



Office of  
Environment  
& Heritage

Our reference: ED13/107  
Contact: Peter Evans, 4904 2594

11 MAR 2013

Mr Derek Rutherford  
Acting Chair  
NSW Coastal Panel  
c/- Office of Environment and Heritage  
PO Box A290  
SYDNEY SOUTH NSW 1232

Dear Mr ~~Rutherford~~ <sup>Derek</sup>


**DEVELOPMENT APPLICATION, COASTAL PROTECTION WORKS, OLD BAR**

I refer to your letter of 15 February 2013 inviting comments on Development Application CP12-001 for coastal protection works at Old Bar, as amended.

The Office of Environment and Heritage has reviewed the amended drawings together with International Coastal Management's letters of 24 October 2012 and 16 January 2013 and the seawall management plan. I regret to advise that the amendments do not adequately address the concerns outlined in the letter of 10 August 2012. I am further concerned that some of the proposed changes further heighten those concerns. A copy of the letter of 10 August 2012 and additional comment on the amended proposal are attached.

I trust that you will find these comments useful in your deliberations. Should you require any further information, please do not hesitate to contact me or have relevant officers contact Peter Evans, Unit Manager, Hunter-Lower North Coast on (02) 4904 2594.

Yours sincerely

  
**TERRY BAILEY**  
Deputy Chief Executive  
Regional Operations

Enclosure

## OEH COMMENTS ON DEVELOPMENT APPLICATION, COASTAL PROTECTION WORKS, OLD BAR

The following are additional comments to the Office of Environment and Heritage's (OEH) comments on the original proposal (dated 10 August 2012) and should be read in conjunction with them.

### ***Extent of Proposed Works***

The exact extent of the proposed works remains unclear. International Coastal Management's (ICM) letter of 16 January 2013 states that initial works will include all works on the properties from 40 to 24 Lewis Street inclusive. However, Drawing OB-EPW-004 shows a return on 34 Lewis Street.

ICM's letter then states that in the event approvals are obtained for adjacent properties, the wall will be extended from the southern boundary of 40 Lewis Street to the northern boundary of 24 Lewis Street. This appears to be the same extent proposed for the initial works.

### ***Returns***

The proposed arrangement for returns being at a slope of 1:1 and normal to the wall alignment will be highly reflective and will exacerbate end effects to the extent that they may exceed those estimates provided in the draft guideline document. The maximum end effect is likely to be realised very close to the return and not some distance away as illustrated on Figure 1 of ICM's letter of 16 January. The likely extent of end effects is not shown for properties to the north.

It is unlikely that the return on 34 Lewis Street, shown on drawing OB-EPW-004 could be built to an adequate length without demolishing the two structures present at the seaward side of that property.

### ***Managing End Effects and other Off-Site Impacts***

The discussion on off-site impacts makes reference to "northerly sediment transport in ambient conditions" and then references the hazard definition study as indicating that both net and storm induced sediment transport being directed southwards. While there is unlikely to be any significant net littoral transport at Old Bar, significant transport in either direction can occur in both storm and non-storm conditions. In the latter case, the regime may persist for a significant period in response to medium term climate cycles.

Consequently, it is important that the extent of end effects be estimated for the north end of the wall.

The "effective length" of the wall for the estimation should be measured at MSL, not 4mAHD.

The discussion of end effects and off-site impacts fails to recognise that Old Bar Beach is receding and likely to do so at an increasing rate in the future. As such, the magnitude and extent of that impact is likely to grow over time and exceed estimates presented.

The discussion on the management of end effects makes it clear that the proponents are unable to manage the problem and that approval of the application will commit adjacent landholders to a protection strategy. Thus there will progressively be a greater length of coast with protective works. As noted in OEH's previous comments, the capacity of adjacent landholders to participate in such a strategy is unproven.

The claim that beaches fronting seawalls "experience heightened accretion" post storm is unsupported and contrary to the large body of evidence on the impact of seawalls.

As previously noted, the ongoing recession of Old Bar Beach means that there will soon be no useable beach in front of the seawall at any state of the tide. With the anticipated progressive extension of the seawall, the length of coastline affected will increase over time.

The proponents acknowledge that it is not possible to effectively manage this issue and so rely on the implementation of a wider beach management strategy. It refers to beach nourishment and submerged reefs as possible strategies. However, in the Coastal Management Study, Worley Parsons found that all strategies to create and maintain a wider beach were either impractical or unaffordable. It was for this reason that Greater Taree City Council adopted a policy stance of planned retreat.

