

ENVIRONMENTAL IMPACT STATEMENT

Marina Development

at Cattle Bay, Eden



**Submitted to Bega Valley Shire Council
on behalf Eden Cattle Bay Marina Pty Ltd**

April 2019

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Declaration under Part 3, Schedule 2 of the Environmental Planning and Assessment Regulation 2000

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Name and Address of the Responsible Person:

As above.

The Address of the Land

Lots 2 and 4 of DP 1138056, Cattle Bay Road and the adjoining Crown Land waters of Cattle Bay within Twofold Bay, Eden NSW.

Description of Development to Which this Statement Relates

Erection and use of a 154 berth marina comprising three floating pontoon arms restrained by piles, a fixed wave attenuator, minor refurbishment of the existing wharf, landside car park comprising 97 spaces plus 3 loading/unloading spaces, and temporary building to house marina administration and toilets.

Assessment of the Environmental Impact of the Development

An assessment of the environmental impact of the development is contained in this Environmental Impact Statement.

Declaration

Pursuant to clause 6(f), Part 3, Schedule 2 of the Environmental Planning and Assessment Regulation 2000, I declare that this Environmental Impact Statement:

- i) Has been prepared in accordance with the requirements of the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2000;
- ii) Contains all available information that is relevant to the environmental assessment of the infrastructure to which this Environmental Impact Statement relates; and
- iii) Contains information that is neither false nor misleading.

Andrew Wilson

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14. Site Exit Audit and Environmental Site Assessment prepared by Aargus
15. Geotechnical Statement and Sediment Contamination Statement prepared by Royal Haskoning DHV
16. Marine Ecology Report prepared by Ocean Environmental Consulting
17. Air Quality Report prepared by West & Associates
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EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) is submitted to Bega Valley Shire Council and the Southern Joint Regional Planning Panel in support of a Development Application (DA) for a marina at Cattle Bay in Eden on the NSW South Coast. It has been prepared on behalf of the applicant, Eden Cattle Bay Marina Pty Ltd in accordance with the Environmental Planning and Assessment (EP&A) Act 1979 and Regulation 2000, and the environmental assessment requirements issued by the Secretary of the Department of Planning and Environment.

Proposed Marina

The proposed marina development is the same as in the previous Development Consent (No.430.2014) issued by the Southern Joint Regional Planning Panel (JRPP) on 1 December 2015 which has now lapsed. The applicant Eden Cattle Bay Marina Pty Ltd is submitting this new DA for the same marina development as in the lapsed consent.

The proposed marina development has been subject to evaluation of market demand for it in the region and options for its location and design. It comprises the following:

- A total of approximately 154 berths in three floating pontoon arms restrained by piles;
- A fixed wave attenuator located generally parallel with the southern pontoon arm;
- Minor refurbishment of the existing wharf;
- A mix of berth sizes from mostly 12m to 18m and up to 28m to cater for a range of watercraft from small local recreational craft to occasional larger international super yachts. The exact mix of berth sizes will be finalised in the preparation of final documentation for the project;
- Temporary (portable) building to house marina administration and toilets. Access will meet disability standards.
- Provision of power, lighting, water, fire fighting equipment, two sewage pump out carts, and security access controls to the pontoons and berths;
- Connection to existing potable water, sewer and power supplies to serve the temporary building and fire fighting;
- Refurbishment and use of the existing stormwater drainage system incorporating provision of new Gross Pollutant Trap
- Temporary car park comprising 97 spaces plus 3 loading/unloading spaces located on the existing concrete apron
- Use of the existing site access gate and driveway off Cattle Bay Road, and widening of part of Cattle Bay Road;
- Relocation of 24 swing moorings outside the marina area in locations to be confirmed with the RMS and the Eden Port Authority;

The proposed marina development involves no fuelling, no fixed sewerage pump out facility, no dredging, no demolition, and no significant vegetation removal.



Artist illustrations of proposed marina

The Development Application and this EIS for the proposed marina development are accompanied by the following documents which include a range of measures to mitigate and manage the potential environmental impacts of the marina:

- Operational Environmental Management Plan (OEMP);
- Construction Environmental Management Plan (CEMP); and
- Water Quality Management Plan (WQMP).

Strategic Planning Context

The proposed marina development and in particular its economic and social benefits to the boating industry, tourism and the local economy on the NSW South Coast at Eden with appropriate environmental assessment and management are consistent with the relevant NSW Government and Council strategic plans including the NSW State Plan 2021; South East Tablelands Regional Plan 2036; Twofold Bay and Hinterlands Strategy 2004; The South Coast Regional Strategy; NSW Coastal Policy; Snug Cove and Environs Master Plan 2005; Eden Structure Plan Report 2006; and Bega Valley Shire Land Use Planning Strategy 2008.

Environmental Planning Legislation and Instruments

Bega Valley Council Plans

The proposed marina development is consistent with the objectives and provisions of Bega Valley LEP 2013, and is permissible with consent on the unzoned land in the Cattle Bay waterway, and on the SP3 Tourism Zone and E2 Environmental Conservation Zone on the land base under the LEP.

NSW Government planning legislation and policies

The proposed marina is designated development under Schedule 3 of the EP&A Regulation and requires an EIS under Schedule 2 of the EP&A Regulation as it has a capacity of more than 80 vessels.

The proposed marina is integrated development under section 4.46 of the EP&A Act as it requires a Permit from NSW Primary Industries - Fisheries under the Fisheries Management Act 1994 to damage marine vegetation in the construction, and a Licence from the NSW Environment Protection Authority under the Protection of the Environment Operations Act 1997 as a scheduled activity.

The proposal is consistent with all relevant State environmental planning policies (SEPPs) including in particular SEPP (Coastal Management) 2018 and SEPP 55 - Remediation of Land.

Environmental Assessment

A summary of key findings in this EIS on environmental assessment issues is provided below.

Marine Safety and Navigation

The proposed marina footprint does not impact on the approach channels and swing basin for commercial shipping and boating in Eden Port and Harbour, the proposed Eden Safe Harbour wave attenuator, or on any future marina in Snug Cove.

The navigation of vessels into and out of Cattle Bay with the proposed marina will largely reflect the existing navigation of vessels associated with existing swing moorings in Cattle Bay.

The proposed marina development has a design and wave attenuator that meet relevant Australian Standards for safe navigation conditions within the marina.

A number of additional navigation aids for vessels in the bay are proposed to be installed in the marina operation including lighting, signs and instructions / education for marina users. The navigation aids will be installed in consultation with NSW Roads and Maritime Services and the Port Authority.

A Swing Mooring Relocation Strategy is appended to this EIS and outlines the process and location for the relocation of existing swing moorings to other parts of Twofold Bay that have safe conditions for boating navigation.

Contamination

The specialist contamination audit report appended to this EIS prepared for the decommissioning of the previous industrial use on the land base confirms that the site has no contaminants above health guidelines suitable for commercial use.

A contamination statement appended to this EIS on the testing of sediment samples for a range of organic and inorganic substances within the Australian and New Zealand (ANZECC) Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) finds that sediments comprise silty fine to medium grained sands and have no contaminants exceeding the ANZECC Interim Sediment Quality Guideline.

Biodiversity

The specialist marine ecology report appended to this EIS prepared by Dr Katie Smythe of Ocean Environmental Consulting finds that the proposed marina development with the OEMP, CEMP and WQMP management plans will not have a significant impact on the intertidal, subtidal and deeper water sandy and rocky habitats with patches of seagrass and invertebrate benthic fauna as it involves no dredging and the impact is limited in area to the piles, partial shading and vessel propeller wash. There is an abundance of similar habitat within Twofold Bay which is expected to support similar ecology assemblages and the impact is not considered significant.

The appended marine ecology report also provides an impact risk profile for macro vertebrate marine fauna – bony fishes, sharks and rays, marine mammals (i.e. whales, dolphins and seals), and marine reptiles (e.g. turtles) known or having potential to occur in Twofold Bay and finds low to moderate risk of impact with the risk mitigation measures in the operational and construction management plans. The report concludes that with the nature of the proposed works and the mitigation and/or management measures available, the proposal will not have any significant impacts on any of the fauna species.

The marine ecology report also finds the site has no significant suitable habitat for marine/migratory birds.

The site of the proposed marina is:

- not an area of saltmarsh or mangroves;
- not critical habitat under Fisheries Management Act or Biodiversity Conservation Act or Environment Protection and Biodiversity Conservation Act;
- not a marine protected area under the National Parks and Wildlife Act;
- not coastal wetland or littoral rainforest;
- not an area of Outstanding Biodiversity Value under the Biodiversity Conservation Act;
- not part of the Upwelling East of Eden Key Ecological Marine Feature under the EPBC Act.

Water and Soil on the Land Base

The land base of the proposed marina has a remnant concrete slab surface from past industrial use situated at the confluence of three drainage lines in the lower part of a topographical amphitheatre. It contains an existing stormwater drainage channel along the western side of the site to collect stormwater runoff that discharges into Cattle Bay.

The proposed marina development will not will not have a significant impact on the existing drainage regime or soils across the site as it involves placement of temporary demountable buildings and car parking on the existing concrete slab surface, and no substantial earthworks.

A number of measures are proposed to mitigate potential impacts of the marina on stormwater runoff from the marina construction and operation. This includes installation of a gross pollutant trap in the existing drainage channel, bunding of waste water disposal area and any chemical handling/storage area, provision of waste bins, and sediment control fencing and waste facilities during construction.

The eastern part of the site is subject to flooding from overland flow in major storm events. A flooding emergency response plan is to be prepared in accordance with the outline in the OEMP with marina protocols for marina management and staff training, monitoring of flood levels, securing of equipment, signage, and evacuation in major storm events.

Water and Sediments in the Bay

Topography and bathymetry

The proposed marina development involves no dredging and will have no significant impact on the topography / bathymetry and water depth to the bed of Cattle Bay other than the removal of a rock pinnacle.

The impact of the proposed marina and wave attenuator on the topography / bathymetric profile of the beaches and foreshore is described in the specialist wave modelling reports appended to this EIS. The proposal will result in some impact on the alignment of Cattle Bay beach with a slight clockwise rotation of the beach by 7m to 8m (seaward accretion at the eastern end and landward erosion at the western end). It will not significantly impact on the adjacent Cocora Beach or any other beach or foreshore area.

Sediments

The marina development has potential to disturb sediments in Cattle Bay from piling and boating activity. No dredging is proposed in the marina development. Sediment sampling and analysis has been undertaken as part of the project investigations and concludes that sediments at the site have no contaminant substances exceeding ANZECC sediment quality guidelines, and the relatively minor disturbance of sediments during construction activities would not release contaminants into the water. The proposal does not involve the removal (eg. dredging) of any sediment with potential for acid sulfate soils to an environment where oxidation could occur with adverse impacts on the environment. The environmental impact of sediment disturbance associated with the proposed marina is limited to localised turbidity in the water.

Wave climate

The specialist wave modelling reports submitted with this EIS, including a supplementary statement taking into account Port of Eden works, find that the proposed marina and wave attenuator will have the following impact on the wave environment:

- moderate the local wind waves generated across Twofold Bay by strong winds from the south/south-south-west and attenuate the swell wave climate from the ocean;
- create more sheltered wave conditions along Cattle Bay Beach and a clockwise rotation of the beach (while retaining a sandy beach); and
- not cause significant changes to swell wave direction and energy along Cocora Beach;
- have only minimal effects on wave heights, wave directions and wave energy at the location of the mussel farm in Twofold Bay.

Water quality

The potential impacts of the marina use and operation on the water in Cattle Bay – Twofold Bay include the following:

- discharges from vessels including oily bilge water, sewage and galley waste water, and gross pollutants;

- copper leaching from vessel antifouling paint;
- spills and leaks of fuel, oil and other pollutant chemicals from marina operations; and
- reduction in wave action in Cattle Bay.

The potential impacts of the construction works on water quality include:

- turbidity from disturbance of the seabed from piling and construction vessel;
- release of contaminants into the water from spills and leakages of fuel, oil, bilge water and sewage from floating construction vessel, and cleaning chemicals.

The proposed measures to mitigate potential impacts on the water in Cattle Bay Twofold Bay are described in detail in the OEMP, CEMP and WQMP management plans appended to this EIS. These documents provide a comprehensive range of measures for environmental impact mitigation including a suite of measures each for Statutory and Licence Requirements, Management and Reporting, Marina Management Guidelines, Induction/Training, Safety, Fire Protection, Hazard Management, Marina Maintenance, Navigation Safety, Signage and Lighting, Solid Waste Management, Liquid Waste Management, Waterway Quality, Storms, Marine Ecology and Construction. Each of these suite of measures to various degrees mitigates potential impacts on the water in Cattle Bay – Twofold Bay.

Marina operation

The measures specifically directed to mitigate impacts of the marina use and operation on the water in Cattle Bay - Twofold Bay include:

- Cattle Bay Marina shall provide a minimum of two mobile sewage pump-out units managed and operated by trained marina staff, and shall implement a ban on the discharge of sewage or other pollutants to the waterway.
- Cattle Bay Marina shall supply bilge water absorbing pads to all vessels and implement a ban on bilge water discharge to the waterway.
- Use, discharge or disposal of environmentally hazardous antifouling paints containing tributyltin, organo-tin and other similarly hazardous components at Cattle Bay Marina shall be prohibited.
- In-water hull cleaning of vessels painted with any biocide including copper-based antifouling shall be prohibited.
- Use of any biocide including copper-based antifouling on in-water infrastructure shall be prohibited.
- Cattle Bay Marina shall implement measures, policies and procedures to prevent spills to the waterway.
- Marina staff shall immediately investigate the source of any spill and take steps to prevent further spillage and clean up or remove spilt material, in the case where the spill is from marina property, marina users, or results from marina operations.

- In the case that the source of the spill is identified as being outside marina property and control, the Marina Manager shall immediately notify the EPA and Council.
- Cattle Bay Marina shall train staff to deploy booms in the event of an emergency and the appropriate use of the absorbent materials for clean-up activities.
- Cattle Bay Marina shall conduct periodic inspections of the water surface in the vicinity of the marina and arrange for prompt removal of any unsightly flotsam / jetsam, particularly anything which creates a navigational hazard to vessels.
- Water quality testing and monitoring.

