Council, if required by the planning laws at that time.

If the Review Report recommends demolition and removal of the coastal protection works in the interest of public safety, such removal will be undertaken by the owners at their expense and within such time period required by Council.

Any written approval from the Council extending the period of operation of this consent is to be recorded on the s10.7 Planning Certificate for the land and Council's register of development consents.

A further Review Report will be provided to Council a minimum of twelve (12) months prior to the end of any extended period notified identified in writing by the Council in accordance with this condition, with the above process repeated for such extension.

In the event that,

- The Council does not accept the recommendations of the Review Report (including an amended or replacement Report) in writing, or
- Fails to provide written notification of its acceptance of the recommendations within the Review Report within 12 months of lodgement of the Review Report, or
- An application for the continued use, upgrade or replacement of the works is made,

this consent will continue to operate until any application to modify this condition, or for the continued use or upgrade or replacement of the works, or any proceedings seeking review of the refusal of Council to accept the recommendations, has been finally determined by Council or the Court. Any application, proceedings or appeal, must be lodged within 6 months of Council's decision to not accept the findings of the Review Report or Council's failure to notify of its acceptance of the Review Report, whichever is the later.

Note: This continued operation or extension may need to be facilitated by a formal application to modify the consent having regard to the planning laws at the time.

Reason: The development application indicated the Coastal Protection works have a design life of 60 years; to satisfy the requirements of Section 27 of the Coastal Management Act 2016, and to provide a mechanism to review the works and extend the operation of the consent.

That stated, there is the expectation of significant beach width seaward of the proposed works for most of the time, in the order of 50m to 60m (on average) at the end of the design life. This means that there is no reason to expect that the development will have reached its practical end of design life (due to no beach seaward of the works) at the end of the proposed 60 year design life.

## **2.4 Item 4 – Coastal Hazard Mapping**

The Applicant relied on Figure 20 of the clubhouse DA report to determine the applicable coastal hazard lines at the subject site. Sea level rise was assessed as discussed in Section 5.8.3 of the seawall DA report. In the short time available since these requests were provided by the Sydney North Planning Panel, it has not been possible to obtain a reply from WRL as to why their hazard lines differed in their end effects assessment.

## **2.5 Item 5 – Length of Seawall**

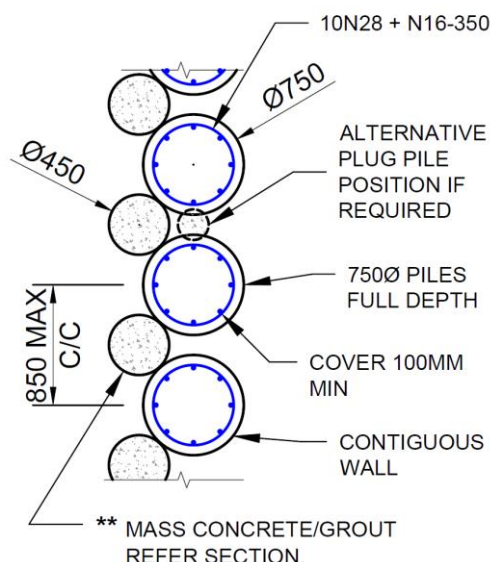
The proposed seawall has a beach frontage length of 82m. As discussed in the seawall DA report, the northern and southern extent of the buried coastal protection works was delineated in consultation with an arborist to minimise the impact on Norfolk Island pine trees to the north and south of the clubhouse respectively. The proposed extent of the works means that both trees would be protected from undermining while the works are in place.

Numerous options were considered for the length of the seawall works, as discussed in Attachment 2.

The seawall was designed to protect the clubhouse design as proposed, not an alternative design suggested by the Sydney North Planning Panel which was previously dismissed as being unacceptable from a heritage perspective.

## **2.6 Item 6 – Type of Piling**

Secant piles are proposed. Contiguous piles with plug piles (see example in Figure 1) achieve a similar continuous barrier to migration of soil and may also be considered if this suits the contractor's methodology, and this methodology satisfies the Principal's structural, coastal and geotechnical engineers. Neither option is necessarily better or worse, and they can both achieve the same outcome of a continuous barrier.



**Figure 1: Contiguous piles with plug piles (example from Collaroy-Narrabeen Beach private coastal protection works tender documentation)**

Anchor setouts and types are a detailed design issue, and are certified by the anchoring contractor. Different lengths and types of anchors can be used at different spacings to achieve the same outcome, namely satisfactory structural analysis for the design life, and certification of the installed works for 100 years (a longer design life is typically used for anchors).

## 2.7 Item 7 – Restoration of Additional Erosion

Council is both the asset owner of the SLSC, as well as the owner of the adjacent land potentially affected by additional erosion in severe storms.

