

Robert Wiggins (Yadev Holdings P/Ltd)  
c/o Geoff Bonus  
Bonus & Associates  
Level 1  
597 Darling Street  
ROZELLE NSW 2039

**HASKONING AUSTRALIA PTY LTD.**

Level 14  
56 Berry Street  
NSW 2060 North Sydney

+61 2 8854 5000 **T**  
+61 2 9929 0960 **F**  
project.admin.australia@rhdhv.com **E**  
royalhaskoningdhv.com **W**

|                 |                         |               |                       |
|-----------------|-------------------------|---------------|-----------------------|
| Date:           | 20 April 2021           | Contact name: | Matt Potter           |
| Your reference: |                         | Telephone:    | +612 8854 5000        |
| Our reference:  | PA2736-RHD-RW-MP-AT-005 | Email:        | Matt.potter@rhdhv.com |
| Classification: | Project Related         |               |                       |

Dear Robert & Geoff

**1184-1186 Pittwater Road, Narrabeen - Coastal Assessment Report**

I refer to our recent discussions regarding your Section 4.55 Modification to the proposed Alterations and Additions to the Heritage Item at 1184-1186 Pittwater Road, and the request for Royal HaskoningDHV (RHDHV) to consider the requirements of the Collaroy-Narrabeen Beach Coastal Protection Works Design Specifications, the Northern Beaches Coastal Erosion Policy and Warringah LEP 2011 Clause 6.5 in relation to the Modification application.

Royal HaskoningDHV are well placed to provide advice in regard to this property, as the company has undertaken a number assessments of proposed coastal protection works at this location.

This letter report is structured in the following way:

- Section 1 sets out background information that is relevant to this application;
- Section 2 sets out specific key comments on current matters for consideration;
- Section 3 sets out specific key comments on the consistency of the application with the Collaroy-Narrabeen Beach Coastal Protection Works Design Specifications;
- Section 4 sets out specific key comments on the consistency of the application with the Northern Beaches Coastal Erosion Policy;
- Section 5 sets out specific key comments on potential impacts to the beach and coastal processes;
- Section 6 sets out specific key comments on the consistency of the application with the Warringah LEP 2011 Clause 6.5;
- Section 7 sets out specific key comments on the potential offsite impacts to the adjoining land and properties as well as any actions to mitigate any impacts; and,
- Section 8 sets out specific key comments on actions required to tie in with proposed works at the adjoining properties

## Section 1 - Relevant Background Information

In March 2007, Patterson Britton & Partners completed a letter report “Coastal Engineering Investigation, 1184-1186 Pittwater Road Narrabeen” with respect to Development Application (DA2006/1055). The report considered the likely impact of coastal processes and coastline hazards on the development and likely impacts of the development on coastal processes and coastline hazards; and, specifically commented in detail on the design of a proposed contiguous pile seawall, and the foundation support system proposed within the Zone of Reduced Foundation Capacity. This letter report concluded that the proposed development would not be expected to be impacted by coastline hazards for the design event, nor impact on coastline hazards in any significant manner, and was submitted as part of a Development Application (DA) for the subject property.

On 9 July 2008, WorleyParsons (which had acquired Patterson Britton & Partners) were advised by Geoff Bonus of Bonus + Associates Architects that the DA had been refused, and that revised plans had been prepared. The review of the revised plans noted that the proposed ground floor level of 7.0m AHD has not been altered, nor had the location of the seaward face of the proposed development. As such, the March 2007 report was still considered to be valid at the subject property.

In July 2009, WorleyParsons were advised that the design has been modified, and as such, a Section 96 application was required. Mr Geoff Bonus of Bonus + Associates Architects requested comment on the revised design from a coastal engineering perspective. The key change compared to the previous design reviewed in 2008 was the inclusion of ground floor and first floor balconies extending seaward of the proposed development (and thus seaward of the Zone of Wave Impact). These balconies were to be cantilevered, that is, these structures were to be entirely supported from landward of the Zone of Wave Impact.

