



# Scoping Report

## Eden Cruise Wharf – Modification 3 to SSI 7734

Port Authority of New South Wales

28 March 2022

311012-01011

**Advisian**  
Worley Group

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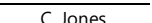
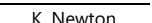
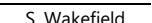
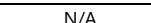




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Rev	Description	Author	Review	Advisian approval	Revision date	Client approval	Approval date
0	Final	 C. Jones	 K. Newton	 S. Wakefield	19.07.2021	 N/A	N/A
1	Revised Final	 C. Jones	 K. Newton	 S. Wakefield	28.03.2022	 N/A	N/A

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# 1 Introduction

Advisian Pty Ltd (Advisian) has been engaged by Port Authority of New South Wales (Port Authority), the proponent, to prepare a Scoping Report in support of a proposed modification (MOD 3) to the State Significant Infrastructure (SSI) Approval SSI 7734 (the Infrastructure Approval) granted by the Minister for Planning on 5 July 2017 for the construction and operation of the Eden Cruise Facility (the Facility) (also known as Eden Cruise Wharf) within the Port of Eden (the Port), New South Wales (NSW). MOD 3 will be submitted to the Department of Planning and Environment (DPE) (formerly Department of Planning, Industry and Environment (DPIE)) under Division 5.2 of the *Environmental Planning and Assessment 1979* (EP&A Act).

The purpose of MOD 3 is to allow the use of the Eden Cruise Wharf by larger class cruise ships (up to the Oasis class of cruise ships) and non-cruise ships up to the length of the Oasis which is approximately 370m length overall, allow overnight berthing of ships (similar to the current Infrastructure Approval for vessels less than 100m), allow non-cruise vessels over 100m to carry out operations between 7:00am to 10:00pm (these are the same hours that vessels less than 100m are currently allowed to carry out operations under the Infrastructure Approval) and allow unrestricted number of vessel visits (noting that the current Infrastructure approval restricts the number of cruise ship visits per year to 60, with no specific limit to other vessel types). MOD 3 also proposes the construction of an additional marine dolphin to enable safe berthing, and a catwalk to facilitate improved passenger movements of the Oasis class cruise ships alongside the Eden Cruise Wharf, which is described in further detail in Section 3.

This report describes MOD 3, its strategic and statutory context, details of engagement to be carried out and identifies the key potential environmental issues and how these will be assessed in the Environmental Assessment (EA) Report. This report has been prepared in accordance with the requirements of the *State Significant Infrastructure Guidelines – Preparing a Scoping Report* (DPIE, 2021a).

## 1.1 Background

The Port is located within Snug Cove, Twofold Bay, in the Bega Valley local government area (LGA). It is the southern-most declared port in NSW, approximately equidistant between Sydney and Melbourne and approximately 40 kilometres (km) from the NSW and Victorian border.

The Eden Cruise Wharf is located at the end of Weecoon Street, within Snug Cove, which is on the northern side of Twofold Bay (Figure 1-1). The Eden Cruise Wharf is located approximately 800 metres (m) from the Eden town centre, with the closest residences being approximately 250m from the wharf at By Street.

Maritime facilities located in the vicinity of the Eden Cruise Wharf include:

- Breakwater Wharf.
- Multipurpose Jetty.
- Mooring Jetty.
- NSW Water Police Mooring Facility.
- Twofold Bay Fishermen's Co-Operative 'T' Jetty.
- Cat Balou Cruises Pontoon and Freedom Charters Berthing.



- Northern and southern boat launching ramps.
- Commercial and private swing moorings.

The Breakwater Wharf, Multipurpose Jetty, Mooring Jetty and some of the other marine facilities listed above have been operational since the 1970/80s and cater for uses including fish unloading, berthing of yachts, tugs and other small to medium vessels, and repair and servicing of vessels. The current uses are consistent with the activities of the Eden Cruise Wharf's Infrastructure Approval.



Figure 1-1 Location of the Eden Cruise Wharf Facility (Source: Nearmap, 2020).

The Infrastructure Approval for the Eden Cruise Wharf (SSI 7734) (first approved on 5 July 2017) permitted dredging adjacent to the existing breakwater wall and construction and operation of an extension to the existing Breakwater Wharf for use by cruise ships.