Accordingly, it is not possible to rely on any "wider beach management strategy" to deal with the impact of the proposal on beach access and amenity. Approval of the application will therefore lead to a loss of public beach over a progressively increasing length of coast.

### ***Design***

It is noted that the revised design provides for a second layer to 3mAHD and a minimum toe level of -1mAHD. OEH will rely on the WRL assessment of the adequacy of this design but notes that the proposal moves the footprint of the seawall further seaward, exacerbating the access and constructability issues raised in our previous comments.

Likewise, it is considered that it will not be possible to construct a toe to -1mAHD as the beach water table is likely to be in the range + 0.5 to +1mAHD and dewatering will not be feasible. It is likely that over time supplementary toe protection will be required (presumably of rock) with consequences for beach amenity and safety.

### **Seawall Alignment**

As noted previously, the proposed alignment appears to have been determined either by a requirement to protect the low value improvements on 34 and 36 Lewis Street or a desire to reclaim as much as possible of previously eroded property. The proposed alignment is inconsistent in that the southern extension does not follow the property but takes a more landward (and therefore desirable) alignment.

The existing beach profile (and that of the OEH 2012 survey) should be shown on the design drawings. This will demonstrate the expected beach state in front of the wall post construction.

### **Seawall Management Plan**

The draft plan is scant on detail and does not provide information on the resources and timeframes required to conduct maintenance activities.

The proposal that individual landholders be responsible for maintenance of that section of the wall fronting their properties is considered unworkable as lack of maintenance in one area could compromise the integrity of the seawall. A preferred arrangement would be maintenance be arranged centrally and costs shared on a pro-rata basis.



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Our reference:  
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ED12/578  
Peter Evans, 4904 2594

Mr Derek Rutherford  
Acting Chair  
NSW Coastal Panel  
c/- Office of Environment and Heritage  
PO Box A290  
SYDNEY SOUTH NSW 1232.

10 AUG 2012

*Derek*  
Dear Mr Rutherford

**DEVELOPMENT APPLICATION, COASTAL PROTECTION WORKS, OLD BAR**

I refer to your letter of 20 July 2012 inviting comments on Development Application CP12-001 for coastal protection works at Old Bar.

The Waters, Wetlands and Coast Division of the Office of Environment and Heritage has reviewed the Development Application and supporting documents and has a number of significant concerns in relation to the proposal and the assessment of its impact, as detailed in the attachment.

I trust that you will find these comments useful in your deliberations. Should you require any further information, please do not hesitate to contact me or have relevant officers contact Peter Evans, Unit Manager, Hunter-Lower North Coast on (02) 4904 2594.

Yours sincerely

**SALLY BARNES**  
**Chief Executive**

Enclosure

## OEH COMMENTS ON DEVELOPMENT APPLICATION, COASTAL PROTECTION WORKS, OLD BAR

### **Design**

OEH has concerns in relation to the design wave height, the choice of a single layer structure, toe level and the durability of the geo-containers. However, it is understood that the University of New South Wales Water Research Laboratory (WRL) has been engaged to provide a detailed appraisal of the design.

### **Seawall Alignment**

The proposed alignment appears to have been determined either by a requirement to protect the low value improvements on 34 and 36 Lewis Street or a desire to reclaim as much as possible of previously eroded property. The proposed toe of the structure is about 16m seaward of the toe of the existing erosion escarpment. The existing sand level at this point is about 0.8m AHD. This level would be expected to lower significantly as soon as waves impact on the structure.

This has a number of implications:

- It will be difficult to build the structure on this alignment as the toe will be subject to wave runup at all states of the tide, even in moderate wave conditions. The beach water table will be significantly above the design toe level and dewatering would not be feasible;
- The structure would not be buried to RL 3.5m as claimed in the Statement of Environmental Effects;
- The proposed stairway from the Meridian Resort would terminate in water; and
- Pedestrian access along the beach in front of the structure would only be possible at low tide and in low wave conditions. With the anticipated lowering of the sand level in front of the structure and ongoing recession of the beach, it would be expected that such access would soon not be possible at any state of the tide

Section 55M(1) of the *Coastal Protection Act 1979* ("the Act") prohibits the granting of consent to coastal protection works that unreasonably limit public access to or use of a beach. That section further requires that satisfactory arrangements are made for the restoration of a beach following erosion caused by the works. It seems inevitable that the current proposal will both limit public access to the beach and result in increased erosion of adjacent land. Council's Coastal Management Study concluded that it would not be economically feasible to maintain a beach in front of such a structure through nourishment and it is likely to be beyond the capacity of the proponents to do so. It is for this reason that the revetment (and nourishment) option was not recommended in Council's Coastal Management Study and is not included in Council's draft Coastal Zone Management Plan, currently in preparation.