The report concluded that the first floor balconies, with a floor level of 10.4m AHD, are well above expected wave action at the subject property, and would not be affected by coastline hazards, or affect coastline hazards at or adjacent to the subject property. At a level of 7.0m AHD, wave forces on the underside of the ground floor balconies are likely to be relatively small, and there is no mechanism for these balconies to significantly affect sediment transport processes and the like. That is, effects (increased coastline hazards) on neighbouring properties are likely to be negligible as a result of the proposed development, for the design event that sets the development position.

In January 2014, RHDHV (which included key former employees of Patterson Britton & Partners and WorleyParsons) were engaged by Mr Robert Wiggins to provide coastal engineering advice in relation to a proposed modification under section 96 of the *Environmental Planning and Assessment Act 1979* to a development consent at the subject property. The key changes to the concept were relocation (seaward extension) of the existing basement level carpark from below the existing building, and the construction of buried protective works (an engineered sloping rock revetment) at the seaward edge of the subject property (entirely within the subject property).

The report concluded that the proposed revetment would most likely reduce the likelihood of erosion affecting adjacent properties, as the possibility at the time of flanking erosion on these adjacent properties would be prevented. The proposed development was considered to be acceptable from a coastal engineering perspective, and likely to be consistent (in principle) with the Collaroy-Narrabeen Beach and Fishermans Beach CZMP.

In 2014 Development Consent and a Construction Certificate were obtained for coastal protection works at 1184-1186 Pittwater Road. These works were designed by RHDHV and comprised the combination of

a contiguous pile wall (also forming the wall for a basement carpark) and a rock revetment located immediately seaward of the contiguous pile wall.

The approved coastal protection works had not been constructed at the time of a severe East Coast Low (ECL) in June 2016 which caused substantial erosion along Collaroy-Narrabeen Beach including at 1184-1186 Pittwater Road (refer Photo 1).



*Photo 1: Erosion at 1184-1186 Pittwater Road caused by the June 2016 ECL)*

Immediately following the June 2016 ECL, the owner of 1184-1186 Pittwater Road took the decision to proceed with interim coastal protection works, comprising a rock revetment. The basement wall was not included in the works due to the urgency of the action required and access and logistical issues associated with construction of the basement wall at that time.

The interim coastal protection works were constructed over the period June-August 2016 and were essential in order to:

- provide erosion protection to 1184-1186 Pittwater Road;
- mitigate the risk of outflanking of existing rock protection at the property immediately to the south (1182 Pittwater Road) and consequent further erosion damage to this property including the dwelling; and,
- mitigate further erosion damage to the Clarke Street road end (Council land).

RHDHV carried out periodic inspections during construction of the interim coastal protection works at 1184-1186 Pittwater Road and provided technical advice in response to submissions and queries raised

by the Contractor. RHDHV provided a certification at the completion of the interim works that the works will provide an acceptable level of erosion protection to existing and proposed future development at 1184-1186 Pittwater Road, noting that the future development includes a contiguous pile wall basement structure.

In October 2018, RHDHV were engaged by Mr Geoff Bonus of Bonus + Associates Architects to provide coastal engineering advice with respect to a Section 4.55 Modification to the proposed Alterations and Additions to the Heritage Item at 1184-1186 Pittwater Road, and to address Warringah Local Environmental Plan (WLEP) 2011 Clause 6.5 Coastline Hazards in relation to the Modification application. Of main interest from a coastline hazards perspective were the proposed increase in the size of the building footprint seawards in a number of above ground areas, and the proposed new steps leading to the beach across the coastal protection works. The letter report concluded that the proposed Section 4.55 Modification met the objectives and matters for consideration of WLEP 2011 Clause 6.5.

## Section 2 – Current matters for consideration

In March 2021, RHDHV were engaged by Mr Geoff Bonus of Bonus + Associates Architects to provide coastal engineering advice with respect to the proposed Section 4.55 Modification to the Alterations and Additions to the Heritage Item at 1184-1186 Pittwater Road.