SSI 7734 was modified on 7 November 2018 (MOD 1) to change some of the noise and air quality conditions including those relating to cruise ship deck announcements and music during transit, fuel type during transit and while at berth, and associated complaints handling processes.

The Infrastructure Approval (as modified in MOD 1) was obtained by the former Department of Industry (DoI) - Lands and Forestry and allows the "operation of the extended wharf for use by up to 60 cruise ships per annum and associated land-based facilities and services for management of passenger visitation including disembarkation, embarkation and transport". The Infrastructure Approval allows cruise ships with lengths over 300m and more than 3,000 persons on board, to berth at the upgraded Breakwater Wharf during the hours 7:00am to 10:00pm (unless extenuating circumstances prevail such as mechanical failure, an on-board emergency or severe weather conditions).

Construction of the Breakwater Wharf extension was completed in August 2019 and cruise operations commenced in September 2019. In September 2019, Port Authority became the operator of the Eden Cruise Wharf, assuming responsibility for the operational conditions of the Infrastructure Approval, with subsequent vesting of relevant land holdings to Port Authority on 18 December 2020. Port Authority holds overall responsibility for the conditions of the Infrastructure Approval.

As a result of the COVID-19 crisis (beginning early 2020), the cruise industry ceased operations in NSW (and Australia). The COVID-19 crisis, together with the 2020 summer bushfires, resulted in reduced business activity in the region and subsequent negative economic impacts to the local community. In response, Port Authority obtained approval for MOD 2 on 21 October 2020 to allow additional use of the Eden Cruise Wharf by fishing vessels, tugs, barges, lines boats, yachts and other vessels with lengths of up to 100m, when not occupied by a cruise ship. These vessels were approved to berth 24 hours, seven days a week, and carry out operational activities (loading/unloading, refueling, maintenance, servicing, passenger embarkation and disembarkation) between 7:00am and 10:00pm.

The operation of the Eden Cruise Wharf is managed through the following approved Operational Environmental Management Plan (OEMP) and sub-plans:

- Eden Cruise Ship Facility OEMP (NSW Department of Industry, 2019a).
- Eden Cruise Ship Facility Noise OEMP Sub-plan (NSW Department of Industry, 2019b).
- Eden Cruise Ship Facility Traffic Transport and Access OEMP Sub-plan (Port Authority, 2019).
- Eden Cruise Ship Facility Air Quality OEMP Sub-plan (NSW Department of Industry, 2019c).
- Extended Use OEMP Eden Breakwater Wharf Extension (Port Authority, 2020).

In April 2021, the Eden Welcome Centre, located adjacent to the Eden Cruise Wharf, was opened by the Port Authority (Figure 1-2). The new building contains the Eden Visitor Information Centre that showcases the region's attractions, promotes local businesses and offers local arts, crafts and produces to tourists and a new maritime hub for Port Authority, Transport for NSW (TfNSW) and NSW Water Police.





*Figure 1-2 View looking south-west to the Eden Welcome Centre (Source: Advisian, 2021).*

## 2 Strategic context

The construction of the Eden Cruise Wharf involved a capital investment of over \$40 million and the generation of approximately 55 jobs during construction and 86 indirect full-time operational jobs in the region. The operation of the Eden Cruise Wharf was assessed in the Environmental Impact Statement (EIS) (Advisian, 2016) to provide significant economic benefits to the region in terms of capital investment, job opportunities and increased business for local retail outlets and shops, recreation/tourism businesses, restaurants and hospitality providers. Since the preparation of the EIS, the latest NSW Government strategic planning documents have further recognised the Eden Cruise Wharf's strong potential to bring increased positive socio-economic benefits to the region.

Eden is strategically placed between Sydney, Melbourne and New Zealand cruise destinations. Many of the region's existing local tourism experiences were created as a result of cruise visitation which also provides great benefits to the Sapphire Coast inbound market of approximately 1 million visitors per year. As a result of the ongoing COVID-19 global pandemic, the cruise industry has temporarily ceased operations in Eden and generally across Australia. The last cruise ship that visited the Eden Cruise Wharf occurred on 10 March 2020 and operations may re-commence later this year, although this is not yet confirmed. In the meantime, cruise ship operators have continued to develop their future itineraries which include Eden.