Marina construction

The measures specifically directed to mitigate impacts of marina construction on the water in Cattle Bay - Twofold Bay include:

- no dredging is proposed;
- avoiding use of excessive vessel engine power, propeller wash and anchors in shallow water;
- undertaking piling works during periods of calm weather where possible to minimise drift of suspended sediments;
- lowering of rock pinnacle by non-explosive method either by barge mounted excavator or non-explosive rock splitting expansive agent;
- turbidity control barriers (i.e. silt curtains) to enclose the areas of construction activities;
- floating plant and equipment that are to be kept clean and clear of unnecessary waste materials, have operational oil and fuel cans stored and securely fastened with oil absorbent pads and bunding, and be refuelled and cleaned off site with no bilge water or sewage discharged at the construction site;
- spill response kits kept on construction vessels;
- preparation and implementation of a water quality monitoring program.

Air Quality and Odour

The specialist air quality report appended to this EIS finds that engine emissions associated with the proposed marina development will not pose a safety issue for nearby sensitive residential receivers according to relevant clean air regulations and standards, and particularly as contaminant levels would be dispersed by separation distances of more than 75 metres to the nearest dwelling house.

The potential for offensive odour from disposal of sewer from vessels in the proposed marina is severely restricted and not significant due to the small size and sealed characteristics of the proposed mobile pump-out cart system, the operation by trained marina staff only, and the large separation distances between the site and nearest residences.

Construction of the marina will not have any significant impact on air quality as the proposal does not involve any dredging, excavation or significant odorous construction waste.

Noise and Vibration

The specialist acoustic report appended to this EIS finds that noise emissions associated with the proposed marina development from vessel engines, mechanical services, wave slapping, rig slapping, onboard activities, and car engine noise in the car park and road will meet relevant noise standards at sensitive residential receivers subject to the measures for restricting onboard noise listed in the OEMP and CEMP, and particularly as a result of the noise attenuation effect of separation distances of more than 75 metres to nearest residence.

Vibration levels from pile driving is the only significant source of vibration in the proposed marina development and is unlikely to exceed the safe limits for structural damage to residential buildings or commercial buildings which are further than 75 metres away.

Traffic and Transport

The specialist assessment of traffic and parking implications appended to this EIS finds that the access road for the marina comprising Flinders Street / Cattle Bay Road and Cocora Street and their respective intersections with the Princes Highway / Mitchell Street and Imlay Street have adequate capacity to accommodate the 20 car movements (two way) in peak hours generated by the proposed marina. The specialist assessment also finds that the proposed 97 car parking space more than meets the parking demand of 35 car spaces. The marina will have minimal truck and service vehicle generation.

Construction vehicles trip generation is estimated to be in the order of 10 vehicle trips per day as construction materials and activities will be predominantly via barge on the waterway.

Waste Management

The proposed marina will have suitable waste management measures in place in accordance with the appended OEMP and CEMP. Waste from the marina office, marina activities, bilge water and oil absorbing pads will be collected by commercial waste contractor for disposal to licenced waste facility. Waste water from vessels in the marina is to be collected by way of mobile pump out carts and disposed into sewer pipes on site connecting to the Council sewer system in Cattle Bay Road. Waste water from the office amenities on the land base is to be disposed directly into sewer pipes on site connecting to the Council sewer system in Cattle Bay Road.

Waste from the marina construction will be managed by the marina builders and will include a skip bin on site, and removal by either a commercial waste contractor directly from the site or removal by barge for collection by commercial waste contractor off site for disposal to a licenced waste disposal facility.

Hazards and Risk

The existing public foreshore reserve (lot 4) and existing wharf have recently been the subject of maintenance works by Council and the proponent for safe public access.

The proposed marina development and in particular the OEMP and CEMP provide a comprehensive range of measures for managing environmental hazards and risks including a

suite of measures each for Statutory and Licence Requirements, Management and Reporting, Marina Management Guidelines, Induction/Training, Safety, Fire Protection, Hazard Management, Marina Maintenance, Navigation Safety, Signage and Lighting, Solid Waste Management, Liquid Waste Management, Waterway Quality, Storms, Marine Ecology and Construction. Each of these suite of measures to various degrees mitigates potential environment hazards and risks associated with the proposed marina development.

The OEMP includes range of measures to manage the following potential hazards and risks including Fuel/Oil Spills or leaks from berthed vessels; Sinking of Vessels; Fires / Explosions and Fire Water Runoff; Discharge of Sewage and Waste; Electrical Equipment Hazards; Propwash from cruise ships and tugs in Port of Eden.

Cattle Bay is not covered by Port of Eden First Port of Entry Biosecurity Determination.

The bushland around Cattle Bay is over 100m from the proposed marina facilities and has adequate separation distance for asset protection zone.

Visual Landscape

The visual character of the proposed marina is consistent with the historic and established maritime character of Eden and Twofold Bay, the existing cluster of vessels on existing swing moorings in Cattle Bay, and the other swing moorings and maritime facilities in the adjacent Snug Cove and Port of Eden Harbour. The proposal will increase the visual density of vessels in Cattle Bay, but will not be unreasonably obtrusive given it is a relatively narrow section of wide panoramic views across Twofold Bay, and will be ameliorated to a degree by the visual backdrop of the dominant natural bushland peninsula and presence of existing maritime facilities in the area including the existing wharf being incorporated into the proposed marina development and existing Eden breakwater. The proposed land based structures and car park are small in scale and generally below the level of the marina, and will therefore have little or negligible visual impact.

Heritage

The subject site has been the subject of specialist heritage investigation concluding there is no European heritage significance and a low potential for Aboriginal archaeological deposits on the major parts of the site subject to past development on which the land based marina facilities and services are proposed to be located. The areas with moderate to high potential for subsurface artefacts of heritage value are in the surrounding perimeter bushland which is not being disturbed by the proposed marina facilities. No further heritage study, consultation or management plan is warranted as the proposed temporary marina facilities and services on the land base are all on existing concrete slab and within existing services lines from past industrial use which have no heritage significance.

The proposed marina is compatible with the State heritage listed Bundian Way around the foreshore of Twofold Bay as it is a catalyst for a tourist facility development on the land base at Cattle Bay under an existing Part 3A Concept Plan Approval which will involve rehabilitation of the foreshore in consultation with the local Aboriginal community to integrate with Bundian Way in the future.

Public Access

The proposed marina development involves the retention of public access at Cattle Bay on the beach, public foreshore reserve on Lot 4, existing jetty wharf and in the bay around the marina. The proposal will require some minimum restrictions to public access at the end of the wharf and in the bay necessary for safety and security associated with marina berthing operations. Public access will be improved with the proposed widening and improvement of Cattle Bay Road, and provision of car parking for public use on the Lot 2 land base on the foreshore of Cattle Bay.

The construction of the marina will involve some restrictions on public access for reasons of public safety and navigation safety during the construction period as outlined in the appended CEMP.

Environmental Impact Mitigation Measures

The environmental impact mitigation measures proposed to be implemented in the proposed marina development are included in the following management plans appended to this EIS:

- Operational Environmental Management Plan (OEMP);
- Construction Environmental Management Plan (CEMP); and
- Water Quality Management Plan (WQMP).

Conclusion and Justification

Given the assessment of environmental planning issues and findings in this EIS, the proposed marina development is considered to be justified on grounds of design, environmental management, social and economic benefit, and consistency with the principles of ecologically sustainable development, and is therefore recommended for the granting of development consent.

1. INTRODUCTION

This Environmental Impact Statement (EIS) is submitted to Bega Valley Shire Council and the Southern Joint Regional Planning Panel in support of a Development Application (DA) for a marina at Cattle Bay in Eden on the NSW South Coast.

The proposed marina comprises a 154 berth marina, a fixed wave attenuator, minor refurbishment of the existing wharf; and temporary office and amenities buildings and car park. The temporary facilities on the land base will be replaced by a tourist facility which is the subject of a Part 3A Concept Plan Approval when developed in the future.

This EIS has been prepared in accordance with Schedule 2 of the Environmental Planning and Assessment (EP&A) Regulation 2000, and the environmental assessment requirements issued by the Secretary of the NSW Department of Planning and Environment included at Appendix 1. The proposed marina is designated development under Schedule 3 of the EP&A Regulation as it accommodates more than 80 vessels.

The proposed marina development is the subject of a previous Development Consent (No.430.2014) issued by the Southern Joint Regional Planning Panel (JRPP) on 1 December 2015 which has now lapsed. The previous Development Consent lapsed on 1 June 2018 as Council determined the deferred commencement condition in the consent had not been satisfied. Eden Cattle Bay Marina Pty Ltd is re-lodging a new Development Application (DA) for the same marina development approved by the JRPP on 1 December 2015.

The expert consultants in the following table have prepared respective parts of this EIS and the appended specialist discipline reports.

Discipline	Consultant Firm
Planning	Eden Cattle Bay Marina Pty Ltd – Andrew Wilson (Registered Planner)
Engineering and Maritime	Royal Haskoning DHV
Architecture	Black Architects
Ecology	Ocean Environmental Consulting - Dr Katie Smythe
Traffic	Transport and Traffic Planning Associates
Noise and Air Quality	West & Associates
Contamination	Aargus
Visual	Inspire Planning and Urban Design
Heritage	South East Archaeology

The following table shows the parts of this EIS in which the matters in Schedule 2 of the EP&A Regulation and each of the environmental assessment requirements issued by the Secretary of the NSW Department of Planning and Environment are addressed.

Schedule 2 EP&A Regulation and Secretary's Environmental Assessment Requirements	Sections in this EIS
Form and declaration as per Schedule 2 Clause 6 of the EP&A Regulation	Page i
Matters in Schedule 2 clause 7 of the EP&A Regulation as follows:	
• summary of the EIS	Executive Summary
• objectives of the development	Section 3.1
• alternatives considered	Section 3.2
• description of the development	Sections 3.3 to 3.12
• likely impact on the environment	Sections 6 to 19
• measures to mitigate adverse effects on the environment	Sections 6 to 20
• list of approvals required under other laws	Section 5.8
• justification for the development	Sections 3.2 and 20
Strategic Context	Section 4
Environmental Planning Instruments and Other Policies	Section 5
Marine safety and navigation	Section 6
Contamination	Section 7
Biodiversity	Section 8
Soil and water	Sections 9 & 10
Water resources	Sections 9 & 10
Air quality and odour	Section 11
Noise and vibration	Section 12
Traffic and transport	Section 13
Fire incident and management	Section 15
Waste management	Section 14
Hazards and risk	Section 15
Visual	Section 16
Heritage	Section 17
Public access	Section 18
Consultation	Section 19

2. SITE DESCRIPTION

2.1 Site Location

The site is located approximately 500m west of Eden town centre in the Bega Valley Shire local government area on the NSW south coast. It is within Cattle Bay which forms part of the large natural deep harbour of Twofold Bay at Eden.

2.2 Site Description

The site proposed to be occupied by the marina comprises a major part of the Cattle Bay water body within Twofold Bay, an existing wharf, and the land base foreshore at Cattle Bay as shown in Figures 1 and 2 below. The total area of the site on water and land is approximately 9.2 hectares.

The ownership title and tenure of the site is described in the table below.

Landowners consents from NSW Department of Primary Industries and Eden Resort Hotel Pty Ltd are included at Appendix 2. Landowners consent from Council is to be obtained as part of the DA process.

Subject Land	Ownership & Tenure	Proposed Marina Use
Crown land in Cattle Bay	Crown Land managed by NSW Department of Primary Industries Existing wharf under lease renewal by Directors of Eden Cattle Bay Marina Pty Ltd	Water based marina components.
Lot 2 DP 1138056	Owned by Eden Resort Hotel Pty Ltd	Land based marina components.
Lot 4 DP 1138056	Council owned public foreshore reserve.	Easement for marina access 7m wide.



Figure 1 – Site location and cadastral plan



Figure 2 – Site context

2.3 Land Base

The land base component of the proposed marina is situated on part of Lot 2 and part of Lot 4 in DP 1138056 which are shown on the cadastral plan in Figure 1 and survey plan of the land base in Appendix 3.

Lot 2 is owned by Eden Resort Hotel Pty Ltd and has a total area of 1.67 hectares. Approximately half of Lot 2 is proposed for the land based components of the marina comprising office, amenities, car park, and services.

Lot 4 comprises a strip of foreshore land owned by Bega Valley Shire Council which was dedicated as a public reserve to Council by Eden Resort Hotel Pty Ltd being the same Directors of Eden Cattle Bay Marina Pty Ltd). A 7m wide strip of Lot 4 with a total area of approximately 210sq.m is proposed for an easement for marina access between the Lot 2 land base and existing wharf over the water.

2.3.1 Landform & Topography

The land base of the marina site comprises the flat lower part of a topographical amphitheatre landform around Cattle Bay.

2.3.2 Existing Development and Utilities Infrastructure

The land base of the marina site is covered in level concrete slabs which are the remaining foundations of a previous industrial development and on which all past industrial buildings have since been demolished. The foreshore includes rock and masonry seawall structures.

The network of utility services infrastructure for the past industrial use also remain on the land base. This includes a stormwater drainage system with a concrete channel along the western side of the site discharging into Cattle Bay, and underground water and sewer pipes and power conduits with connection to the existing jetty wharf.

The former industrial use was a considerable potable water and energy user and the site enjoys good connections to potable water, wastewater and energy services in Cattle Bay Road. A Council sewerage pumping station adjoins the site. The proposed marina development would create comparatively small scale utility services demands.

2.3.3 Roads and Access

Vehicular and pedestrian access to the site is via Cattle Bay Road and Flinders Street which intersects with the Princes Highway approximately 500 metres to the north, and via Cocora Street which intersects with Imlay Street at Eden town centre approximately 500 metres to the east. Further information on the existing traffic volumes and capacity of the road network is included in Section 13 of this EIS.

There is currently no formal public access into the site. Limited public pedestrian access is available to the beach via informal tracks off Cattle Bay Road to the east, Bay Street to the west and the foreshore. The existing jetty wharf is also used by the public, accessed from the beach and Cattle Bay Road.

2.3.4 Soils

The land base of the proposed marina has been the subject of previous soil contamination investigations which find the land suitable for commercial use. The existing soil environment is described further in Section 7 of this EIS.

2.3.5 Terrestrial Flora and Fauna

The area proposed to be occupied by the temporary land based facilities in the marina development is completely cleared of vegetation and native fauna habitat.

