HASKONING AUSTRALIA
MARITIME & WATERWAYS

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Our reference: 8A0412_response to geotechnical study.docx
Date: 28 July 2014

Subject: **PROPOSED 154 BERTH MARINA AND WAVE ATTENUATOR CATTLE BAY, EDEN**
RESPONSE TO COUNCIL LETTER OF 9 AUGUST 2013 IN RELATION TO A GEOTECHNICAL STUDY

Dear Stephen

I refer to the letter from Bega Valley Shire Council to Inspire Urban Design & Planning dated 9 August 2013 in relation to the proposed 154 berth marina and wave attenuator in Cattle Bay at Eden. In this letter Council set out a number of additional information requirements which need to be addressed prior to any assessment of the proposal. These additional information requirements were under five main headings:

- wave modelling;
- environmental impacts;
- visual impact;
- traffic impact study;
- water and sewer servicing strategy.

The purpose of this letter is to address the statement made by Council under Item 3 of the Wave Modelling heading which was as follows:

> 3. *The geotechnical study may be important in determining the proposed orientation of the wave attenuator.*
>
> *The Geotechnical study needs to be undertaken and incorporated into the EIA, to provide a more accurate determination of the proposed location and orientation of the wave attenuator.*

An appraisal of the geotechnical conditions in the subject area has been made based on review of the existing available geophysical/geotechnical information and the recent (July 2014) bathymetric and seabed mapping conducted by Marine Solutions on behalf of Ocean Environmental (reported in detail in the Ocean Environmental report (Appendix 5)). The existing available geophysical/geotechnical information comprises:

- geophysical fieldwork carried out by GBG Australia on behalf of the Aurecon Group in December 2013 associated with proposed improvements at Snug Cove for access by ocean cruise vessels;
- borehole and cone penetrometer data contained in the document *Geotechnical investigation for breakwater extension as part of the Eden Port Development* (Longworth & McKenzie Pty Ltd) dated January 1985.

The geophysical/geotechnical information shows that, generally speaking, the subsurface conditions in the Snug Cove area consist of three layers; an interbedded sand with some gravel, overlying a clayey silt, sand, silty or clayey sand, overlying a silty clay or weathered bedrock. The individual layer thicknesses are variable.

The bathymetric and seabed mapping conducted by Marine Solutions indicated that the bathymetry in the area of the proposed marina and wave attenuator is generally simple, with depth increasing with distance from the shoreline (indicative of sediment at the seabed surface). The majority of Cattle Bay is covered by marine sediments (sands and silts); these would comprise the initial geotechnical layer referred to above (images of the seabed surface are available in the Ocean Environmental report).

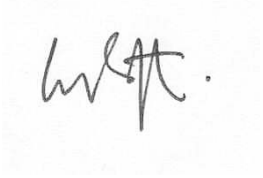
In our opinion the geotechnical conditions would not drive the final location and orientation of the wave attenuator since:

- the geotechnical conditions appear reasonably uniform within the Bay, so do not offer any particular spatial constraints or opportunities;
- the location of the wave attenuator, eg its position offshore, is broadly determined by the location and size (offshore extent) of the proposed marina that it is designed to protect;
- the alignment of the wave attenuator, while critical, is driven by the need to ensure the wave attenuator does not lead to any significant changes to the alignment of Cocora Beach, by virtue of possibly altering the swell wave direction along Cocora Beach. Investigation of this issue is the subject of the wave modelling report prepared by Cardno on behalf of Royal HaskoningDHV, wherein it is demonstrated that the proposed attenuator would not significantly affect the alignment of Cocora Beach.

We trust the above satisfactorily address Council's additional information requirement regarding the geotechnical study.

Please contact the undersigned should you require any clarification or additional information.

Yours faithfully
HASKONING AUSTRALIA



Greg Britton
Resident Director