The proposed MOD 3 seeks to maximise regional community economic benefits and commercial returns to the NSW Government from the existing infrastructure. The main objectives of MOD 3 are to:

- Respond to ongoing demand from the cruise and shipping industries and the Royal Australian Navy (RAN), including larger cruise ships to use the Eden Cruise Wharf.
- Optimise the use of existing infrastructure by providing flexibility in operations.
- Support business opportunities for regional and local communities.

Key benefits of MOD 3 will include:

- Attracting larger cruise vessels with increased number of passengers and enabling inclusion of the Port on major cruise operator itineraries.
- Providing an increased injection into the regional economy, supporting the community in the wake of the 2019/20 summer bushfires and COVID-19 pandemic.
- Optimising the utilisation of the wharf.
- Providing port flexibility, in response to demand, to accommodate an increased demand of cruise and non-cruise vessels.
- Increasing business opportunities for the regional community, and creating opportunities for new types of operators.

It is noted that Port Authority has been approached by RAN with interest to use the Eden Cruise Wharf to promote their established community engagement programs. HMAS Supply (II) has her ceremonial "homeport" in Eden and RAN wants to hold community events to promote the RAN and the ship to its local community. The ship visited the Eden Cruise Wharf on 27 and 28 May 2021.

A key aspect of the proposed modification will be addressing the potential benefits and impacts/risks associated with the MOD 3 based on an in-depth understanding of the degree of impact, the conditions of the local environment and current and future socio-economic context. The key social and economic benefits are described above and relate particularly to the increasing usage of the Eden Cruise Wharf by a variety of vessel types and operations and consequential increased business for the local and regional community, particularly by increased cruise ship visits and tourism.

In terms of environmental risks, these primarily relate to noise, air quality, transport and parking and visual amenity. The selection of mitigation measures for MOD 3 will be designed to avoid or reduce environmental risks to an acceptable level that meet regulator and community expectations.

### 3 Project description

Port Authority seeks to modify the current Infrastructure Approval (MOD 3) as follows:

1. Allow the use of the Eden Cruise Wharf by larger class cruise ships (such as the Oasis and Quantum class) and non-cruise vessels up to the length of the Oasis which is approximately 370m length overall (LOA) (refer example vessels in Figure 3-1 and Figure 3-2). Oasis class cruise ships, the largest of the cruise ship class proposed to visit the Port, can carry up to 6,780 passengers (maximum) and 2,300 crew. Non-cruise vessels will include any vessels up to 370m LOA excluding bulk cargo (liquid or solid bulk materials) and dangerous goods or hazardous materials vessels. Typical non-cruise vessels to use the Eden Cruise Wharf will include RAN ships, project cargo vessels for the transport of equipment, parts, etc, offshore oil and gas support vessels and any other types of non-bulk commercial vessels.
2. All vessels allowed to remain at berth 24 hours per day, seven days a week (similar to the current Infrastructure Approval for vessels less than 100m LOA, as approved under MOD 2).
3. Non-cruise vessels, greater than 100m LOA, allowed to carry out operations, such as loading/unloading project cargo, refuelling and general vessel maintenance and servicing (including sewer, waste and sullage offload) between 7:00am and 10:00pm (these are the same hours that vessels less than 100m LOA in length are currently allowed to carry out operations under the Infrastructure Approval). Cruise ships will continue embarking/disembarking passengers and undertaking general cruise ship activities between 7:00am and 10:00pm (except for in extenuating circumstances) as per the current Infrastructure Approval.
4. Unrestricted number of vessel visits to the Eden Cruise Wharf (noting that Schedule 1 of the current Infrastructure Approval restricts the number of cruise ship visits to 60 per annum, with no specified limit to other vessel types).
5. Some minor administrative changes, such as:
  - a. Remove the requirement to notify community in the event of an overnight berth in Condition E17(d), noting that the vessel arrival and departure schedule is publicly available on Port Authority's website.
  - b. Remove / revise condition E22 "Where a complaint is received in relation to a specific cruise ship at the Breakwater Wharf Extension about dark smoke emissions or offensive odours, the source and nature of the dark smoke emission or offensive odour must be investigated while the ship is at berth and corrective actions implemented as required". This condition is considered to be impractical and unworkable during typical cruise ship day visits. A complaints procedure is in place and is implemented under the approved OEMP. In addition, a procedure for non-compliant cruise ships is also in place under the approved Air Quality OEMP Sub-plan.