The bushland around the land base site has been the subject of previous flora and fauna survey carried out by Cumberland Ecology for a Part 3A Concept Plan Approval in 2007 which identified a number of threatened species in the vegetated areas outside Lots 2 and 4. These comprise species listed under biodiversity legislation including the Yellow-bellied Glider; four microbats (Eastern False Pipistrelle, Eastern Bentwing bat, Eastern Freetail bat and Large-footed Myotis); and two native birds (Masked Owl and Glossy Black Cockatoo).

2.3.6 Heritage

There are no heritage items listed in the Bega Valley Local Environmental Plan 2013 or on the State Heritage Register located on the site or in close proximity to the site.

The land base of the proposed marina has been subject to previous Aboriginal heritage investigation which finds that the area covered by concrete slab and developed in the past for industrial use which is proposed to be occupied by the proposed marina facilities has a low potential for any heritage artefacts. This is explained further in Section 17 of this EIS.

2.4 Water Area

Cattle Bay is located in the north-east corner of Nullica Bay which is one of the three main bays of Twofold Bay, the southern-most of five oceanic bays on the NSW coast. The water component of the proposed marina in Cattle Bay is Crown Land and covers an area of approximately 7.5 hectares.

The Crown Land Division of the NSW Department of Primary Industries has agreed to deal directly with the applicant on leasing the land for the proposed marina.

2.4.1 Topography / Bathymetry

The bathymetry, or water depths, in Cattle Bay are shown in the figure below and expressed in metres below Chart Datum (CD). Chart Datum is approximately the level of Lowest Astronomical Tide (LAT) or a datum about 0.9m below Australian Height Datum (AHD).

The water depth to seabed at the site in Cattle Bay is generally around –2metres to –8 metres CD. Seabed slopes off the sandy Cocora Beach to the west side of Cattle Bay are a gentle 1 in 22. Seabed slopes off the headland to the east of Cattle Bay between Cattle Bay and Eden Harbour, are steeper indicating a rocky seabed. There are a number of isolated shallow spots in the vicinity of Cattle Bay likely to be rock pinnacles.

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2.4.2 Existing Development

Existing development in Cattle Bay at the site of the proposed marina includes the following:

- swing moorings (approximately 24) leased off the RMS (Maritime);
- jetty wharf extending some 150m from the shoreline into Cattle Bay;
- rock and masonry seawall structures;
- a submerged abandoned pipeline running approximately north-south commencing in a depth of about -8m CD and connecting to land near the base of the jetty wharf.

2.4.3 Tide, Wind and Wave Climate

Waters in Cattle Bay - Twofold Bay are tidal and open to Pacific Ocean coastal processes including tides and swell wave action, and also subject to wind wave action. The coastal processes and the tidal, wind and wave conditions at Cattle Bay are described in Section 10 of this EIS and in further detail in the appended wave modelling reports.

2.4.4 Geotechnical and sediment conditions

The geotechnical statement appended to this EIS finds the geotechnical conditions at the site to comprise loose silty to medium dense sand of 1m to 9m depth; overlying silty, clayey sand, silty clay or clayey silt of 1 to 7m thick; overlying slate and metasandstone with clay seams weathered to depths of at least 12m.

An isolated rock pinnacle is within the proposed Cattle Bay marina area and indicates that rock may be near the seabed surface in places.

Surface sediment samples collected within the general proposed marina area as part of the appended marine ecology investigations showed the surface material to generally comprise fine to medium grained sand with less than 10 to 15% by weight mud (silts and clays). Testing of sediment samples found no contaminants exceeding ANZECC Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) and the ANZECC Interim Sediment Quality Guideline.

Advice by the specialist engineers Royal Haskoning DHV is that geotechnical conditions are no impediment to the installation of piles for construction of the marina and wave attenuator.

2.4.5 Aquatic flora and fauna

The marine habitats, flora and fauna in Twofold Bay and Cattle Bay are described in detail in the marine ecology report appended to this EIS. The main marine habitats are:

- Bare sand habitats (beach, shallow intertidal and offshore marine sands). The subtidal sand supports shallow inshore seagrass beds or patches with more sparse and irregular seagrass distribution in deeper waters.
- Rocky habitats (intertidal rocky shore and shallow to deep rocky reefs or boulder reefs) on the western and eastern sides of Cattle Bay extending off the foreshore with the reef on the western side of the bay being more extensive.
- Constructed habitat (wetted surfaces of jetty piles, mooring tackle and pipelines).

Marine invertebrates are found in these habitats at Cattle Bay including Sessile and Mobile Invertebrates and Macrobenthic infauna.

Mussel farming has been conducted in Twofold Bay since the mid-1970's with the closest mussel aquaculture lease areas 500 m to the south of the proposed marina.

Twofold Bay (including Cattle Bay) and nearby coastal areas include a wide range of intertidal and subtidal marine habitats and microhabitats supporting a diverse array of mobile marine vertebrate fauna including bony fishes, sharks and rays, marine mammals (i.e. whales, dolphins and seals), marine reptiles (e.g. turtles) and marine/migratory birds.

The site of the proposed marina is:

- not an area of saltmarsh or mangroves;
- not critical habitat under Fisheries Management Act or Biodiversity Conservation Act or Environment Protection and Biodiversity Conservation Act;
- not a marine protected area under the National Parks and Wildlife Act;
- not SEPP 14 wetland;
- not an area of Outstanding Biodiversity Value under the Biodiversity Conservation Act;
- not part of the Upwelling East of Eden Key Ecological Marine Feature under the EPBC Act.

2.4.6 Water quality

Sampling has been undertaken within Twofold Bay, Snug Cove and Cattle Bay in recent years for depth profiling of turbidity, temperature, salinity, dissolved oxygen, electrical conductivity and pH), secchi disc depth, and water sampling for laboratory analysis of turbidity, total suspended solids (TSS), metals, nutrients, chlorophyll a, organic contaminants and tributyltin (TBT). The sampling tests reported generally below ANZECC thresholds for a healthy environment subject to some temporary spikes in levels of copper, chlorophyll and hydrocarbons at certain locations for a short period. This is detailed further in the appended marine ecology and water quality reports appended to this EIS.

2.5 Surrounding Area

To the northwest, north and northeast of the proposed marina site is a perimeter of steep bushland, and beyond is residential zone as shown in Figure 2 above.

To the southeast of the proposed marina site is Snug Cove / Eden Harbour which contains the Port of Eden shipping wharf, commercial boating wharves, swing moorings and the site of the planned safe harbour wave attenuator. Snug Cove is also the site of a proposed marina. The foreshore between Cattle Bay and Eden Harbour comprises principally rocky headland, gravel beaches and rock seawalls.

To the south west of the proposed marina site is Cocora Beach.

To the south of the proposed marina is the open Twofold Bay waters which contain areas of aquaculture including the nearest mussel farm approximately 500m to the south.

3. DESCRIPTION OF PROPOSED MARINA

The proposed marina development is the subject of a previous Development Consent (No.430.2014) issued by the Southern Joint Regional Planning Panel (JRPP) on 1 December 2015 which has now lapsed. The previous Development Consent lapsed on 1 June 2018 as Council determined the deferred commencement condition in it had not been satisfied. Eden Cattle Bay Marina Pty Ltd is re-lodging this new Development Application (DA) for the same marina in the previous Development Consent issued by the JRPP on 1 December 2015.

3.1 Objectives

The objectives that have guided the proposal are:

- to deliver a marina and significant piece of maritime infrastructure for Eden that will generate economic and community benefits;
- to be a catalyst for stimulating further investment in tourism, maritime/boating, and land development activities with benefits that flow through the local economy and community;
- ensure customer and visitor needs are met through the provision of an inviting, accessible, high quality and affordable marina facilities;
- link and integrate the proposed marina facility with the proposed tourist facilities subject to the previous Part 3A Concept Plan Approval;
- deliver a marina facility that has been informed by engagement with Eden residents, business and community groups, agencies and other key stakeholders and that demonstrates evidence based decision making;
- support the Government's imperative to promote economic growth in Eden by increasing the potential range of tourism and resident visitation, investment and employment opportunities; and
- contribute to environmental, social and economic sustainability by improving liveability and minimising any impact on the environment and the community of Eden and Twofold Bay.

3.2 Alternatives Considered and Justification

3.2.1 Location of Marina

The proposed marina must be located as close as practicable to the adjacent freehold land owned by Eden Resort Hotel Pty Ltd and be connected to the shore at this point.

Other factors that have influenced the proposed final position of the marina; namely, available water depths, incident wave climate, existing navigation constraints, location of the POEM proposal and conformance with the Australian Standard AS3962-2001, "Guidelines for the Design of Marinas". There is no other reasonable location for the proposed marina.

3.2.2 Berth Demand

Coriolis Marine Pty Ltd was engaged by Eden Resort Hotel Pty Ltd to provide a report to assist the business case for a marina development at Cattle Bay Eden. The report is included in Appendix 4 of this EIS and examines demand and commercial viability for the proposed marina.

The common trend for vessel occupancy in regional marinas of Australia is observed in the 12 to 15Mtr range. Superyachts venture past Eden on their journeys north or south, however, the number is considered minimal with only short stays expected.

NSW boat registrations show 14% of the states recreational vessels and 12% commercial are registered on the South Coast which is the 3rd highest region in boat ownership in NSW. Annual growth of vessels greater than 6m on the South Coast has averaged 5.8% over the last 10 years. The South Coast has experienced the second largest growth in registrations behind the North Coast. This trend positions the South Coast well for continual growth in the future. Eden as part of the South Coast could stand to benefit from this growth.

Ownership data shows that the 3 largest growth categories are 14m and over, 6m to 8m and 12m to 14m. These figures are positive indicators for the marina market as boats over 10mtrs in length are typically stored on a mooring or marina berth.

There is a limited boating facility south of Sydney with most boats being stored on land, swing moorings or limited fixed jetties. Government has stalled its plans to redevelop a number of minor ports over the past ten years. However, Shell Harbour's 270 berth \$15M Marina development including public boat ramp and boat service haul-out and yard has commenced and is due to start operations by the end of 2019. Batemans Bay Marina has recently completed a redevelopment in 2016 increasing its capacity to a 135 berth modern floating marina. These two projects alone will go a long way to opening up the South Coast and encourage boating as it will provide safe harbours along the coast at key strategic locations.

Eden has one of the deepest natural harbours in the southern hemisphere and is strategically well located to further strengthen the attraction of the South Coast to coastal cruisers looking for new destinations with safe harbourage nearby.

A survey of existing berthing facilities shows a capacity for 369 boats on the South Coast. This equates to 66% of potential market supply with 556 boats of a suitable size in the region. Many existing marina infrastructure on the South Coast is aged in below par condition.

A survey of recreational boats moored in the local area found a total of 58 boats in the area (10% of South Coast market). It is estimated that approximately 23 (40%) of existing vessels could take up occupancy in the marina. There is also significant evidence that new facilities attract new investment in boating and the 'built it they will come' rationale is demonstrably true with regard to new marina berths. Additional custom will be derived from the mixed use tourism and residential development proposed by ERH in Cattle Bay. This together with potential demand from inland regional centres and Canberra suggests a marina design capacity of 148 berths in a normalised market. The design should also allow for further expansion past 148 to allow for long term growth in the boating market.

3.2.3 Type of Wave Attenuator

The fundamental choices for a wave attenuator in this situation were a fixed panel wave attenuator (wave screen) or a floating wave attenuator.

The required wave attenuation performance for the attenuator is a transmission coefficient of either 0.68 for $T_p = 3.8$ seconds (50 year average recurrence interval condition) or 0.51 for $T_p = 3.1$ seconds (1 year average recurrence interval condition), whichever condition controls.

Based on the relationships that exist in the literature between transmission coefficients and wave period, it is evident that for the wave periods in question, which are greater than 3 seconds, commercially available floating wave attenuators were approaching the limits of their performance.

Accordingly and due to exposure of the site to swell, the decision was taken to adopt a fixed panel wave attenuator (wave screen). Should advances be achieved in floating attenuator technology in the near future reconsideration of the use of a floating attenuator could be given during the detailed design phase of the project.

3.2.4 Layout of the Marina Berths

Having determined the general area for the marina based on available natural water depths, navigational constraints and location of the POEM proposal, the prime consideration for the layout/configuration of the individual marina berths is the incident wave climate.

The incident wave climate comprises refracted/diffracted ocean swell and the local wind generated wave climate (seas) from the south/south-south-west. The local seas are the most critical for the layout/configuration of the marina berths since these shorter period waves create the greatest rolling and pitching movement in marina craft. Accordingly, the marina berths have been aligned 'head-to' the local seas. The exceptions are the inner-most berths that lie alongside the existing jetty, however these berths have the benefit of multiple protection afforded by the fixed panel wave attenuator plus the outer floating walkway structures which are also effective to a degree in attenuating the shorter period seas.

The refracted/diffracted swell would arrive at the marina oblique to the alignment of the marina berths.

Some limited attenuation of the longer period swell by the wave attenuator would occur (estimated wave transmission coefficient for swell around 0.85 to 0.90. In any case, the marina craft would be expected to largely 'ride over' the swell waves.

3.2.5 Floating Versus Fixed Marina Berths

Two principal alternatives exist for the structure of marina berths; floating structure (as proposed) and fixed structure, i.e. walkways and fingers that are at a fixed level supported by piles. A floating system has been adopted for a combination of reasons:

- it provides safer and more convenient access to and from craft, accordingly there are amenity and occupational health and safety benefits;

- it enables better tying up of craft (the craft and the deck of the marina remain at the same relative level at all states of the tide);
- the floating system has less visual impact compared to a fixed system particularly at low tide; and
- it provides additional aquatic habitat (floating pontoon surfaces permanently immersed in the water).

3.2.6 Consequences of Not Carrying Out the Proposed Redevelopment

Should the proposed redevelopment not proceed, a number of social, economic and environmental benefits would not be achieved:

- provision of marina berths in a modern facility, for which there is a demonstrable demand both regionally and within the local area;
- provision of additional means of sewage pump out facilities for vessels in Twofold Bay;
- new public access for craft to pick-up / drop-off passengers and supporting facilities including parking;
- new facilities for marine tourism operators and the accompanying employment, investment and expenditure economic benefits that could be realised by the town of Eden;
- opportunity for the removal of swing moorings from seagrass beds and creating of more secure and protected berths;
- improved management of the boating environment in Twofold Bay and regulation of boating activities
- provision of new facilities to the community including improved disabled access to boating activities; and
- development of an economic catalyst to expedite the first stage of the mixed use tourism and residential development proposed by ERH and approved by government.

