Submission to the NBC Planning Panel re DA2021/1612

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I have been a resident of the Northern Beaches area for 53 years, a coastal engineer and coastal zone manager for over 50 years, undertaken projects in all States of Australia and overseas in Brunei, Dubai, Kuwait, Indonesia, Hong Kong and NZ, and have been engaged as an independent international expert by the UN. I have published 89 technical papers, Nationally and Internationally. I was General Manager of Pittwater Council 1996-2005.

I have been involved with the subject area of Collaroy since the storms of 1967, when I was an undergraduate studying under Associate Professor Doug Foster who is recognised as one of the "founding fathers" of coastal engineering in Australia. I was "on-site" to personally observe the storm events in 1967, 1974, 1978, 2007 and 2016, as well as a number of other less major events. I have also been involved in writing several reports and papers on coastal issues and management of Collaroy/Narrabeen including the Council Coastal Management Strategy of 1985 which was formally adopted by Council.

From 2013 to 2016 I spent 3 years on an NSW State Government independent "expert" advisory group developing the NSW Government's "Coastal Reform Package" including both the 2016 Coastal Management Act (CMA) and the 2018 Coastal SEPP (later renamed Resilience and Hazard SEPP). I was invited to sit in the Chamber when the Coastal Bill (as it then was) was being debated.

The current application being considered by the Panel demonstrates confusion, misunderstanding and unfortunately some misrepresentation of both the CMA and the associated SEPP.

Firstly, it is important to understand that the Coastal Act is not "a matter for consideration" under the EP and A Act, nor does it override that Act. A person, other than a public authority wishing to undertake a coastal work is entitled to lodge a DA for such a work. However, before a consent authority can consider the DA they have first to determine whether, having considered the issues detailed in the Act and SEPP, they are "satisfied" they are, in a position to issue a consent, should they so wish. That is why in several places in the Act and the SEPP the wording is to the effect a Consent Authority MUST not issue a consent unless the specified requirements are met.

That is, a prerequisite to considering a DA is the determination by the consent authority that it is in a position (satisfied) to be able to legally issue a consent. Interestingly the onus is on the consent authority to be "satisfied" implying the consent authority has the experience and knowledge to be "satisfied". The NSW State Government Panels deal with this matter by ensuring any panels considering coastal matters include suitably qualified and experienced panel members. There is no reference in the Act to the consent authority relying on outside consultants to provide advice as to whether or not the consent authority can be "satisfied". The specific wording and implication of the Act on this matter were recommended by Parliamentary Counsel.

Unfortunately, the various reports and submissions relied on in the current DA clearly don't understand the roles and relationships between the two Acts and so the information provided to the Panel is a somewhat confused amalgam of matters. For example, there is confusion as to what "Beach Access" means with some documents assuming it means access to the beach whereas it means access to AND ALONG the beach. The Chief Judge of the LEC made this clear when reporting on a case at Belongil. However, it is apparent that some consultants and Council staff only considered access TO the beach to be the relevant consideration of the Act.

Understanding this difference is vital to applying Section 27 of the CMA. There is considerable documentation and argument in the submitted documents as to beach width over time and therefore amenity and access for the life of the structure. This mainly relies on desk top studies and numerical modelling in an attempt to demonstrate that Section 27 is satisfied.

The problem with all this work and speculation is that the real-life experience of the impact of the vertical wall to the south of the current proposal clearly demonstrates the assumptions and modelling of beach width in front of a near identical wall shows this previous work is unreliable and inaccurate. Despite the predictions and opinions to the contrary, the fact is that on numerous occasions (including as recently last week for example) since the southern wall was constructed, a very few years ago, the beach width has not only been far less than predicted, and at times zero in front of the wall, but the wave uprush to the wall has been such that access along the beach has not been safely possible. The Council has even had cause to erect signs on the beach to warn of the danger. There are many photographs taken at different times and by different people that demonstrate the assumptions and modelling produced results don't reflect real-life experience. Further, there is an argument put by the proponents that a wall can enhance beach recovery as it will trap sand. This argument is somewhat naive and contrary to experience. Beach recovery on the upper beach is dependent on wind action and the existing wall results in the beach in front of it staying wet longer, hence limiting wind entrainment of sand.