From review of the information provided, it is noted that:

- impacts are assessed relative to the scenario of existing protection works elsewhere along the beach remaining in place, which is appropriate;
- the design solution comprises a vertical contiguous pile wall/secant pile wall which supports a vertical basement wall above 3.3m AHD. Permanent lateral stability of the basement walls will be provided by the concrete basement floor structure and the concrete ground floor (basement roof) structure, which will be tied into the contiguous piling/secant piling. The lower contiguous pile wall/secant pile wall and the basement wall above together serve as the coastal protection works along the eastern boundary of the property;
- it is proposed to stage the works; the coastal protection works, including a 10m return along the north and south boundaries, would comprise Stage 1;
- the vertical coastal protection works are located entirely within private property, with the main face of the structure located 0.5m landward of the property boundary (outer edge of wave return located on the property boundary);
- the seaward extent of the proposed works is the same or landward of the existing works;
- the seaward extent of the works, compared with the existing alignment of rock protection, is consistent with the assumptions in the independent impact assessment on coastal processes contained within the 'Collaroy Narrabeen Beach Coastal Protection Assessment' prepared by Manly Hydraulics Laboratory (MHL) on behalf of Northern Beaches Council in 2016. As such, it can be generally concluded that the impacts of the proposed coastal protection works on coastal processes are acceptable;
- the proposed works can integrate with surrounding works without negatively impacting on these existing or future upgraded works; and,
- the proposed works would be 'tied' into adjacent protection works to the north (Clarke Street) and to the south (1182 Pittwater Road), so as to be contiguous and integrated with these adjoining works, but not structurally connected.



### Section 3 - Consistency of the application with the Collaroy-Narrabeen Beach Coastal Protection Works Design Specifications

The proposed coastal protection works meet or exceed the requirements in the Specifications in the following respects:

- minimum Average Recurrence Interval for the design event;
- minimum design life;
- minimum crest level;
- minimum toe level;
- cross shore positioning;
- interaction with adjoining properties or works (refer also to Section 8);
- criteria for addressing sea level rise;
- Construction Management Program statement;
- minimum level of geotechnical investigation prior to design; and,
- consideration of alternative seawall proposals (an alternative to a rock revetment is proposed; as required by the Specifications the alternative has been designed by a suitably qualified engineer, has involved early consultation with Council and has addressed the design criteria in the Specifications).

Global slope stability referred to in the Design Specifications is provided by the contiguous pile wall/secant pile wall and upper basement wall, and the restraint to these elements achieved by connection to the basement side walls, basement floor and basement roof, providing permanent lateral stability. Refer to statement provided by Woolacotts Consulting Engineers (dated 9 April 2021).

A Construction Management Program has been prepared by Woolacotts Consulting Engineers (dated 9 April 2021), who will be responsible for design of the contiguous pile wall/secant pile wall and basement structure, with input from RHDHV on design scour level and wave loading. The Construction Management Program includes construction plan and sections (drawings CM1 and CM2) and sediment control plan (drawing SW 2).

### Section 4 - Consistency of the application with the Coastal Erosion Policy

The proposed works are consistent with the relevant Principles of the Policy, namely:

- maintenance of public amenity and surf quality – the proposal could be considered to improve public amenity by resulting in removal of past rock protection from the beach. The proposal does not impact on coastal processes relative to the existing situation (refer Section 5); and,
- property owners are responsible for protecting their property from the impacts of coastal processes and are responsible for ensuring their property does not adversely impact on adjoining properties or coastal processes.

The proposed works are consistent with the relevant requirements for designing and siting protection works. In particular, it is noted:

- the proposed works are proposed to be built entirely on private property;
- the proposed works do not adversely impact on public access; and,
- the proposed works are in accordance with the minimum criteria outlined in the Specifications, except as noted below.