3.3 Overview of Proposed Marina Development

Plans of the proposed marina prepared by Black Architects and Royal Haskoning DHV are below and included at Appendix 5. The proposed marina comprises:

- A total of approximately 154 berths in three floating pontoon arms restrained by piles constructed over two stages;
- A fixed wave attenuator located generally parallel with the southern pontoon arm;
- Minor refurbishment of the existing wharf;
- A mix of berth sizes mostly from 12m to 28m and up to 28m to cater for a range of watercraft from small local recreational craft to occasional larger international super yachts. The exact mix of berth sizes will be finalised in the preparation of final documentation for the project;
- Temporary (portable) building to house marina administration and toilets. Access will meet disability standards.

- Provision of power, lighting, water, fire fighting equipment, two sewage pump out carts, and security access controls to the pontoons and berths;
- Connection to existing potable water, sewer and power supplies to serve the temporary building and fire fighting;
- Refurbishment and temporary use of the existing stormwater drainage system (until redevelopment as part of mixed use development) incorporating provision of new Gross Pollutant Trap where existing drainage pipe exits Lot 2 (before passing through Lot 4);
- Temporary car park comprising 97 spaces plus 3 loading/unloading spaces. The car parking spaces will be located on, and use, the existing concrete apron and stormwater drainage that remain following the demolition of the cannery buildings. This will involve minor rectification of the apron to make it suitable for use as a car park until the land side of the development is undertaken in accordance with the Concept Plan approval (when the car parking and servicing for the marina will be incorporated into the development of the site);
- The car park will utilise the existing site access gate off Cattle Bay Road; and
- Relocation of 24 swing moorings outside the marina area in locations to be confirmed with the RMS and the Eden Port Authority;

No fuelling or fixed sewerage pump out facilities are proposed in this DA as these are provided elsewhere in Twofold Bay.

No dredging of Cattle Bay or Twofold Bay is required or proposed in this DA.

No demolition of any existing structures within the site is needed or proposed in this DA.

No vegetation removal is proposed other than weed removal on the existing concrete slabs on the land base.

3.4 Design Approach

The layout of the proposed marina and wave attenuator is shown on Figures 4 to 9 below and in Appendix 5.

The main components of the proposal are described in the following sections. It is noted that the marina has been located within adequate natural water depths to comply with the Australian Standard AS 3962-2001 'Guidelines for Design of Marinas', hence no dredging is required. (Lowering of an isolated rock pinnacle, which would otherwise be a navigation hazard, will be required).



Figure 4 Proposed marina (Source: Cardno)

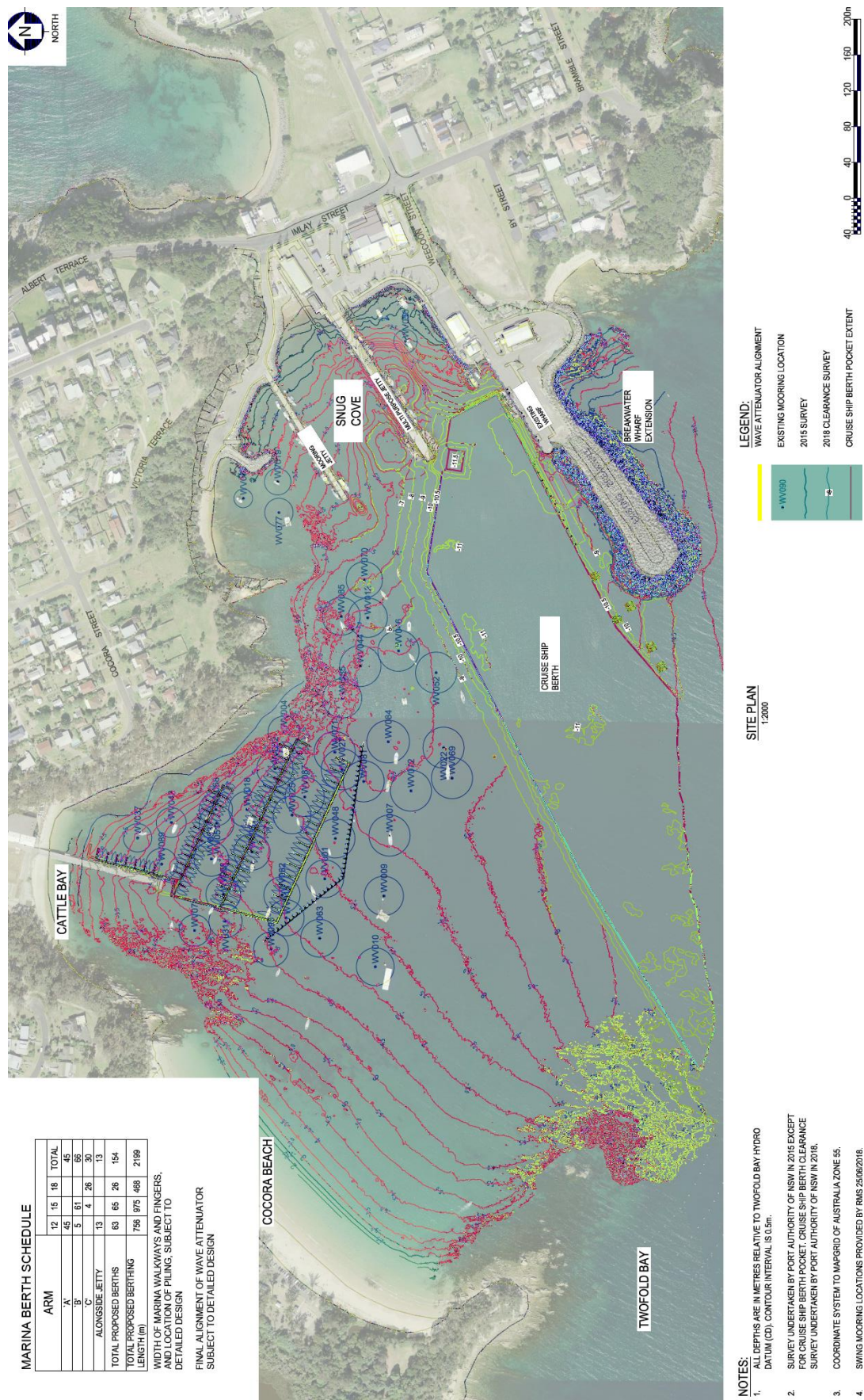


Figure 5 Proposed marina and water depth (Source: Royal Haskoning DHV and DPI)

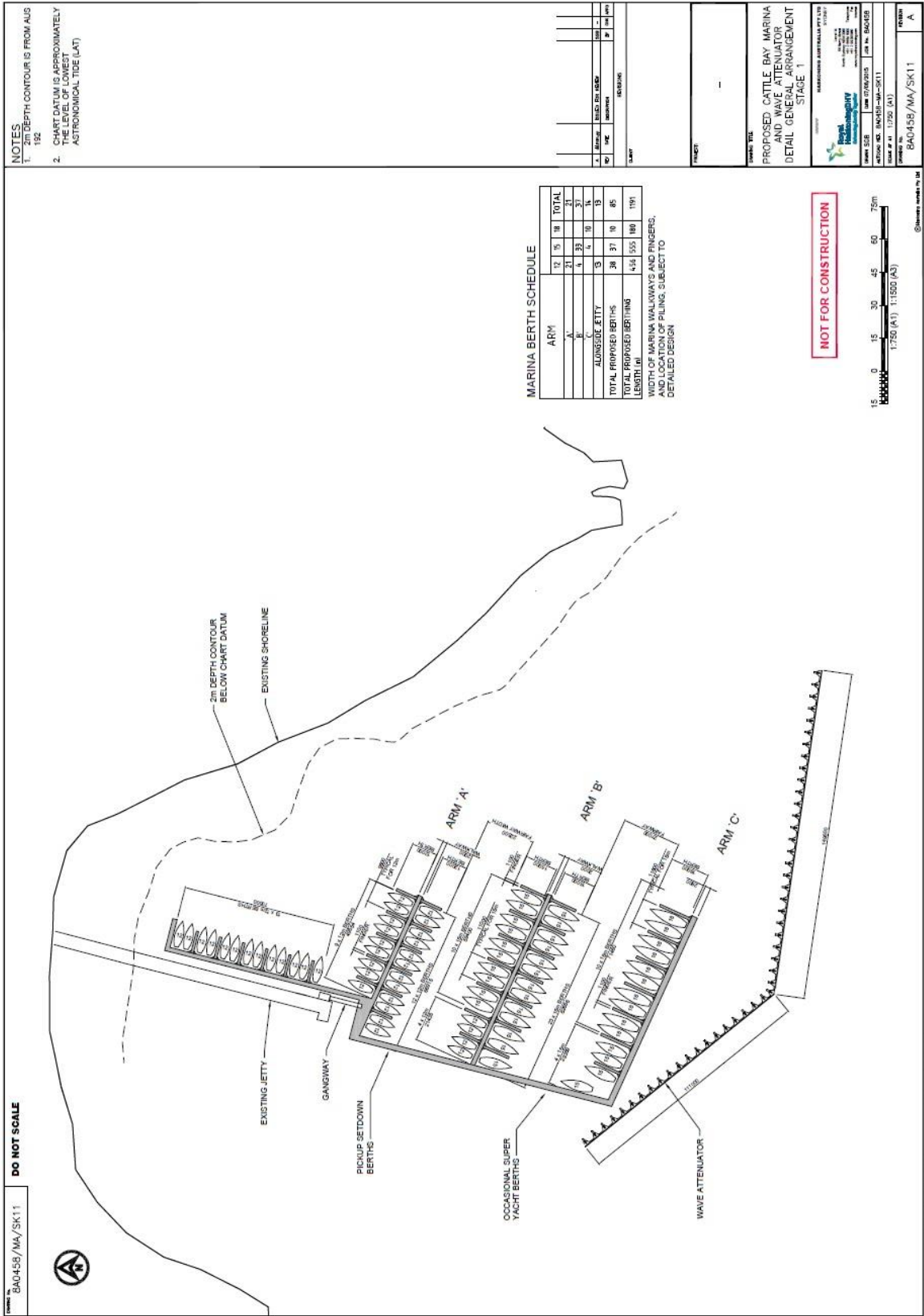


Figure 6 – Proposed marina development plan (Stage 1 - water based component)

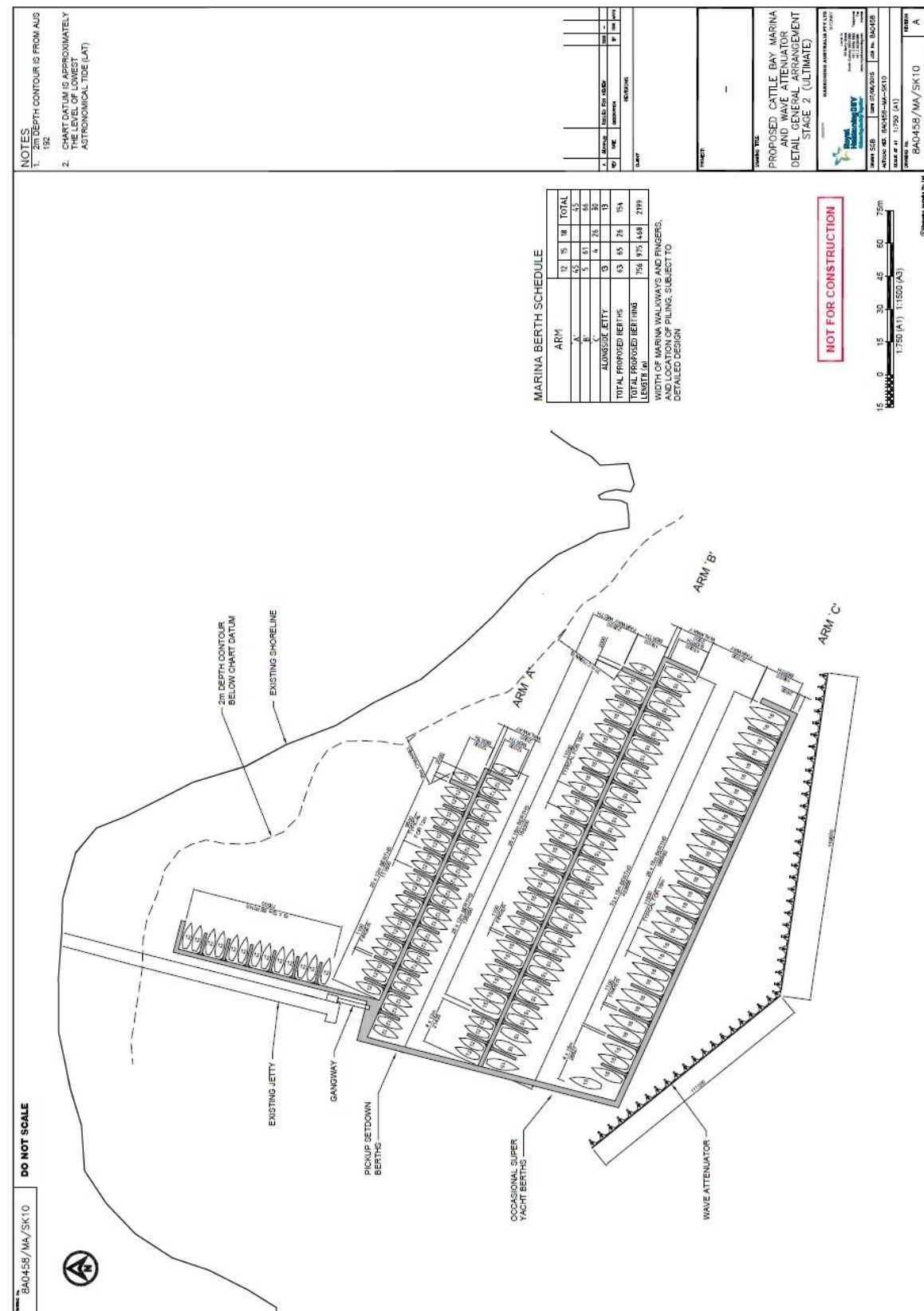


Figure 7 – Proposed marina development plan (Stage 2 - water based component)

