

International Marina Consultants - Consultants to the Marina Industry

Australian Company Number: 079 905 481
GST Registration/Australian Business Number: 85 079 905 481

473 Annerley Road,
ANNERLEY QLD 4103
AUSTRALIA
Phone: (07) 3892 5711
Fax: (07) 3892 5611
International Access (617)
Email: john@imc-marinas.com
Web: www.imc-marinas.com

6th December 2017

Port of Eden Marina Inc
PO Box 226
EDEN NSW 2551

ATTENTION: Robert Bain

Dear Sir,

**Re: EDEN SAFE HAROUR PROJECT
EOI – WAVE ATTENUATOR CONTRACT**

As requested we have reviewed the above referenced EOI General Attenuator Location and Alignment as depicted in the EOI Figure 1, especially focusing on the incentive for the maximum marina aspect.

The proposed attenuator alignment would lead to the loss of about 100 berths relative to the 170 berth marina concept (4197-SK7 attached) making the marina non-commercial at 70 berths.

Also, we have strong doubts as to the “moderate” wave climate being suitable for a marina where maximum wave heights in the “protected” area could be well in excess of 1m.

1.0 GENERAL OVERVIEW

As highlighted following our marina development economic study (2012), in order to maximise investment potential and minimise development risk, space needs to be used as efficiently as possible and the berthing capacity maximised within the comparatively small available area in Snug Cove.

This proposed wave protection infrastructure is a significant investment for the community and obviously the best outcome is to achieve the greatest possible benefit.

2.0 ATTENUATOR ALIGNMENT AND HARBOUR MAXIMISATION

2.1. Access

The EOI Figure 1 alignment has the attenuator shown immediately adjacent the Multi-Purpose Jetty (no vessel access from this end).

In order to maximise harbour usability and flexibility (whilst not comprising wave protection outcomes), blocking off the harbour entrance capability on the eastern side is not a good outcome.

2.2. Marina Development Capacity

2.2.1. Internal Channel Implications and Cruise Berth Set Back

The loss of access between the Multi-Purpose Jetty and the attenuator requires continuous channel access from the western only entrance, to this Jetty.

Obviously, the more access channel area requirement, the less berthing area there is to work with.

Also any set back of the attenuator from the required cruise ship berthing area again reduces useable harbour space. It is understood that 160m is required for the cruise ships but the current proposal allows about 190m.

To emphasise this, attached drawing 4197-SK8/A depicts the loss of around 56 berths for such a channel requirement and set back compared to our layout drawing 4197-SK7.

2.2.2 Exposure to Waves across Twofold Bay

The EOI attenuator alignment appears to stop short of providing wave protection across the entire bay leaving the north-western portion unprotected from a 3.3km fetch from the WSW across Twofold Bay. Without protection, the NW part of the Bay cannot be used for berthing.

As depicted on drawing 4197-SK9 this could cause the loss of around 43 berths.

2.3. Potential Loss of Berths

To emphasise the potential effects of the above, the attached drawing 4197-SK10 depicts the outcome of potential losses of around 99 berths due to EOI alignment compared to the 4197-SK7 layout.

The loss of berths is considerable and with the potential berth numbers down to around 74 the objective of creating a financially viable marina development would not be achieved.

2.4. Wave Attenuator Performance

As stated in the EOI *“The proposed wave attenuator must achieve in its lee, as a minimum a ‘moderate’ wave climate for head seas in accordance with Australian Standard AS3962 Guidelines for design of marina as presented in Table 7.”*

As pointed out previously, there are two concerns with this approach to providing suitable wave protection for a marina.

The EOI specifies having a wave climate behind the wave protection in accordance with “moderate” for head seas with a significant wave height, Hs (highest 1/3 wave height) of 0.75m (for the 50 year storm event).

However, wave heights are variable from wave to wave and research has established that maximum wave heights are around 1.85 times is Hs value. This would result in a maximum allowable wave height of up to 1.39m. This is clearly unsatisfactory in any marina.

The other issue is that, with this “head seas” only criteria, no berths can be orientated in any direction in the marina except for directly into wave approach.

With the marina area in the North-West side of the bay, it would require protection against a wave exposure direction from the South through to WSW. This is a directional spread well over 45° (refer attached aerial view and drawing 4197-SK10). As such, “berth head-on” only cannot be achieved for this directional spread. At some point, waves would have to be in an oblique direction where the marina code recommends an Hs of 0.4m for a “good” wave climate or at worst an 0.5m for a “moderate” wave climate (notwithstanding our concerns about using the moderate criteria) for Snug Cove.