The requirement that the proposed works are only visible temporarily during and after significant erosion events is not fully met. This is a difficult requirement to satisfy at Collaroy-Narrabeen Beach given the position of private property boundaries relative to the beach and the requirement for a minimum crest level for coastal protection works. Beach scraping, an activity undertaken by Council following storms, would assist in mitigating visual impact at the subject location and elsewhere along the beach.

#### Section 5 - Potential Impacts to the beach and coastal processes

For a number of reasons, it is considered that the proposed works would not impact adversely on the beach and coastal processes compared to the existing situation or status-quo, for example:

- the alignment of the proposed works (entirely within private property) relative to the existing rock protection (to be removed) is such that existing beach behaviour is not impacted to any significant degree, as determined in the independent coastal processes impact assessment carried out for Council by MHL (2016);
- the proposed works would be suitably tied in to works on adjacent properties (refer Section 8); and,
- it has been agreed by the Applicant that the coastal protection works will be maintained in a manner that ensures the ongoing design performance of the works.

#### Section 6 - Warringah LEP 2011 Clause 6.5

Objectives of the Clause:

Clause 6.5 of WLEP 2011 has the following objectives:

- (a) to avoid significant adverse impacts from coastal hazards;
- (b) to enable evacuation of coastal risk areas in an emergency;
- (c) to ensure uses are compatible with coastal risks;
- (d) to preserve and protect Collaroy Beach, Narrabeen Beach and Fishermans Beach as national assets for public recreation and amenity.

Matters for Consideration:

WLEP 2011 Clause 6.5 states that development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied on six matters (a) to (f) related to coastline hazards. Each of these six matters is reproduced below in italics followed by a response.

*(a) will not significantly adversely affect coastal hazards*

The Section 4.55 Modification proposes a vertical seawall with integrated steps (the coastal protection works) coloured yellow in the attached Bonus & Associates Drawings DA01-P and DA03-T. The seaward extent of the works, compared with the existing alignment of rock protection, is consistent with the assumptions in the independent impact assessment on coastal processes contained within the 'Collaroy Narrabeen Beach Coastal Protection Assessment' prepared by Manly Hydraulics Laboratory (MHL) on behalf of Northern Beaches Council in 2016. The proposed coastal protection works will result in removal of past ad-hoc rock protection from the beach. As such, it can be generally concluded that the impacts of the proposed coastal protection works on coastal hazards are acceptable.

The Section 4.55 Modification proposes an increase in the size of the building footprint seawards in a number of below ground areas, coloured yellow in the attached Bonus & Associates Drawings DA02-S

and DA07-T. These areas are located landward of the proposed vertical seawall (the coastal protection works) and thus would have no impact on coastal processes and coastline hazards.

The interaction with wave overtopping flows would be expected to be minimal given the distance between the crest of the coastal protection works and the building structure (approximately 15m) and the opportunity for overtopping flows to infiltrate into the grassed surfaces over this distance.

Over time the quantity of wave overtopping flows during severe storms can be expected to increase associated with projected sea level rise. The owner of 1184-1186 Pittwater Road may have to give consideration to an adaption strategy to manage the interaction of overtopping flows over time, in common with other landowners along Collaroy-Narrabeen Beach. Such adaption strategies are available and could include, for example, construction of a low landscaped wall seaward of the building structure.

The proposed steps leading to the beach across the coastal protection works would be located within the zone of active coastal processes during those erosion events that lead to wave action against the coastal protection works. As such, the steps have the potential to impact on the magnitude of coastal hazards. Due to the small scale of the steps relative to the wave processes, any impacts on the magnitude of coastal hazards would, however, be localised to the subject property and could be accommodated by the coastal protection works, noting the proposed contiguous pile wall.

*(b) will not result in significant detrimental increases in coastal risks to other development or properties*

The proposed increase in the size of the building footprint seawards in a number of below ground areas (coloured yellow) would not result in any significant detrimental increases in coastal risks to other development or properties, due to the location of these proposed structures landward of the coastal protection works, as noted earlier.