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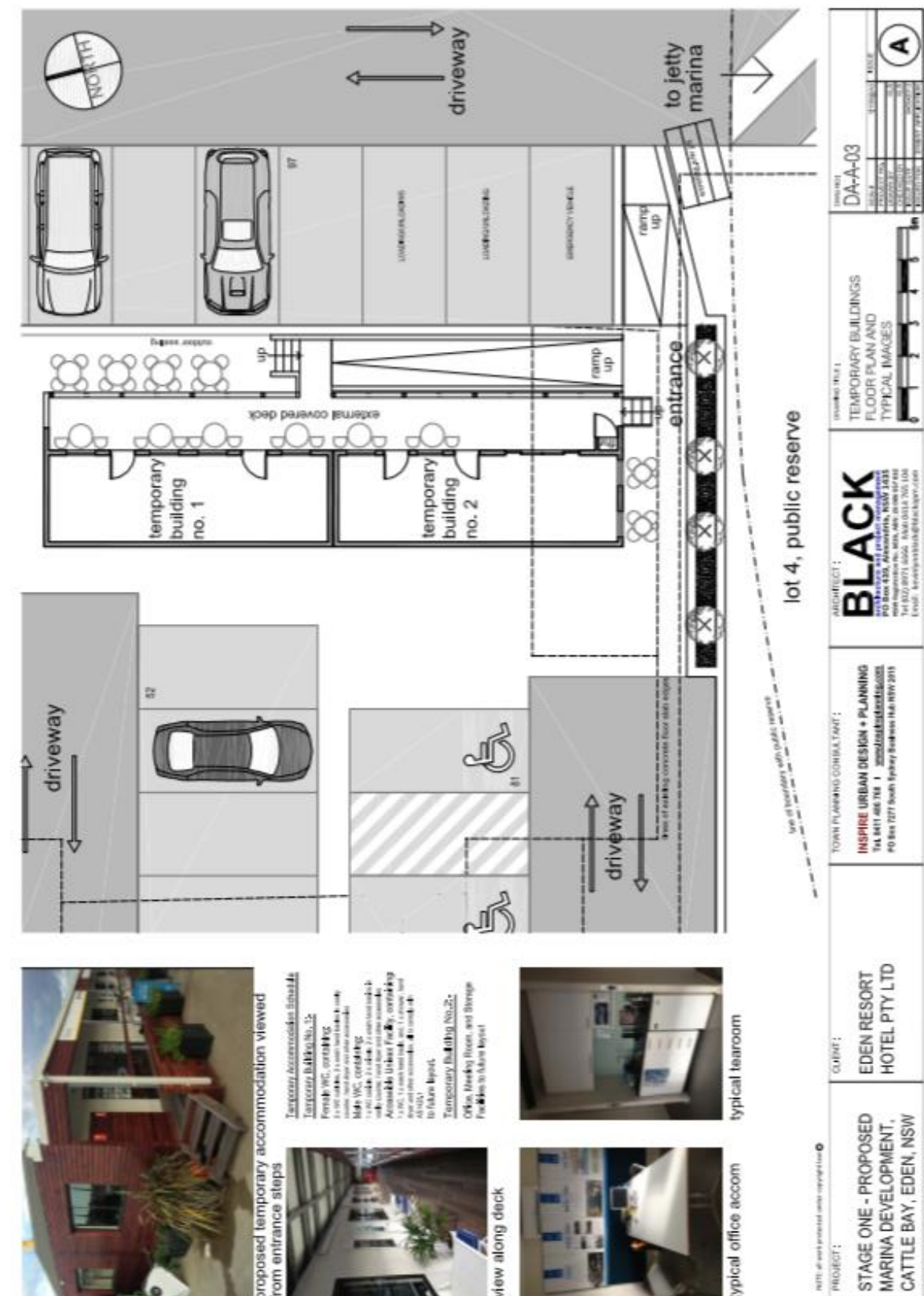


Figure 9 – Proposed marina development plan (land based components)

3.5 Refurbishment of Existing Cattle Bay Jetty Wharf

The existing jetty wharf will be retained and refurbished as part of the proposed marina development. A statement on the Refurbishment and Maintenance Works for the Existing Jetty prepared by Royal Haskoning DHV is included at Appendix 6. The jetty will provide the means of access from the foreshore to the marina. Casual berthing of vessels will also take place along the western side of the jetty as was the case in the past. The existing jetty is generally in reasonable condition. A detailed condition assessment of the existing structure will be undertaken prior to detailed design to identify individual members within the structure which may require replacement or upgrading. This will ensure that the structure is fit for its future purpose for public access and for berthing of the design vessel(s). The materials used in the refurbishment would be timber, in keeping with the existing appearance of the structure. The timber species would be selected for their durability in the marine environment.

The proposed upgrade to the wharf is consistent with the terms of the lease and ordinarily does not require approval under Part 4 of the EP & A Act.

3.6 Floating Marina

The position and layout of the proposed Cattle Bay Marina have been influenced by a range of factors:

- Available natural water depths (avoidance of dredging);
- Connection to existing jetty (for access from shore);
- Incident wave climate at the site (wave height, period and direction);
- Existing navigation channel and swing basin associated with use of Eden Harbour by commercial vessels;
- The location of the Snug Cove wave attenuator and proposed POEM marina;
- Minimum dimensions for berths, channels and fairways set out in the Australian Standard AS3962-2001, 'Guidelines for Design of Marinas' and in Guidance Notes prepared by the NSW Maritime Authority (formerly Waterways Authority).

3.6.1 Berth Schedule

The berth schedule proposed for the marina is set out in the table below. The size of berths predominantly range from 12m to 18m.

Berth length	Number of berths
12m	63
15m	65
18m	26
Total	154

3.6.2 Pick Up and Set Down Berths

An area for pick up and set down activities will be provided along the western side of the proposed main north-south floating walkway, close to the access gangway from the existing jetty. The length of the pick up and set down berths will be approximately 30 metres, sufficient for two to three vessels to be accommodated at any one time. Pick up and set down will also be accommodated on the western side of the existing jetty.

Vessels using the pick up and set down berths will include local commercial/tourist cruise vessels, water taxis, and visiting recreational craft.

3.6.3 Super Yacht Berths

The outer (southern) section of the main north-south floating walkway will be made available for occasional berthing of Super yachts. A length of nominally 100 metres will be provided which will accommodate two to three Super yachts depending on the individual vessel size.

When there is no demand for berthing by super yachts, this section of the main walkway will provide area for additional pick up and set down or for casual berthing by smaller vessels.

3.6.4 Berth Design

The marina berths will comprise a floating system of walkways, with finger units at right angles to the walkways creating the berthing pens and providing access alongside the craft. The floating berths will be located in place by vertical piles driven or potted into the sea bed. These piles will probably comprise circular reinforced hollow spun concrete piles, with possibly a number of composite piles (concrete pile inserted within a steel pile at depth) at locations where increased water depth or loading conditions are encountered.

Intermediate mooring piles may be provided between the outer (southern-most) double berths for ease of berthing and additional mooring security. AS 3962-2001 recommends mooring piles in double berths where wind generated waves or boat wake exceed 300mm in height. The width of the double berth is then increased by the width of the pile. The total number of marina piles will be in the range 120 to 140, subject to detailed design.

It is proposed that the main north-south walkway leading to Arm 'C' and Arm 'C' itself will have a width in the range 2.5 to 3.0m. The remaining walkways will be typically approximately 2m wide. These widths are in excess of the minimum requirements of AS 3962-2001 which states:

- walkways should not be less than 1.5m wide;
- walkways in the length range 100 to 200m, the minimum width should be 1.8m;
- walkways with a length in excess of 200m, the minimum width should be 2.4m.

The fingers leading from the walkways will range in width from typically 1m up to 2.0m wide. These finger widths are considered acceptable for purposes of safely boarding and leaving a boat (the requirement of AS 3962-2001). A minimum finger length of $0.8L$ has been adopted, where L is the overall length of the longest boat that may use the berth, in accordance with AS3962-2001.

The final widths of walkways and fingers will be dependent on the actual proprietary flotation system adopted for the marina, of which there are a number to select from, and detailed design activities. However, dimensions are unlikely to change significantly from those nominated above.

Internal channels or fairways within the proposed marina vary in width depending on the size of the craft in the adjoining berths. A minimum clear fairway width of $1.5 \times L$ has been adopted where L is the overall length of the longest boat using that fairway. This is the minimum width recommended by AS 3962-2001.

The location and type of any navigational markers will be determined in consultation with NSW Roads and Maritime Services).

3.7 Services to Marina

The following section describes the services which will be provided to the proposed marina. A Water and Wastewater Servicing Strategy prepared by Royal Haskoning DHV is included at Appendix 7.

No fuel is proposed for the marina. Fuel is available from existing suppliers in Eden Harbour.

3.7.1 Lighting, Potable Water, Power and Communications

The marina berths will be supplied with water, power, lighting, and communications (telephone, internet and cable TV). These services will be available to the berths via low height (approximately 900 mm high) service pedestals. Potable water will be provided from taps integrated into the service pedestals.

The service pedestals will be located at the junctions between fingers and the walkway and, on the longer runs of the walkway where there are no fingers, at a spacing of about 10 m. The proposed locations are shown in the plans of proposed development in Appendix 6.

The various services to the pedestals will be supplied from the land-based infrastructure via pipework and conduits which will run along the jetty, down the access gangway (incorporating flexible couplings) and be fitted under the floating walkway deck, out of view but accessible for inspection and maintenance.

3.7.2 Fire Fighting

Fire fighting equipment will be provided in accordance with AS 3962-2001 and to the requirements of relevant authorities. Where requirements may differ, those requirements of the local relevant authority will prevail. The equipment will include fire hose reels, fire hydrants and fire extinguishers. The equipment is discussed further below. The proposed location of fire hose reels and the fire hydrants are shown in the plans in Appendix 5.

Fire Hose Reels.

AS 3962-2001 notes a number of requirements for fire hose reels. In particular, the length of hose on any hose reel should be 36m, at least one hose reel should be located on the shoreline side of the first berth and also at the seaward end of each walkway, the maximum distance between any two reels should be 30m, and at least two reels should be accessible from each berth. These requirements have been taken into account in determining the locations.

The fire hose reels will be connected to the domestic water supply, whereas the fire hydrants (see below) will be connected to a special hydrant service.

Fire Hydrant

AS 3962-2001 notes that a fire hydrant should be located at the head of each access gangway. Accordingly, a fire hydrant is proposed on the existing jetty at the point of entry onto the floating marina via the access gangway. The fire hydrant will have its own water supply service, supplied from the existing land based infrastructure.

Fire Extinguishers

AS 3962-2001 notes that fire extinguishers should be provided at 'appropriate locations'. These locations will be agreed in consultation with the relevant authorities. The extinguishers will be selected so as to be suitable for other fire hazards which are not able to be contained by water from hose reels. These are likely to be a Dry Powder type and/or a CO2 type extinguisher. The holding capacity for each extinguisher would be approximately 9 litres or equivalent.

3.7.3 Sewage Pump out

Sewage is proposed to be removed from the holding tanks of vessels at the marina and disposed of to the on-land sewerage system by means of a mobile sewage pump out trolley.

The operation would take place as follows:

- The trolley is wheeled to the required point adjacent to the vessel on the floating marina and the flexible discharge hose is attached to the holding tank on the vessel.
- The unit is attached to the power available on the marina at the service pedestal. The unit is also fitted with a battery in the event power is not available on the marina for any reason.
- The pump discharges the sewage from the holding tank on the vessel into the tank within the mobile unit. The tank within the unit has a capacity of 90 litres which would accommodate the majority of vessels permanently berthed at the marina. Should the holding tank on the vessel exceed the size of the tank on the mobile unit, the mobile unit can be used a number of times.
- The mobile unit is wheeled to an on-land connection point to the local sewerage system.

The use of a mobile sewage pump out system has the benefit of taking the pump out system to the vessel rather than relying on the vessel owner to bring the vessel to a dedicated pump out facility. It enables the marina operator to be more proactive in satisfying its commitments under an Environment Protection Licence (EPL) and Operational Environmental Management Plan.

3.7.4 Bilge Water Pump out

All marina berth tenants will be inducted in the use of, and supplied with, a bilge water absorbing pad as part of rules and regulations of the marina. The bilge absorbing pad will absorb any oil from the bilges. The bilge water will then be disposed of via certified collection.

The direct discharge of bilge water within the berthing area is prohibited. A floating boom would be maintained at the site to contain any surface pollutants in the event of an accidental leakage of bilge water. Signage to this effect will be displayed at the Marina.

3.7.5 Services for Temporary Building Facilities

The temporary building will be connected to the existing potable water, sewerage and power services present in the area that served the previous cannery use. The 'muck truck' will discharge waste water into the building's sewerage connection.

Due to the minor use of the existing services that is proposed (and far less than the previous cannery use), subject to further discussions with Council, no major upgrade to the existing services is envisaged as required at this time.

3.8 Access

The proposal provides for convenient direct connections across Lot 4 between the jetty and the landside facilities (car park and temporary buildings). Access would primarily be by foot. It would also include use of hand carts and small service vehicles (golf cart type vehicles). The applicant has entered a Deed of agreement with Council for provision of an easement for access for the marina across the Lot 4 public foreshore reserve which is in Council ownership.

The areas allocated for casual pick up and set down noted above will be available to the Water Police and Emergency Service agencies if required. The main jetty walkway width provides good space for emergency evacuation. Cattle Bay has convenient access to ambulance and local health services.

The relevant access guidelines that will be used to develop the detailed designs include:

- Australian Standard AS1428.1 – 2001, Design for Access and Mobility, Part 1 General requirements for access – New Building Work; and Australian Standard AS1428.2 – 1992, Design for Access and Mobility, Part 2 Enhanced and additional requirements – Buildings and Facilities;
- Commonwealth Government 2002 – Disability Standards for Accessible Public Transport Guidelines; and relevant RMS (Maritime) Guidelines.

The proposed development maintains public access along and within Lot 4 at all times and there is no reduction in publicly accessible land.

Public access will also be available at all times to the parts of the existing jetty that are not being used for berthing of vessels.

It is proposed that the marina will be made available to the public during marina opening hours (summer, Daylight saving 7am – 6pm, winter, Non-daylight saving 7am – 5pm).

An access control gate will be located at the head of the access gangway leading to the floating marina berths which will be locked at night so as to provide a level of security particularly against vandalism, property damage and theft. An example of an access control gate is shown in figures below. A key card system would operate the security gates at night, available to boat owners and marina staff.