The seawall alignment shown in Council's Coastal Management Study was indicative only and selected to facilitate estimation of cost. It was also assumed that concurrent nourishment would be carried out to satisfy the requirements of s55M of the Act. A more landward alignment would address the public access issue for some time but eventually the presence of the seawall would preclude public access along the beach. The intent of s55M of the Act might be addressed to some extent by requiring the proponents to provide an easement for public access along the top of the seawall with beach access at either end. Clearly, this would not satisfy all beach users and not indefinitely.

### **Increased Erosion of Adjacent Lands**

The assessment of increased erosion risk to adjacent land contained in the Statement of Environmental Effects (SEE) is not in accordance with the draft guidelines<sup>1</sup> and sound practice and as such is deficient. The guidelines recommend that the design erosion volume be increased by 80% for a distance of up to 70% of the seawall length along the shore or 500m, whichever is the lesser. The guidelines allow for the standard open coast design erosion values to be supplemented, but not replaced by numerical modelling.

The design erosion volume for Old Bar adopted in the hazard definition study is 220m<sup>3</sup>/m. This is intended to account for an extreme storm or a series of storms that might occur over a period of days, months or even a number of years, without an intervening period of recovery. It is an accepted design figure for

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<sup>1</sup> OEH draft *Guidelines for Assessing the Impacts of Seawalls* (2010). Also refer Carley JT, Shand TD, Mariani A, Shand RD and Cox RJ 2010, *Technical advice to support guidelines for assessing and managing the impacts of long-term coastal protection works* (draft), Water Research Laboratory Technical Report 2010/32

maximum rip head erosion on the open coast. It does not allow for any long term recession trend, which at Old Bar is significant. The SEE dismisses this design figure and instead adopts a figure of 45 m<sup>3</sup>/m, which was derived using the SBEACH numerical model with a single 12 hour storm. It then states that maximum alongshore extent of increased erosion is 140m but argues that it is likely to be less.

A discussion of the inappropriateness of using SBEACH for the calculation of design erosion volumes is beyond the scope of this review. It is sufficient to point out that the determining authority must be concerned with the impact of the seawall over the long term and not for a single storm lasting only one tidal cycle. Indeed, the fact that Old Bar is presently experiencing long term recession and that the rate of recession is expected to increase as a result of current sea level rise trends, means that the impact of the seawall on adjacent, unprotected land is likely to progressively increase over time and exceed that estimated from the short term erosion standard of 220m<sup>3</sup>/m.

### ***Staging of Works***

The proposal includes a staging of works with Stage 1 terminating at the southern boundary of the Meridian Resort. The proposed alignment of the seawall is such that the end effects are likely to develop almost immediately. It is therefore likely that properties immediately to the south will be adversely impacted by the first significant storm event. The determining authority should ensure that any consent contains adequate provisions to deal with such impacts and that the Government is protected from claims from the owners of those properties.

As a medium density development, the Meridian Resort owners' corporation has a capacity to fund the construction and maintenance of protective works. Adjacent landholders, including those north and south who are not party to this current application, may not have such a capacity. The construction of the first stage effectively commits all landholders to a protection strategy. Any landholders who do not participate will be affected by increased erosion of their property caused by the seawall. The determining authority should consider how it might protect the Government against potential liability claims.

### ***Maintenance***

Subject to the advice of WRL, OEH considers that the proposed seawall may be under-designed and that it is likely to have high maintenance costs. Any consent should ensure that adequate provisions are made for ongoing maintenance and eventual removal should that be necessary. Again the capacity of individual landholders to fund their share of maintenance costs is a concern.

### ***Council's Policy***

The determining authority should be aware that GTCC has adopted a policy of planning retreat for the whole of its coastline. It is in the final stages of preparing a Coastal Zone Management Plan that will give effect to that policy.

### ***Illegal Works***

Some years ago the owners of the properties from 34 to 40 Lewis Street, who are party to this development application, placed rock protection at the toe of the erosion escarpment without consent. It was ineffective in preventing erosion and since placement the beach had receded so much that by early this year the rocks were in the swash zone about 20m from the toe of the escarpment and posing a significant threat to beach user safety. In June of this year, the owner(s) of 34 to 36 Lewis Street had the rock fronting his property retrieved and placed at the toe of the existing escarpment, again without consent. The current arrangement is likely to be just as ineffective in preventing movement of the erosion escarpment and the rock will again pose a threat to public safety.

It is recommended that any consent granted for coastal protection works contain conditions requiring that these illegal works be removed.