The small scale of the proposed beach access steps relative to wave processes means that there would be no significant detrimental increases in coastal risks to other development or properties.

*(c) will not significantly alter coastal hazards to the detriment of the environment*

For similar reason as noted above, the proposed modifications coloured yellow will not significantly alter coastal hazards to the detriment of the environment.

*(d) incorporates appropriate measures to manage risk to life from coastal risks*

Risk to life along Collaroy-Narrabeen Beach from coastal risks at the time of severe ocean storms is managed by Council and other agencies, e.g. NSW Police, under a well established emergency action plan (Coastal Erosion Emergency Action Sub-Plan for Warringah's Beaches (2015)). Where necessary, evacuation of residents at risk takes place and access to foreshore areas by the public is strictly controlled.

The proposed modifications coloured yellow do not require any specific measures to manage risk to life from coastal risks as they would be captured within the established coastal erosion emergency action sub-plan referred to above.

*(e) avoids or minimises exposure to coastal hazards*

The proposed the coastal protection works coloured yellow in the attached Bonus & Associates Drawings DA01-P and DA03-T, by virtue of their design, will minimise exposure of the property to coastal hazards.

- (f) *makes provision for relocation, modification or removal of the development to adapt to coastal hazards and NSW sea level rise planning benchmarks*

The Northern Beaches Coastal Erosion Policy does not require provision to be made for relocation or removal of development to adapt to coastal hazards and NSW sea level rise planning benchmarks.

Adaption strategies exist to address the increased risk associated with wave overtopping over time, e.g. low landscaped walls, as noted earlier.

In regard to future coastal hazards associated with projected sea level rise, the Northern Beaches Coastal Erosion Policy states at item 7(c) that ..... 'Council, the NSW Government and the Federal Government will be responsible for undertaking sand nourishment that is required as a result of sea level rise or in response to extreme storm events where normal beach recovery processes will be impaired because of the extent of the damage'.

#### Section 7 - Potential offsite impacts to the adjoining land and properties as well as any actions to mitigate any impacts

The proposed works would not be expected to impact adversely on the adjoining land and properties for a number of reasons:

- the adjacent properties have existing protection;
- the proposed works would tie into the adjacent protection so as to provide contiguous and integrated protection; and,
- the proposed works are located landward of the position of the toe and lower section of the existing rock protection works.

The proposed works would beneficially reduce the risk of coastal erosion at adjacent properties, for some wave directions, by reducing the risk of outflanking.

#### Section 8 - Actions required to tie in with proposed works at the adjoining properties

The Architectural Drawings do not show the proposed means of tie in of the proposed works to the existing protection at Clarke Street and 1182 Pittwater Road.

It is unlikely upgraded coastal protection works would have been constructed at Clarke Street at the time works proceed at 1184-1186. The following would apply:

- temporary removal of a portion of the existing rock protection at Clarke Street;
- construction of the proposed works including a seawall return (comprising the contiguous pile wall and the side wall of the basement) within the boundary of 1184-1186;
- reinstatement of the existing rock protection at Clarke Street to the pre-works conditions;
- repeated washing of sand into the voids of the restored existing rock protection at Clarke Street until no sink holes are apparent; and,
- all works to be carried out under the direction of the Coastal Engineer.

In the case of 1182, it is expected that upgraded coastal protection works would have been already constructed. The proposed works at the subject site would abut the adjoining upgraded works, be located within the boundary of 1184-1186, but not be structurally connected to the adjoining works.



I trust the above meets your current requirements. Please let me know if you require any clarification or additional information.



**Matt Potter**

Principal Coastal Engineer  
Water

References:

Bonus + Associates: Architects; Alterations And Additions to Heritage Item, 1184 - 1186 Pittwater Road  
Narrabeen; Sec 4.55 Modification Issue - January 2021

Woolacotts Consulting Engineers; Construction Management Program 18-183 / 9 April 2021 / Revision E