As a public authority, Council has a statutory responsibility to maintain both the asset and adjoining land, including the beach. These requirements may be specified in the conditions of consent, with the arrangements outlined in relevant asset management plans. An example of a potentially suitable consent condition is as follows:

Beach restoration.

Council shall enter into legally binding obligations for the restoration of the beach, or land adjacent to the beach, if any increased erosion of the beach or adjacent land is caused by the presence of the works, as well as maintenance of the works for the life of the works. These arrangements shall be outlined in appropriate asset management plans of Council.

Reason: To ensure compliance with the *NSW Coastal Management Act 2016*.

This is consistent with Section 27(1)(b)(i) of the *Coastal Management Act 2016*, which requires satisfactory arrangements to have been made (by conditions imposed on the consent) for these matters.

## 2.8 Item 8 – Coastal Vulnerability Area

### 2.8.1 Preamble

Based on Clause 2.9 of *State Environmental Planning Policy (Resilience and Hazards) 2021*, “development consent must not be granted to development on land that is within the area



identified as “coastal vulnerability area” on the *Coastal Vulnerability Area Map* unless the consent authority is satisfied that:

- (a) if the proposed development comprises the erection of a building or works – the building or works are engineered to withstand current and projected coastal hazards for the design life of the building or works, and
- (b) the proposed development:
  - (i) is not likely to alter coastal processes to the detriment of the natural environment or other land, and
  - (ii) is not likely to reduce the public amenity, access to and use of any beach, foreshore, rock platform or headland adjacent to the proposed development, and
  - (iii) incorporates appropriate measures to manage risk to life and public safety from coastal hazards, and
- (c) measures are in place to ensure that there are appropriate responses to, and management of, anticipated coastal processes and current and future coastal hazards”.

#### 2.8.2 Clause 2.9(a)

With regard to Clause 2.9(a):

- as described in seawall DA report, to provide protection such that the redeveloped SLSC clubhouse would be at an acceptably low risk from undermining due to coastal erosion/recession over its design life, buried coastal protection works have been proposed. These works have been designed for a scour level of -2m AHD, which has been demonstrated to be conservative;
- the work of WRL, James Taylor & Associates and Partridge Structural described in the clubhouse DA report shows that a suitable mix of practical measures would be able to be formulated to reduce the wave forces on the SLSC building to acceptable levels, and to provide remedial measures to support the seaward face of the existing building against wave forces (if required). This would reduce the risk of inundation damage to the SLSC building to acceptable levels; and
- therefore, the proposed SLSC building has been engineered to withstand current and projected coastal hazards for the design life of the building.

#### 2.8.3 Clause 2.9(b)(i)

With regard to Clause 2.9(b)(i), the proposed seawall works would be buried under sand and would not interact with coastal processes for most of the time over the design life. The theoretical potential for localised end effects to the north and south of the works at times of severe erosion was identified and discussed in the seawall DA report and Appendix B of the clubhouse DA report.

If these end effects were realised, the additional erosion would only locally affect Council’s assets such as parkland and a car park, and would be short-term and relatively inconsequential. Council, the asset owner, has advised that it could accept such additional erosion if it occurred, given the benefit of protecting the SLSC asset. It would be far more catastrophic to Council’s assets if the proposed coastal protection works were not undertaken.

It should also be noted that there are existing buried rock boulder protection works seaward of the SLSC. The proposed seawall is landward of these works, and will interact less with coastal processes than these existing works.

The end effects would not be detrimental to the natural environment or other land as Council will restore any such end effects after storms, as discussed in Section 2.7.

Therefore, the works are not likely to alter coastal processes to the detriment of the natural environment or other land.

#### *2.8.4 Clause 2.9(b)(ii)*

With regard to Clause 2.9(b)(ii), the proposed works would vastly improve public amenity and beach access compared to the existing situation.

In the existing situation, the clubhouse would be undermined and collapse in the design event, and the heritage building would be lost. The community would have lost a building that provides surf lifesaving functions. Debris would be scattered over the beach, and the resources of Council and emergency services would have to be diverted to deal with the immediate storm dangers and subsequent clean up and risk management for several months after a such a damaging storm. With the proposed development, these issues are eliminated, thus vastly improving public amenity.

There is currently no access to the beach from the promenade and clubhouse when the beach is in an eroded state. The proposal incorporates stairs to improve public access to and along the beach following erosion events, and will therefore improve public access when the beach is eroded. When the beach is in an accreted state, the proposed seawall and stairs will be covered in sand and will have no effect on beach access.

#### *2.8.5 Clause 2.9(b)(iii)*

With regard to Clause 2.9(b)(iii), the proposed works incorporate appropriate measures to manage risk to life and public safety from coastal hazards, and would vastly lower the risk to life and vastly improve public safety compared to the existing situation.