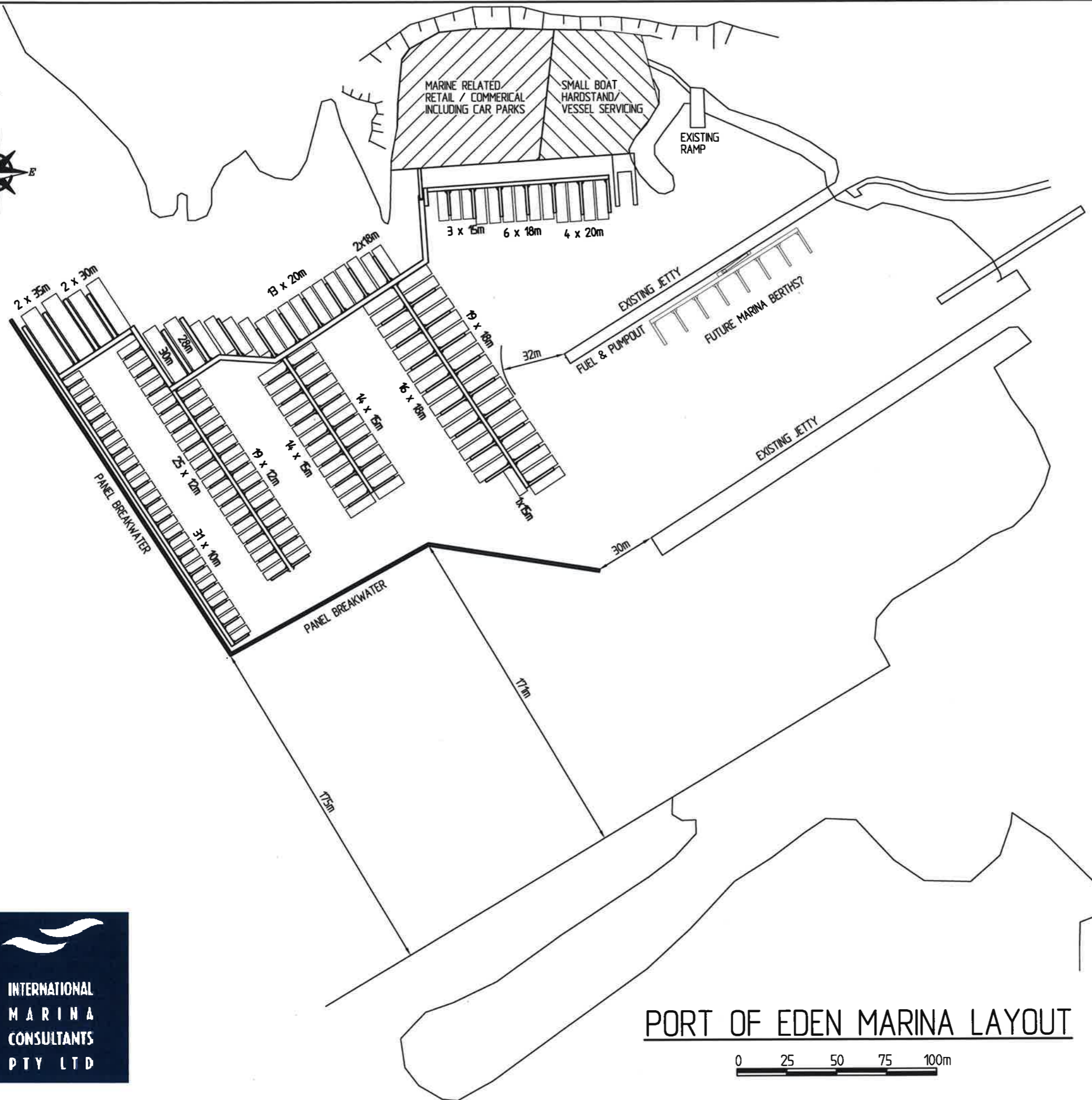
Yours sincerely,

INTERNATIONAL MARINA CONSULTANTS PTY LTD



JOHN LEMAN, BE, RPEQ, MIPENZ, ATBP No. CC4190W

Director



PORT OF EDEN MARINA LAYOUT

0 25 50 75 100m



MARINE RELATED
RETAIL / COMMERCIAL
INCLUDING CAR PARKS

SMALL BOAT
HARDSTAND/
VESSEL SERVICING

EXISTING
RAMP

3 x 15m 6 x 18m 4 x 20m

EXISTING JETTY

FUEL & PUMPOUT
FUTURE MARINA BERTHS?