Improved public access is a key feature of the Part 3A Concept Approval for a tourist facility on the land base under which the foreshore land (Lot 4) has been dedicated to Council for public access to the waterfront in perpetuity.

3.9 Wave Attenuator

3.9.1 Wave Attenuation Performance Requirements

The incident wave climate at the proposed Cattle Bay marina site, described in Section 2.4.5 above, is such that wave attenuation is required in order to satisfy the Australian Standard AS3962-2001 'Guidelines for Design of Marinas' for an acceptable wave climate within the marina.

The critical incident wave climate comprises the local wind generated waves from the south/southsouth-west generated by strong winds blowing over a fetch of more than 4km. The wave periods associated with the local wind waves, typically up to 3.0 to 3.5 seconds, are close to the natural period of motion of marina craft and thus can cause accentuated roll and pitch of the marina craft. On the other hand, marina craft tend to 'ride over' longer period swell and thus the swell wave climate is less critical.

Australian Standard AS3962-2001 'Guidelines for Design of Marinas' sets out the criteria for a 'moderate' wave climate in small craft harbours. Adoption of the 'moderate' wave climate in this case is considered reasonable based on the commentary in the Australian Standard for vessels less than 20m in length (the situation for the proposed Cattle Bay Marina) and on the basis that the moderate criteria have been adopted for a number of other marina developments exposed to relatively long fetches.

Numerical wave modelling study has been undertaken by Cardno in 2011 on behalf of Crown Lands NSW and Bega Valley Shire Council. Based on this incident wave climate and the 'moderate' wave climate criteria, a transmission coefficient K_T is determined for the wave attenuator. The transmission coefficient K_T is the ratio of the transmitted wave height H_T (i.e. the wave that passes through the wave attenuator) to the incident wave height H_I , for the given wave period. The lower the required value of K_T , the greater attenuation that must be achieved.

For purposes of concept design the incident wave climate has been taken to be the average of the wave climates for model output locations 3, 6 and 9 (slightly conservative given that wave heights are larger for locations 3 and 9 compared to location 6 'Cattle Bay').

It is proposed to align the marina craft 'head-to' the incident wave climate. Therefore the required transmission co-efficient that the wave attenuator must achieve is either 0.68 (for $T_p = 3.8$ sec) or 0.51 (for $T_p = 3.1$ sec), whichever controls.

3.9.2 Description of Wave Attenuator

Following consideration of whether to install a fixed panel wave attenuator (wave screen) or a floating wave attenuator, a wave screen has been selected (refer sections above for discussion of alternatives).

The wave attenuator will be approximately 230m long and will be generally aligned perpendicular to a direction in the range 190-200 degrees True North (oTN). In this way it will be approximately perpendicular to the incident local wind generated wave climate (refer Table 9). The final alignment will be selected during detailed design. However, it will involve a 'cranking' or bend in the alignment to ensure no significant impact on wave climate and alignment of Cocora Beach (refer Section 6.9). The attenuator will be situated in water depths of -6 to -8m CD.

The construction of the wave attenuator will comprise a series of vertical and raked piles (or possibly two vertical piles) with an insitu or precast concrete cap, supporting precast concrete panels that span between the pile caps and extend a sufficient distance below the water level to provide the required wave attenuation performance (refer below). Photos A, B and C in Figure 17 below show the construction of a similar wave attenuator in Hobart. Photo D shows the completed structure with the floating marina visible in the lee of the structure.

The top of the wave attenuator will be set at a level similar to the deck level of the Cattle Bay Jetty, which is situated at a level of approximately 2m AHD or 2.9m CD. As noted above, the panels must extend a sufficient distance below the water level to provide the required wave attenuation performance (i.e. required wave transmission coefficient, refer Table 10). The critical design case is low tide, taken to be Mean Lower Low Water (MLLW). Based on the calculated wave transmission performance of attenuation structures outlined in Cardno (2011), which was based on the work of Wiegel (1960) and Pierson and Cox (1989), the level proposed for the bottom of the wave attenuator is approximately -2.0m CD (2.2m below MLLW), subject to detailed design.

As the wave attenuator will be situated in water depths of -6 to -8m CD, the clearance below the attenuator to the seabed will be in the range 4 to 6m subject to detailed design and position along the structure.

A wave attenuator can be readily designed for survivability to accommodate the severe wave conditions experienced in Cattle Bay due to ocean storms and strong winds from the south/southsouth-west. Design criteria would conform to Australian Standard AS4997-2005 'Guidelines for the Design of Maritime Structures'.

3.10 Relocation of Existing Swing Moorings Access

There are some 40 swing moorings located in the Cattle Bay/Snug Cove area based on information supplied by RMS. Approximately 24 of these swing moorings will require relocation in order to accommodate the proposed Cattle Bay Marina. The locations of the moorings are indicated in the figure below. A Swing Mooring Relocation Strategy is included in Appendix 8.

3.11 Site Preparation and Construction

Construction activities will involve a variety of different types of construction methods and equipment. The principle activities will comprise establishment of temporary buildings, refurbishment of the jetty, removal and relocation of swing moorings, installation of piling, installation of the pontoon units, and installation of services and access gangways.

No dredging is needed or proposed for the marina development. However, a rock pinnacle at the site in Cattle Bay is proposed to be lowered to a minimum depth of -4 m CD for safe berthing and navigation. In the first instance the proposed method of lowering the rock pinnacle would comprise use of a barge mounted excavator fitted with a hydraulic hammer. Should the rock prove too hard for this method, it is proposed to use a non-explosive rock splitting expansive agent to pre-split the pinnacle by drilling of holes 30mm to 50mm in diameter spaced at 300mm intervals into the pinnacle for subsequent insertion of a non-explosive rock splitting expansive agent to set and expand (4 to 6 hours or greater). Broken / split rock is to be removed using a barge mounted excavator and disposed either to land waste facility or onto the immediate surrounding seabed below 4m CD for habitat creation subject to consultation with relevant authorities.

A preliminary construction program has been prepared that envisages an overall construction period of approximately 16 weeks with piling taking place over a period of 8 weeks.

Construction would be restricted to the following hours: ☐ Monday to Friday 7.30 am to 5.00 pm ☐ Saturday 7.30 am to 1.00 pm ☐ No work on Sundays or Public Holidays.

3.11.1 Refurbishment of jetty

The extent of work required to refurbish the jetty will be made apparent following detailed structural investigation. Should any existing timber piles be required to be removed they would be extracted (pulled) in a controlled manner. A turbidity curtain would be installed and maintained around the works areas until removal is complete. Further sedimentation controls would be adopted if necessary.

All removal work would be carried out by a contractor appropriately licensed by WorkCover NSW.

Where materials may be suitable for recycling off site, for example, timber piles and decking, consideration would be given to selling this material. All other unsuitable material would be removed from site to an approved disposal facility. Removal of material off site would most likely be by barge rather than by road as the type of plant involved in removal works would include barge mounted cranes, transport barges, work boats and hand held power tools.

3.11.2 Wave Attenuator

The construction of the wave attenuator will comprise a series of vertical and raked piles (or possibly two vertical piles) with an insitu or precast concrete cap, supporting precast concrete panels that span between the pile caps

The precast panels will be manufactured off site and delivered to the site by barge. They will be lifted into place by a barge mounted crane.

3.11.3 Removal and Relocation of Swing Moorings

The proposed marina development would require the removal or relocation of existing swing moorings affected by the development. This comprises approximately 24 moorings.

A Swing Mooring Relocation Strategy prepared by Royal Haskoning DHV is in Appendix 8 of this EIS. The removal and relocation of swing moorings would be undertaken by a commercial mooring contractor licensed by the RMS (Maritime). All works would be undertaken in consultation with the RMS.

3.11.4 Pile Installation

All piles will be delivered to the site by barge and installed from the water using a piling barge.

3.11.5 Installation of Pontoon Units

The pontoon units are essentially an 'off-the-shelf' product. They will be manufactured off site at the manufacturer's premises and delivered to the site by road. They will be launched into the water by crane at the foreshore edge and towed into their correct location, guided by GPS, for interconnection.

3.11.6 Installation of Services and Access Ramp

Access ramps would be delivered to site by barge as one unit and installed by barge mounted crane.

Installation of services pedestals, fire fighting equipment and power and water, including service cables and pipework, will be undertaken on site by licensed contractor.

3.11.7 Sediment Control

A range of well accepted sediment control measures will be introduced during the construction works to control the dispersion of silt / sediment in the water column. Such measures are described in standard guideline documents such as the Soils and Construction Handbook, prepared by Landcom. The measures would include the use of a turbidity barrier to prevent migration of any fine sediments disturbed by removal of structures.

3.12 Staging

The proposed marina development has a staged construction generally as follows:

Staging of Development	
Stage 1	<ul style="list-style-type: none"> • Wave attenuator
	<ul style="list-style-type: none"> • Refurbishment of existing wharf
	<ul style="list-style-type: none"> • Marina main arm • Part marina berthing arms with 85 vessel berths
	<ul style="list-style-type: none"> • Land based office, amenities, 50 car parking spaces and landscaping
Stage 2	<ul style="list-style-type: none"> • Completion of marina berthing arms with additional 69 vessel berths • 47 car parking spaces

3.13 Management Plans

The proposed marina development is to be constructed and operated in accordance with the following environmental management plans:

- Operational Environmental Management Plan at Appendix 9;
- Construction Environmental Management Plan at Appendix 10;
- Water Quality Management Plan at Appendix 11.

4. STRATEGIC CONTEXT

There are a number of State Government and Council Strategies and Policies that provide the strategic context for the development of the site. They comprise:

- The NSW State Plan 2021;
- NSW Coastal Policy 1997;
- South East and Tablelands Regional Plan 2036;
- The South Coast Regional Strategy;
- Twofold Bay and Hinterlands Strategy 2004;
- The Eden Structure Plan Report 2006;
- Snug Cove and Environs Master Plan 2005;
- Bega Valley Shire Land Use Planning Strategy 2008.

4.1 The NSW State Plan 2021

The NSW State Plan 2021 is the NSW Government's strategic business plan setting priorities for action and guiding resource allocation. The proposed marina development is consistent with many of the 32 goals in the five strategies of the Plan as detailed in Appendix 12.

4.2 NSW Coastal Policy 1997

The NSW Coastal Policy co-ordinates “the management of the coast by identifying, in a single document, the State's various management policies, programs and standards as they apply to a defined coastal zone. These policies, programs and standards frequently obtain their legitimacy from other legislation or programs ... The Coastal Policy is therefore in fact many individual policies and programs in one” (p.8).

Relevant policies and programs are discussed elsewhere in this Statement and comprise the South Coast Regional Strategy (encompassing the Twofold Bay and Hinterlands Strategy 2004, Eden Structure Plan 2006, and State Environmental Planning Policy (Coastal Management) 2018.

The principles of Ecologically Sustainable Development (ESD) provide a guiding and an integrating role to the Policy. ESD provides a framework for reconciling and, where necessary, making choices between competing demands for access to the resources of the coastal zone. The 1997 Coastal Policy is based on the four principles of ESD contained in the Intergovernmental Agreement on the Environment (IGAE) signed in 1992. These principles are:

1. Conservation of biological diversity and ecological integrity. This refers to the need to conserve the variety of all life forms, especially the variety of species, and to ensure that the productivity, stability and resilience of ecosystems are maintained.
2. Inter-generational equity. This requires that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. Social equity considerations, in terms of equal access opportunities to resources, are inherent in the concept of inter-generational equity.

3. Improved valuation, pricing and incentive mechanisms. This requires environmental factors, such as the value of ecosystems, polluter pays principles etc., to be incorporated into the valuation of assets and services and considered in decision-making processes.

4. The precautionary principle. Requires a risk averse approach to decision making. Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty is not to be used as a reason for postponing measures to prevent environmental degradation.

The Coastal Policy contains a large number of strategic actions relating to coastal planning and management. Comment on these principles and strategic actions is provided in Appendix 12.

4.3 South East and Tablelands Regional Plan 2036

The Plan is the NSW Government's strategic blue print for sustainable growth reflecting community and stakeholder aspirations and opportunities whilst acknowledging and protecting the Region's diverse natural environment in which the Port of Eden figures prominently as a global gateway and hub for cruise ships and marine activity.

In that context, the Plan outlines a number of strategic goals and directions for the purpose of providing an overarching framework to guide more detailed land use plans, development proposals and infrastructure funding decisions. The relevant matters for consideration in this instance appear to be as follows:

Direction 2 Enhance tourism and export opportunities through the Port of Eden: The proposed marina development will have positive benefits in contributing boating infrastructure to enhances tourism at Eden.

Direction 7 Grow the South Coast's aquaculture industry: The proposed marina development includes environmental management plans and water quality management plan to protect the aquaculture industry in Twofold Bay. A specialist marina ecology report has been prepared as part of this EIS which finds the proposed marina will not have a significant impact on aquaculture with the implementation of the environmental management plans.

Direction 9 Grow tourism in the Region: The proposed marina development will have positive benefits in contributing boating infrastructure to enhance tourism in the area.

Direction 16 Protect the Coast and increase resilience to natural hazards: The proposed marina has been designed with due regard to coastal processes and natural hazards as described in Sections 3, and 7 to 10 in this EIS.

Direction 23 Protect the Region's heritage: The proposed marina is consistent with the historic use of Twofold Bay for maritime activities. Heritage is addressed further in Section 17 of this EIS.

The proposed marina development would be supportive of the strategic Goals and Directions of the South East and Tablelands Regional Plan thereby enhancing the Port of Eden as a maritime destination which offers sustainable coastal living and life style choice, employment and tourism opportunities whilst preserving biodiversity, heritage and cultural values.

4.4 South Coast Regional Strategy

The South Coast Regional Strategy has been prepared by the NSW Department of Planning to guide future development, infrastructure and natural resource protection requirements for the south coast region to 2031. It includes the Shoalhaven, Eurobodalla and Bega Valley Council areas.

The primary purpose of the strategy is to ensure that adequate land is available and appropriately located to accommodate the projected housing and employment needs of the region over the next 25 years. Key considerations for the document are the protection of the natural environment, identification of natural hazards, housing and settlement, economic development and employment growth, rural landscapes and rural communities, water, energy and waste resources and cultural heritage; the integration of which is required to ensure a balanced approach to sustainable growth.