The same opinions and modelling for the existing wall to the south are the basis for proponents arguing for the hoped for projected performance of the currently proposed wall and hence, based on real -life experience should not be taken as "satisfying" Section 27 of the Act.

Please note, this is not intended as a criticism of the professionals who prepared the reports and modelling but rather an observation that current knowledge and understanding is clearly insufficient to be able to predict the likely impacts of the proposed wall. Not unlike predicting the weather. This lack of sufficient understanding is highlighted by the authors of a number of reports and the technical papers and documents referenced in the reports prepared by both the applicant's consultants and those of the Council. A prime example is the often-quoted Kraus and McDonald paper, and associated documents, which it is claimed provides a "definitive" expose of seawall impacts. However. The paper actually points to the lack of definitive knowledge and outlines the studies the authors believe are needed to gain a better understanding. Importantly the paper also concludes that seawalls protect property, not beaches, a theme repeated in much of the literature since.

There are a number of other examples of this same problem of the limitations of the science which interestingly are being increasingly recognised in much of the internationally available texts. The information referred to by Mr. Britton, for example, suggesting "possibly false" adverse impact of vertical walls on beaches, emanating from the US Army Corps of Engineers, is being increasingly questioned and discredited in international literature with recent studies suggesting the impact is more substantial than previously believed.

Some material in regard to this issue has been misquoted thereby damaging the credibility of some authors and of their arguments. Unfortunately, Council officers have failed to pick up on this misquoting and uncertainty as to potential impacts in preparing the assessment report for the Panel.

In summary, the physical evidence is that the attempts to address the requirements of Section 27 by the opinions and modelling of those engaged to do so have proven to have not predicted actual outcomes. This is clear from the evidence provided by the disappointingly adverse behaviour of the existing wall and the resulting associated loss of beach access and amenity. It is important to note that the submissions by the consultants supporting the current proposal for a wall are basically the same documents and opinions as provided previously with no assessment of the subsequent behaviour of the wall/beach to the south. Hence the Consent Authority does not have reliable and robust grounds to believe that the information provided for assessment of the DA demonstrates "satisfaction" that the requirements of Section 27 of the CMA have been addressed and the "predicted" outcomes likely to be met.

And now turning to the additional requirements of the SEPP. In particular Section 2.12 which states:

"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." Importantly, though seemingly overlooked "other land" includes the public beach.

Significantly the authors of most documents assume (actually state) the Collaroy/Narrabeen embayment is a "stable" coastal system and depend on this assumption when putting forward their arguments. It is demonstratively incorrect to assume that the embayment is "stable". The evidence clearly shows that the sand in the embayment is experiencing a net northerly transport and is attempting to infill Narrabeen Lagoon, which any coastal process sediment budget would classify as a "sink". Without the Council, on a 3 to 5 year basis dredging this sink and placing it back on the beach at Collaroy, the beach would be retreating. However, Council has neither a policy, nor a long-term financial plan (a 60 year commitment is not possible under the Act) to maintain this "back-passing" process which is essential for maintaining the current beach processes and apparent "stability" assumed by the various consultants. Only MHL raises some concerns regarding the issue. The active intervention in the coastal processes by Council involves a cost, now in excess of $1,000,000, for each operation. Interestingly the current clockwise rotation of the embayment sediments is tending to increase the need for more intense (and expensive) back-passing operations.

Given that the activity has historically been a “practice” rather than a “policy” and has been subsidized by State Grants, the continuation of which is problematic, and made more complex by increasingly demanding environmental approvals, it is erroneous to assume the embayment is not recessional. Hence the impact of the seawall needs to be considered in this light and not through naive assumptions regarding issues such as on-going funding, a lack of appreciation as to the potential impacts of climate change (a factor the Act requires to be considered) and environmental concerns. In regard to the climate change issue, the focus in the documents has been on sea level rise .whereas it is now recognised that climatic instability and change to weather patterns is an equally important consideration both in terms of seawall design but also sand distribution throughout the embayment, hence public amenity. This whole matter has been inadequately considered in the assessment reports.