EXISTING JETTY

EOL ATTENUATOR LOCATION

TOE OF BATTER

PANEL BREAKWATER

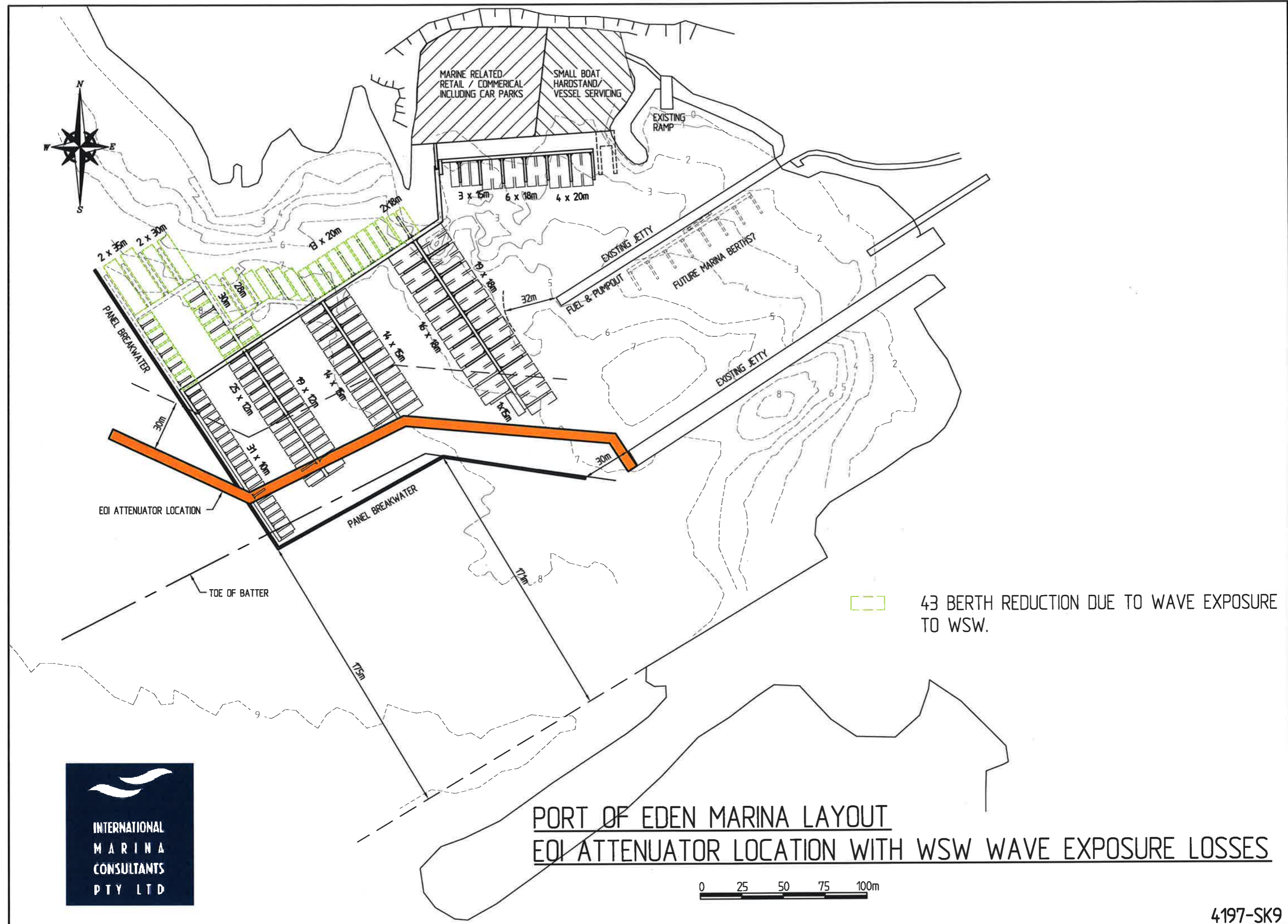


56 BERTH REDUCTION FOR INTERNAL CHANNEL
AND SET BACK



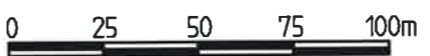
PORT OF EDEN MARINA LAYOUT EOL ATTENUATOR LOCATION WITH INTERNAL CHANNEL & SET BACK LOSSES





 43 BERTH REDUCTION DUE TO WAVE EXPOSURE TO WSW.

PORT OF EDEN MARINA LAYOUT EOI ATTENUATOR LOCATION WITH WSW WAVE EXPOSURE LOSSES





MARINE RELATED
RETAIL / COMMERCIAL
INCLUDING CAR PARKS

SMALL BOAT
HARDSTAND/
VESSEL SERVICING

EXISTING
RAMP

3 x 15m 6 x 18m 4 x 20m

EXISTING JETTY

FUEL & PUMPOUT
FUTURE MARINA BERTHS?

EXISTING JETTY

WSW WAVES

EOI ATTENUATOR LOCATION

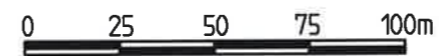
TOE OF BATTER

SOUTHERLY WAVES

EOI ATTENUATOR LOCATION NUMBER OF BERTHS 74



PORT OF EDEN MARINA LAYOUT EOI ATTENUATOR LOCATION WITH RESULTANT OVERALL BERTH LOSSES



Untitled Map

Write a description for your map.

Legend

Eden

Google Earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image © 2017 TerraMetrics

Image © 2017 CNES / Airbus



3 km