The plan notes the following challenges (pp.5-9):

- “Improved protection and enhancement of natural environments, including biodiversity, coastal lakes and estuaries and landscape values;
- Increase the proportion of young families within the region and reduce out-migration by providing vibrant town centres with increased job, training and education opportunities;
- Prioritise and manage the release of vacant urban land to maximise development land around well serviced centres and minimise development in sensitive locations;
- Ensure quality urban design and amenity that is sensitive to and compliments the character and lifestyle of the region’s towns;
- Ensure sufficient employment lands are available in appropriate locations to accommodate growth in existing and emerging industries and businesses;
- Support and strengthen tourism opportunities by identifying key tourism sites and precincts”.

The Strategy establishes the role of, and framework for, the Eden Structure Plan to guide development (discussed below).

4.5 Twofold Bay and Hinterlands Strategy DIPNR 2004

The Twofold Bay and Hinterland Strategy, prepared by the then Department of Infrastructure, Planning and Natural Resources (DIPNR) identifies a series of actions for implementation. Bega Valley Shire Council’s preparation of the Eden Structure Report addresses these actions.

The Strategy includes an action to ‘Investigate construction of boating facilities at Quarantine Bay, Cattle Bay, Ross Bay and Boydtown’ (p23).

4.6 The Eden Structure Plan Report 2006

The Structure Plan report for Eden is an extension of the work undertaken by the then Department of Infrastructure, Planning and Natural Resources (DIPNR) as part of its preparation of the ‘Twofold Bay and Hinterland’ and ‘South Coast Regional’ Strategies (discussed above).

The Strategies identify a series of objectives and strategies and each strategy has a list of specific actions to achieve those strategies. The Eden Structure Report is Bega Valley Shire Council's response to those key strategies where they impact on land use planning in Eden.

The Eden Structure Plan report was adopted by Council in 2006 and in Part 2 of the report it is recognised that the Plan is intended to inform the preparation of the new Bega Valley LEP 2010.

The aim of the Structure plan is to “develop a 20 year land use vision for private and vacant crown lands within the study area” (p.2).

To arrive at the adopted Structure Plan, Council conducted a Charette process in 2004 with major land owners and key government departments. The Structure Plan notes “the outcomes of the Charette process were the recognition of key precincts within the study area and identification of the target issues and actions associated with each precinct. The identification of these precincts included consideration of the desired future land use that may be appropriate in each settlement” (p.14).

Of relevance, the outcome of the Charette process identified the following target issues and actions for Cattle Bay:

- Employment generation from future uses critical;
- Desire for reasonable provision of tourist based development;
- Residential/tourist development balance critical; and
- Explore option of marine based business as an alternative.

The proposed marina satisfies the actions raised during the Charette and contained in the Structure Plan as it provides an additional source of employment within Eden. More importantly, however, it has the potential to be an important catalyst for additional ‘multiplier’ economic benefits for the town via increased construction, tourism visitation and associated marine business investment.

4.7 Snug Cove and Environs Master Plan 2005

The area addressed in the 2005 Master Plan does not include the Cattle Bay site and it recognises that the site was to be the subject of its own master plan at the time. However, it addresses the site in the context of Snug Cove's environs. It provides a future character statement for Cattle Bay as follows:

“The protection and management of vegetation, water quality and coastal processes require particular consideration as part of future development of the site at Cattle Bay. Visual impacts associated with developing the Cattle Bay site also require consideration due to its prominence when viewed from Twofold Bay.

The former cannery site is potentially suitable for a range of future uses, including tourism, residential, commercial and marine-related industrial development. Due to its proximity to Eden's commercial centre, Snug Cove and Imlay Street a principal outcome of future development at this site should be that it promotes employment generation. When the site is developed, a new public park adjacent to Cattle Bay beach should be established to allow

enjoyment of and access to the foreshores. Informal pathways between beaches and streets may be developed but only where they do not require significant vegetation clearance or land forming, otherwise pathways should be located adjacent to existing streets. A new pathway between Imlay Street and Cattle Bay will provide easy pedestrian access to the site and foreshore park.” (p.35).

Relevant Principles present in the Plan comprise:

- Improve access and use of the foreshore and the Cattle Bay Jetty by:
- Providing a public area adjacent to the Jetty to accommodate marine related activities.
- Ensuring the Jetty is publicly accessible 24 hours per day.
- Uses on the site are to be compatible with the working port, existing long-term users and the surrounding neighbourhood.

The proposed marina places an emphasis on public access and proposes a compatible use that fits the desired future character statement for Cattle Bay and achieves the stated principles for development.

4.8 Bega Valley Shire Land Use Planning Strategy 2008.

The Strategy was prepared as a summary of the planning research and background that has led to the preparation and public exhibition of the Draft Bega Valley Local Environmental Plan 2009/2009 (never proceeded).

The Strategy notes the emerging tourist focus of Eden as well as its Port, harbour and aquaculture related industries. It recognises that Eden has economic challenges in replacing lost unskilled and semi-skilled employment

The marina proposal supports the Strategy in a number of specific areas including:

- Seeking to ensure that major new development is located only within or around existing settlements. Such development will minimise effects to the natural environment and must be fully supported by the necessary service and community infrastructure (p.5);
- Ensuring that protection of biodiversity is a key consideration in the development planning process;
- Ensure that soil and water management is contemporary best practice;
- Assist the long-term viability of retail, maritime, agricultural and timber industries;
- Ensure an adequate supply of commercial and industrial land; and
- Value and respect our Aboriginal cultural heritage.

5. ENVIRONMENTAL PLANNING LEGISLATION AND INSTRUMENTS

5.1 Environmental Planning and Assessment Act 1979 and Regulation 2000

Designated development

Marinas accommodating more than 80 vessels are designated development under Schedule 3 of the Environmental Planning and Assessment Regulation 2000 and require an EIS.

Integrated Development

The proposed marina is integrated development under section 4.46 of the EP&A Act as it requires the approvals under the Protection of the Environment Operations Act 1997 and Fisheries Management Act 1994 for which general terms of approval must be obtained in the DA process.

5.2 Protection of the Environment Operations Act 1997

The proposed marina requires a licence from the NSW Environment Protection Authority under the Protection of the Environment Operations Act 1997 in which marinas with capacity to store more than 80 vessels are listed under Schedule 1 as a scheduled activity.

5.3 Fisheries Management Act 1994

The proposed marina requires a permit from NSW Primary Industries - Fisheries under the Fisheries Management Act 1994 as it involves some damage to marine vegetation in the construction of the marina from piling.

5.4 Biodiversity Conservation Act 2016

The provisions of the Biodiversity Conservation Act 2016 are addressed in the Marine Ecology Report appended to this EIS.

5.5 State Environmental Planning Policy (Coastal Management) 2018

Coastal use area and coastal environment area to which clauses 13 and 14 of the SEPP apply.

Clause 13 of the SEPP states:

13 Development on land within the coastal environment area

(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:

(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,

(b) coastal environmental values and natural coastal processes,

(c) the water quality of the marine estate (within the meaning of the [Marine Estate Management Act 2014](#)), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,

(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,

(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,

(f) Aboriginal cultural heritage, practices and places,

(g) the use of the surf zone.

(2) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

(a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subclause (1), or

(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Clause 13 of the SEPP above is satisfied in the following respects:

- the integrity and resilience of the biophysical, hydrological and ecological environment is addressed in Sections 7 to 19 of this EIS;
- coastal environmental values and natural coastal processes are addressed in Sections 7 to 19 of this EIS;
- water quality is addressed in Sections 9 and 10 of this EIS below;
- marine vegetation, native vegetation and fauna and their habitats and rock platforms are addressed in Section 8 of this EIS;
- existing public open space and safe access to and along the foreshore and beach is addressed in Section 18 of this EIS;
- Aboriginal cultural heritage is addressed in Section 17 of this EIS;
- the proposed marina is not in, and does not affect the use of, the surf zone.
- the siting and design of the proposed marina to avoid and minimise adverse impacts is addressed in Section 3 of this EIS; and
- a range of measures to manage potential impacts are included in the management plans OEMP, CEMP and WQMP.

Clause 14 of the SEPP states:

14 Development on land within the coastal use area

(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority:

(a) has considered whether the proposed development is likely to cause an adverse impact on the following:

- (i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
- (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,*
- (iii) the visual amenity and scenic qualities of the coast, including coastal headlands,*
- (iv) Aboriginal cultural heritage, practices and places,*
- (v) cultural and built environment heritage, and*

(b) is satisfied that:

- (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or*
 - (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or*
 - (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and*
- (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.*

Clause 14 of the SEPP above is satisfied in the following respects:

- existing, safe access to and along the foreshore and beach is addressed in Section 18 of this EIS;
- there is no overshadowing, wind funnelling or unreasonable loss of views from public places to foreshores;
- the visual amenity and scenic qualities of the coast are addressed in Section 16 of this EIS;
- Aboriginal cultural heritage is addressed in Section 17 of this EIS;
- the siting and design of the proposed marina to avoid and minimise adverse impacts is addressed in Section 3 of this EIS; and
- a range of measures to manage potential impacts are included in the management plans OEMP, CEMP and WQMP.
- the surrounding coastal and built environment, and the bulk, scale and size of the proposed development is addressed in Section 16 of this EIS.

The site of the proposed marina is not coastal wetlands, littoral rainforest, or coastal vulnerability area under the SEPP.

Clause 15 of the SEPP states:

15 Development in coastal zone generally—development not to increase risk of coastal hazards

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.

The proposed marina is not likely to cause increased risk of coastal hazards as described in Sections 7 to 15 of this EIS.

Clause 16 of the SEPP states:

16 Development in coastal zone generally—coastal management programs to be considered

Development consent must not be granted to development on land within the coastal zone unless the consent authority has taken into consideration the relevant provisions of any certified coastal management program that applies to the land.

No certified coastal management program is in force.

5.6 State Environmental Planning Policy (State and Regional Development) 2011

The SEPP (State and Regional Development) 2011 states that marinas that are designated development (ie. with a capacity of 80 vessels or more) are regional development for which the Joint Regional Planning Panel is the consent authority.

5.7 State Environmental Planning Policy (Infrastructure) 2007

The SEPP includes provisions for port, wharf or boating facilities including for certain forms of development as permissible without consent, exempt development, complying development and development permissible with consent. It is not relevant to this proposed marina.

5.8 State Environmental Planning Policy (Primary Production and Rural Development) 2008

The policy has provisions for sustainable aquaculture. The proposed marina development includes environmental management plans and water quality management plan to protect the aquaculture industry in Twofold Bay. A specialist marina ecology report has been prepared as part of this EIS which finds the proposed marina will not have a significant impact on aquaculture with the implementation of the environmental management plans.

5.9 State Environmental Planning Policy No.33 – Hazardous and Offensive Development

SEPP No.33 identifies potentially hazardous and offensive development and provides for risk threshold screening and preliminary hazard analysis to determine site suitability and potential impacts. No hazardous or offensive development or activities are proposed with the marina.

5.10 State Environmental Planning Policy No.44 – Koala Habitat Protection

The land base component of the proposed marina development is entirely on a remnant concrete slab from previous industrial use, and it does not contain any significant native terrestrial vegetation or koala habitat.

5.11 State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 states in clause 7 that a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated and is either suitable or can be made suitable for the proposed development. It also states that a preliminary investigation of the land is to be carried out for any application that would involve a change of use on the land.

An Exit Audit Report prepared by Aargus in 1999 for the decommissioning of the previous industrial use on the site included at Appendix 14 confirms that the site has no contaminants above health guidelines suitable for commercial use. The land has not since been used for any purpose or potential contaminating activity since the Aargus Exit Audit report was prepared.

5.12 Bega Valley Local Environmental Plan 2013

The following zoning and provisions in the Bega Valley LEP 2013 are applicable to the proposed marina:

- Unzoned land below high water mark in Cattle Bay in which any development including the proposed marina is permissible with consent under clause 5.7 of the LEP.
- SP3 Tourism Zone on the area proposed for the land based marina facilities in which marina development is permissible with consent and consistent with the objectives of the zone.
- E2 Environmental Conservation Zone on the foreshore reserve (Lot 4) in which jetties and water recreation structures are permissible with consent.
- Clause 4.3 Height of buildings: The proposed marina facilities comply with the maximum 10m building height limit applying to the land base of the site.
- Clause 5.10 Heritage Conservation is addressed in Section 17 of this EIS below.
- Clause 6.1 Acid Sulfate Soils is addressed in Section 10 of this EIS below.
- Clause 6.4 Coastal risk planning: The proposed marina has been designed with due regard to coastal processes and natural hazards as described in Sections 3, and 7 to 10 in this EIS.

- Clause 6.6 Riparian land and Waterways. A water course is mapped to the east and west of the land based part of the site. No works are proposed within 40m of the water courses. Water and soil are addressed in Sections 9 and 10 of this EIS below.
- Clause 6.5 Terrestrial biodiversity is addressed in Section 8 of this EIS.
- Schedule 4 Part 2. The proposed easement for marina access across the Council's foreshore reserve Lot 4 is classified as operational land.

5.13 Bega Valley Development Control Plan

Aboriginal heritage (Clause 5.1)

Aboriginal heritage is addressed in Section 17 of this EIS below.

Non-aboriginal heritage (Clause 5.2)

There is no non-aboriginal heritage item on the site or affected by the proposed marina.

Access and Mobility (Clause 5.3)

Access across the land and water based components of the proposed marina must be compliant with the Building Code of Australia, Australian Standard 1428 – Design for Access and Mobility and AS 3962-2001 – Guidelines for the design of marinas. Detail demonstrating compliance would be submitted to the Principal Certifying Authority with any subsequent application for the issue of a construction certificate.

Social and Economic Impacts (Clause 5.4)

The social and economic impacts of the proposed marina development include:

- an increase in the supply of locally based employment opportunities with Eden to meet the needs of residents; enhancing income, prosperity and quality of life;
- access to short term employment opportunities and the provision and injection of additional wages and investment/expenditure within the community and local economy during construction;
- the effective use of a large underutilised parcel of land within the Eden Township having good access to complementary and support activities and infrastructure;
- enhanced passive and active recreational opportunities through the creation of lawful public access to the Cattle Bay foreshore inclusive of the adjoining public reserve, beach area and existing wharf;
- the provision of new tourist facilities which would enhance the attractiveness of the Town and Region thereby having economic benefit.
- the proposal would deliver a modern boating facility which would attract additional investment and expenditure in tourism and marine related industries through its construction and operation and would contribute to recreation and lifestyle opportunities for the local community.