As discussed in Section 2.8.2, the redeveloped SLSC clubhouse would be at an acceptably low risk from undermining due to coastal erosion/recession, and inundation damage, over its design life. The measures to achieve this acceptably low risk to life and acceptable public safety include:

- a seawall seaward of the clubhouse;
- various measures to reduce the wave forces on the SLSC building (including steps seaward of the seawall to act as a barrier to reduce wave overtopping when sand levels are low, solid seating on the promenade, and installation of temporary barriers in response to forecast events, with the latter shown to be structurally feasible with an appropriate bollard, infill panel and mechanical connection design);
- sufficiently thick reinforced concrete walls for the new portion of the clubhouse; and
- remedial measures to support the seaward face of the existing building against wave forces (if required), namely internal steel stiffening plates or a concrete wall and/or a concrete wall on the outside seaward face.

The proposed works also allow for removal of the existing rock works, thus further improving public safety.



In the existing situation, there are significant risks to public safety in a mild storm erosion event (with undermining and collapse of the promenade, and exposure and mobilisation of existing rock works) and severe erosion event (with undermining and collapse of the clubhouse).

#### 2.8.6 Clause 2.9(c)

Current and future coastal hazards and anticipated coastal processes over the design life were considered in the design of the works as proposed. As a result, the clubhouse has an acceptably low risk of being damaged from erosion/recession or inundation over the design life, as well as it being anticipated that there will be an acceptable beach width seaward of the works for almost all of the time.

As noted in the seawall DA report, even with projected long term recession due to sea level rise over the design life, there is the expectation of significant beach width seaward of the proposed works for most of the time, in the order of 50m to 60m (on average) at the end of the design life. That is, the proposed seawall works would only be expected to be interacting with wave action occasionally.

As discussed in Section 2.7, Council will restore any end effects to the north and south of the works as required, thus appropriately responding to future coastal hazards.

#### 2.8.7 Clause 2.12

The Sydney North Planning Panel also requested comment on Clause 2.12 of *State Environmental Planning Policy (Resilience and Hazards) 2021*, namely “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”.

The proposed development will vastly reduce the risk of coastal hazards at and surrounding the clubhouse (landward of the seawall location). The potential for end effects on adjacent land was discussed in Section 2.8.3. Council is the owner of the land protected by the proposed seawall, and the owner of the adjacent land potentially affected by end effects. Given the relatively high asset value and length of the clubhouse compared to the adjacent land, the ability for Council to restore the adjacent land, and significant risk to the existing development, the proposed works overall would lead to a reduced risk of coastal hazards on the land affected by the works.

### 2.9 Item 9 – Sea Level Rise Impacts

The interpretation of Horton Coastal Engineering on the comment of Council that sea level rise impacts (such as recession) at Newport Beach “will not be made worse by the existence of coastal protection works of any design, including those proposed as part of this application” is as follows.

Long term beach recession due to sea level rise is expected to occur whether the works are constructed or not. This recession is expected to be caused by projected greenhouse gas emissions, land use changes and air pollutant controls in the future at a global scale. The proposed works (or any other form of coastal protection works) will not cause beach recession, but rather these global processes. Stated another way, beach recession will occur in the same manner if the proposed coastal protection works are not undertaken.

## **2.10 Item 10 – Interruption of Beach Access**

The proposed works vastly improve beach access compared to the existing situation. As illustrated in Figure 7 of the seawall DA report, based on receding 15 historical profiles collected over a 79 year period, the only profile for which beach access from the proposed stairs would have been difficult for less able walkers would have been in the storm of record in 1974. For the general public, beach access would still have been possible at that time. That is, it can be expected that exposure of the proposed piling and the underside of the proposed stairs would only occur once or twice over the design life with median sea level rise projections and a Bruun type response to that sea level rise.

## **2.11 Item 11 – Restoration of Beach**

Restoration of the beach has been discussed in Section 2.7. Given the rate of beach recovery at this location and typical beach widths, the source of any replenishment and means of replenishment would be via beach scraping of sand off the adjacent seaward beach, and/or reprofiling of the dune shape.

## **2.12 Item 12 – Legally Binding Funding**

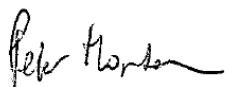
As discussed in Section 2.7, as a public authority, Council has a statutory responsibility to maintain both the asset and adjoining land, including the beach. These requirements may be specified in the conditions of consent, with the arrangements outlined in relevant asset management plans.

## **3. SALUTATION**

If you have any further queries, please do not hesitate to contact Peter Horton via email at [peter@hortoncoastal.com.au](mailto: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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