The CMA defines the “beach fluctuation zone”, the region involved in change due to erosion and accretion events. By definition, the construction of any hard structure in the beach fluctuation zone must impact on the coastal processes as it intervenes and alters the natural processes. Given that the embayment is not naturally stable, but relies on mechanical intervention which is not guaranteed for the life of the project, it is not apparent the basis on which the consent authority can be “satisfied”, that the requirements of the SEPP can be fulfilled. That is, the reports and documents supporting the proposal fail to examine, or comment on, the susceptibility of the Collaroy/Narrabeen coastal processes to financial/political/environmental change during the “life of the structure” and hence alternative potential outcomes. The reports, modelling and assessments all assume a stable system which is actually a legacy of past “practice”, not local government or State “policy” and does not take into account future funding or political imperatives, particularly as costs of operation increase. There is no sensitivity analyses on which to base the likelihood of outcomes.

The Act and supporting documents emphasise the need for whole of embayment integrated solutions. For practical implementation reasons to date the Northern Beaches Council has attempted to adhere to this by considering continuous solutions between road heads. However, in the current Application Council has accepted an ad hoc approach in which a public property in the middle of the area in question, the surf club, is excluded from the proposals on either side. Council simply indicating it will deal with the surf club vulnerability in the future. However, there is neither funding nor a concept of works other than an earlier report which was based on a revetment which extends onto the beach, a disconnect with the proposals either side and Council’s support for the current, non-continuous “solution”.

Finally, the letter report prepared by Greg Britton (27 July 2023) professionally points out that a number of the matters to be satisfied are not coastal engineering issues and hence are outside his area of expertise. He therefore does not comment on them. That is, there does not appear to be a covering report dealing with all the issues in the CMA and the SEPP. Further, there is no overall report that examines the Objects of the Act and assesses how those Objects were proposed to be met. The approach seems to be one of partial process consideration aimed at property protection and not on cumulative outcomes or balance, particularly for the overall community, the intent of the Act.

The application should be refused and a more sympathetic and balanced design that complies with the CMA and SEPP be developed.

Should the panel choose to set aside the concerns raised in this submission it should take note of the universal theme that seawalls should be as far landward as possible to minimise impact on beach fluctuations. There is no legal requirement or right for a vertical seawall to be constructed as near as possible to the seaward boundary of a property. Interestingly this theme of maximum possible setback is echoed by both MHL and by Mr. Britton. Examination of the plans accompanying the proposed seawall clearly show that the proposed seawall could be moved landward by at least 5, and possibly up to 10 metres thereby significantly reducing its impact on the beach fluctuation zone for both the present and the future.

Mr. Britton also argues that the setback between protective structures and buildings that has been traditionally required by Council was to provide maintenance access for revetment type protective structures. As noted by Mr. Britton this is not required for a vertical seawall type structure and hence the distance between any building and a vertical wall can be substantially reduced. End effects associated with the discontinuity between the seawall to the south and the proposed wall, if set back, can be catered for in a competent design for the bounding road heads and for the surf club. Council has already had to contend with this matter in regard to the vertical wall to the south. Constructability may be seen as an issue, but again competent design can accommodate this. Mr. Horton, as Council's consultant, has in recent times proposed a similar vertical wall in the very close proximity of the Newport Surf Club and so is clearly confident that issues of constructability can be addressed. The proposed shore-normal stairway can be turned shore-parallel and incorporated into the wall as has been done on the wall to the south.

Moving the wall back would allow the beach in front of the properties to better reflect the natural shape and behaviour of beaches. So, even retaining a vertical seawall concept, which does still raise concerns given the Objects of the CMA, a landward movement by at least 5, and up to 10 metres is both possible and desirable in terms of balance between private and public outcomes.

There are still other solutions which can achieve better outcomes. The vertical concrete seawall concept is an unfortunate example of the "brutalist engineering" featured in coastal management thinking of last century/ In recent times this approach has been heavily criticized both here and overseas because of its failure to recognise and accommodate environmental and social factors.

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