Sustainable Design Principles (Clause 5.5)

The Precautionary Principle:

The environmental planning issues and potential impacts and mitigation measures associated with the proposed marina development have been identified and addressed in the following sections of this EIS with an adequate degree of certainty.

Intergenerational Equity:

The proposed marina and associated environmental assessment and mitigation measures described in this EIS provide for the health, diversity and productivity of the environment for the benefit of future generations.

Conservation of Biological Diversity and Ecological Integrity:

Biological conservation and ecological integrity are addressed in Section 8 below and in the Marine Ecology Report at Appendix 13.

Improved Valuation, Pricing and Incentive Mechanisms:

The value of environmental resources affected by the proposed marina development has been acknowledged and provided for through the examination of environmental consequences and the identification of appropriate impact mitigation measures. The environmental impact mitigation measures are included in the financial cost of the development.

Tree and Vegetation Preservation (Clause 5.6)

The land based components of the proposed marina are all on existing concrete slab remnant from past industrial use, and do not involve removal of any tree or significant terrestrial vegetation.

On-site sewer management (Clause 5.7)

Sewer is proposed for disposal into Council's sewerage system in Cattle Bay Road. No on-site treatment of sewer is proposed.

Planning for Hazards (Clause 5.8)

Potential hazards associated with the proposed marina are addressed below in relevant sections of this EIS.

Off-street Car and Bicycle Parking (Clause 5.9)

Parking is provided in the marina development and addressed in Section 13 of this EIS below and in the Assessment of Traffic and Parking report appended to the EIS.

Signage and Advertising (Clause 5.11)

No signage or advertising is proposed in the DA. Signage would need to be subject to a future DA.

Engineering requirements (Clause 6)

Engineering design details associated with widening of Cattle Bay Road and utility services would be addressed in the detailed design stage following a DA consent.

6. MARINE SAFETY AND NAVIGATION

6.1 Existing Environment

The existing maritime boating environment at and around the site at Cattle Bay includes:

- Port of Eden cruise ship port;
- Snug Cove jetty wharves (2) for commercial and recreational vessels;
- Swing moorings for recreational vessels in Cattle Bay and Snug Cove;
- Proposed Eden Safe Harbour Project wave attenuator and POEM marina.

Port Authority NSW operates the Port of Eden and Twofold Bay and provides a Harbour Master, pilotage services, hydrographic surveys, management of wharves and port security functions, shipping schedules for public information. PANSW has the responsibility for safe navigation for shipping, preservation of the marine environment through the execution of its Port Safety Operating Licence (PSOL), maintenance of navigation aids, the provision of pilotage services where required and communication services, administration of the dangerous goods regulations, an emergency response for marine-based incidents, and clean up of any environmental spills within the port and coastal waters.

PANSW have developed passage plans for Twofold Bay and Snug Cove. The passage plan in the figure below shows the location of existing navigation aids including at Cocora Beach and the Pilot Station near Lookout Point on the headland above Snug Cove.

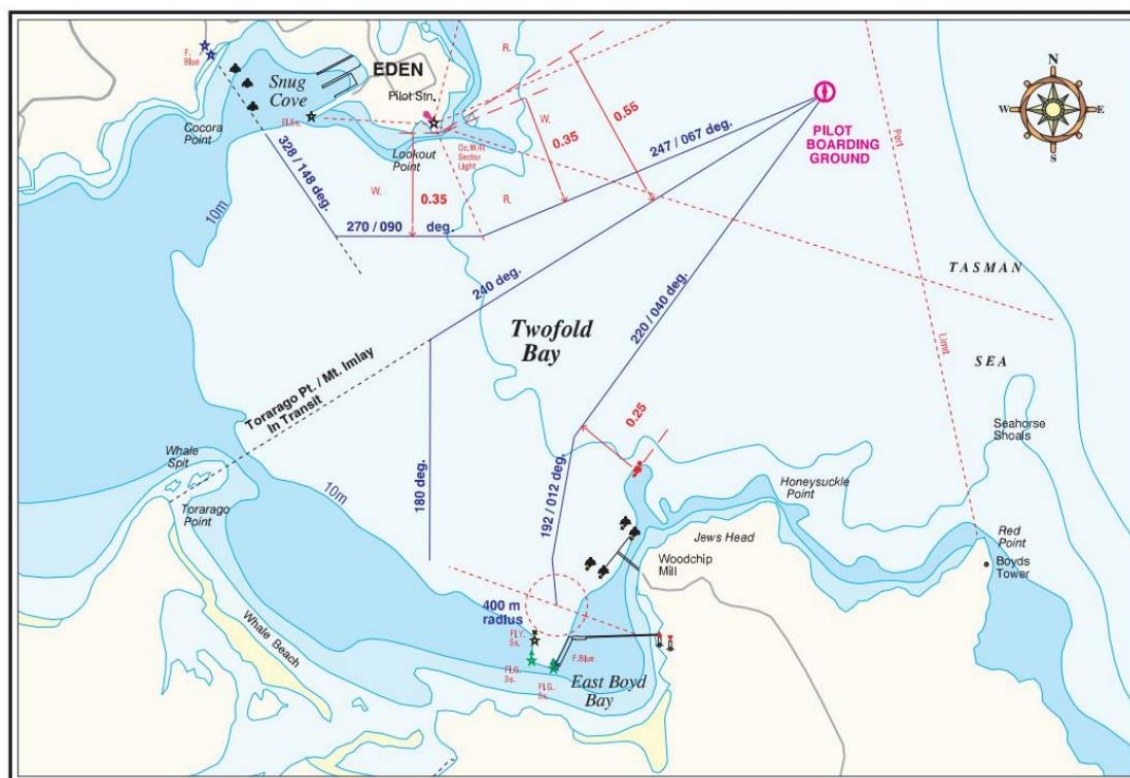


Figure 10 – Vessel passage plan in Twofold Bay

6.2 Potential Impacts

A number of water transport issues can be identified:

- impact on navigation; and
- impact on swing moorings.

6.2.1 Marina operation

The proposed wave attenuator and floating marina operation would not be expected to adversely impact on marine navigation and safety in Cattle Bay and Twofold Bay for a number of reasons:

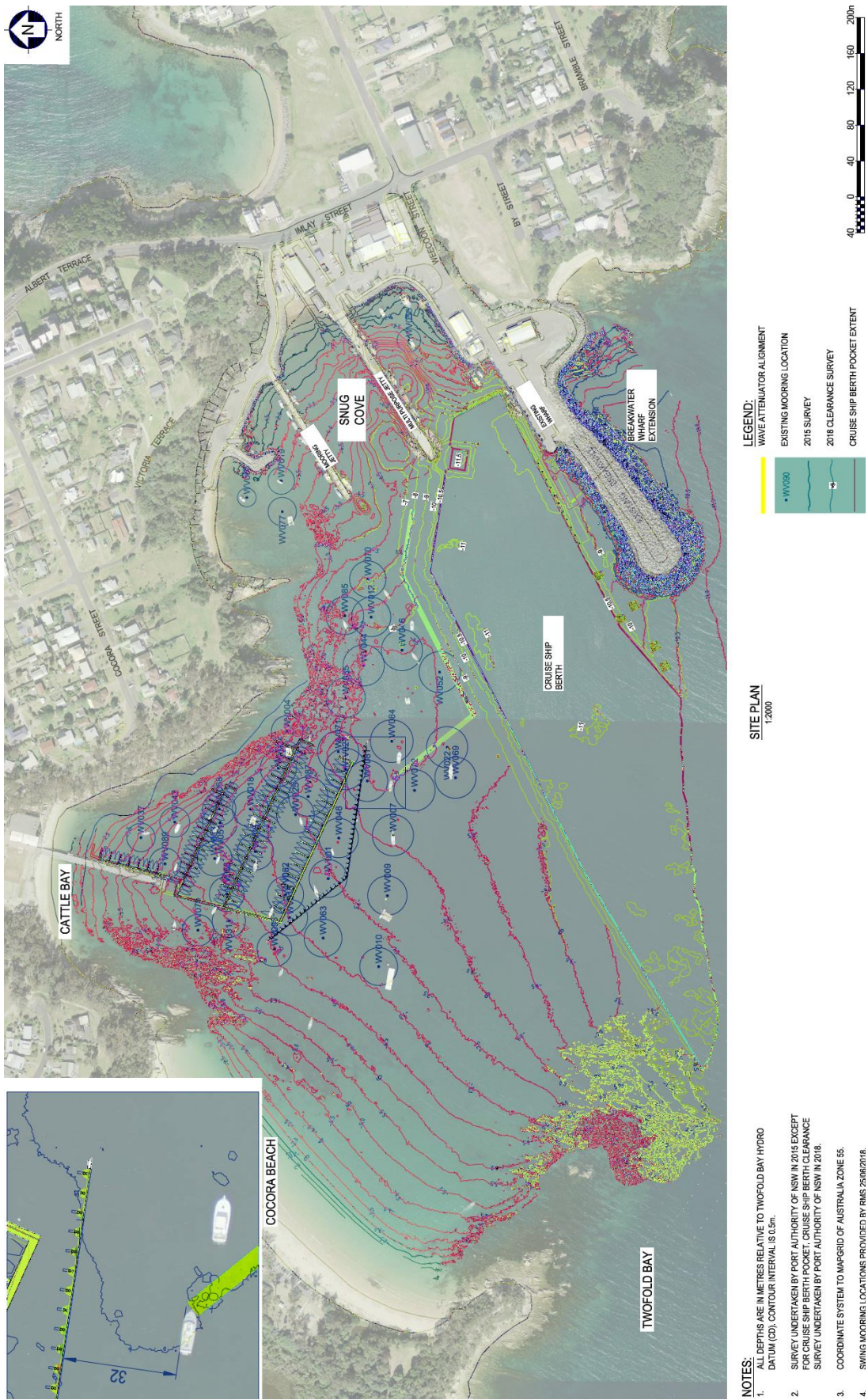
- The proposed wave attenuator is to provide for a safe wave environment for boat navigation within the proposed marina as described in the Wave Modelling Report prepared by Cardno and Supplementary Wave Statement prepared by Royal Haskoning DHV at Appendix 13.
- The footprint of the proposed development does not impact on the approach channel and swing basin for commercial operations in Eden Harbour as shown in Figure 11 below.
- The footprint of the proposed marina and attenuator do not impact on the location of the Eden Safe Harbour wave attenuator as shown in Figure 11 below. A clearance of approximately 30m has been provided between the Cattle Bay wave attenuator and the Eden Safe Harbour wave attenuator by the proponent of the Eden Safe Harbour wave attenuator, NSW Department of Industry; this clearance would be further evaluated during detailed design of both wave attenuators to ensure safe navigation.
- The footprint of the marina is currently used by swing moorings with vessels currently navigating in and out of it.
- The footprint of the proposed development would not restrict navigation to any future POEM marina proposal located off Thompsons Point as this navigation is proposed to be achieved via an opening retained between the Eden Safe Harbour wave attenuator and the Multi- Purpose Jetty.
- Access around the foreshore and existing Cattle Bay jetty wharf for small craft such as kayaks and canoes would continue to be available, although it would be restricted to outside the marina arms and berths.

6.2.2 Marina construction

Construction activities from the water associated with the proposed marina have potential to impact on navigation and water safety, particularly due to new and unfamiliar circumstances of the marina construction.

6.2.3 Swing Moorings

There are a number of private swing moorings (approximately 24) located in the proposed footprint of the Marina. These moorings will need to be relocated by the RMS (Maritime) at the cost of the proponent.



6.3 Mitigation Measures

6.3.1 Marina operation

Measures to mitigate potential impacts on waterway navigation and safety during operation of the marina include the following as described in the Operational Environmental Management Plan prepared by Royal Haskoning DHV and Advanced Marina Management in Appendix 4:

- The proposed wave attenuator is to provide for a safe wave environment for boat navigation within the proposed marina.
- The marina layout has been developed to comply with Australian Standard AS3962-2001 “Guidelines for Design of Marinas” and the NSW Maritime Authority Guidance Note 8.3.02 (GN 8.3.02) in regard to: channel dimensions, fairway dimensions, and berth dimensions.
- Marina management will have continual liaison with the Port Authority at Eden and dissemination of information on navigation in Eden Harbour to marina users.
- A network of Aids to Navigation shall be installed in compliance with System A of the International Association of Lighthouse Authorities (IALA).
- The water surface adjacent to the marina shall be regularly inspected to identify any floating obstacles to navigation [eg floating debris following heavy rain] and any such obstacles would be removed.
- Navigation aids shall be installed including signs to ensure their effective operation and visibility.
- Marina users shall be educated as part of their marina induction they shall also be given a brief outline of navigational rules. All marina customers shall be required to have a current valid NSW Boat License (or equivalent) before berthing at the marina.
- Marina users shall be instructed to not exceed 4 knots when navigating around the marina and navigate with caution in the main shipping lanes of the waterway.

6.3.2 Marina construction

Measures to mitigate potential impacts on waterway navigation and safety during construction include the following as described in the Construction Environmental Management Plan prepared by Royal Haskoning DHV and Advanced Marina Management in Appendix 5:

- preparation and implementation of a Swing Mooring Relocation Strategy in coordination with RMS;
- coordination with the Harbour Master and other relevant authorities;
- a ‘Notice to Mariners’ shall be issued to advise the boating community of the extent, nature and duration of the construction activities;
- provision of special marker buoys, lighting of marker buoys and moored construction vessels for night-time navigation and appropriate signage to delineate construction areas in accordance with the requirements of the Harbour Master and other relevant authorities;

- construction vessels navigating from Snug Cove to Cattle Bay shall:
 - follow all Harbour Master directions;
 - adhere to the guidance provided in the ‘Safety on the Water’ sections of the RMS Boating Handbook;
 - comply with the International Regulations for Preventing Collisions at Sea which are adopted in NSW through the Marine Safety (General) Regulation 2009;
 - drive slowly and keep wash to a minimum, keep a lookout for people in the water, small dinghies, and trailing ropes when navigating near, in or through a mooring area;
 - stay at a distance of at least 30 m from any moored vessel when travelling 10 knots or more.

6.3.3 Swing moorings

A preliminary Swing Mooring Relocation Strategy prepared by Royal Haskoning DHV is enclosed in Appendix 8. It would be developed further in consultation with the RMS (Maritime), Port Authority at Eden and the licensees of the swing moorings.