Note: all vessels coming into NSW ports must comply with all State and Commonwealth regulations.

6. Construction of the following additional infrastructure (Figure 3-3):
  - a. One marine dolphin is to be installed along the existing mooring dolphin line to enable safe berthing of the Oasis class cruise ships. This mooring dolphin will consist of a number of steel tubular piles driven into the seabed by a piling hammer suspended from a crane mounted on a barge. Once the piles are established, a prefabricated dolphin

module will be installed with bollards on the deck, access platform, safety ladders and hand railings fitted. The overall design details are similar to the existing mooring dolphins.

- b. A fixed passenger access walkway (catwalk) is to be provided from the edge of the wharf to Berthing Dolphin 1 (BD1) to facilitate improved passenger movements of the Oasis class cruise ships alongside the Eden Cruise Wharf as shown in Figure 3-3. A level cantilever structure off the other side of BD1 towards Berthing Dolphin 2 will be constructed to provide access from the Oasis class passenger hatch for the ship's gangway to land on. The distance between the edge of the wharf and the centre of the closest piles of BD1 is approximately 37m. As this is considered a large span, a monopile support structure of up to 1200mm diameter with concrete headstock will be required to support the new passenger access walkway midway between the wharf and berthing dolphin, at approximately 17.5m from the edge of the wharf toward BD1. New handrails and lighting will be installed to the structure. The new catwalk has been designed to be compliant with AS1428.1-2009 and AS1428.2-1992.



Figure 3-1 Oasis class cruise ship, Oasis of the Seas (Source: Cruise Industry News, 2021).





Figure 3-2 Project cargo vessel, ERIK (Source: Erwin Willemse, 2019).

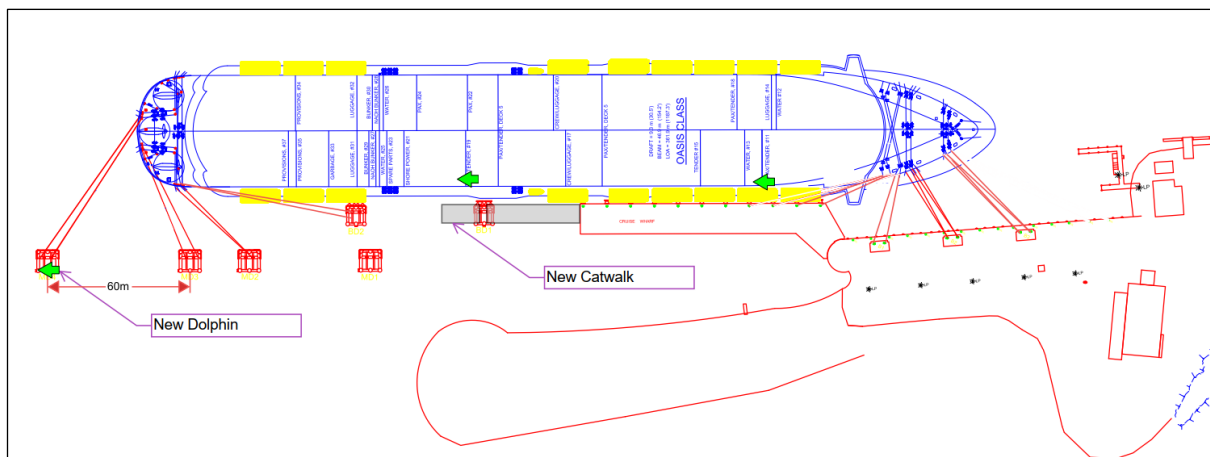


Figure 3-3 Oasis class cruise ship mooring site plan for proposed new dolphin and catwalk (Source: Advisian, 2021).



## 4 Statutory context

The statutory context for consideration in MOD 3 includes the following key legislation and environmental planning instruments (EPIs):

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- EP&A Act – Section 1.3 Objects and Section 5.25 Modifications of Minister’s approval.
- *Protection of the Environment Operations Act 1997* (POEO Act).
- *Fisheries Management Act 1994* (FM Act).
- *Biodiversity Conservation Act 2016* (BC Act).
- State Environmental Planning Policy (Planning Systems) 2021.
- State Environmental Planning Policy (Resilience and Hazards) 2021.
- State Environmental Planning Policy (Transport and Infrastructure) 2021.
- Bega Valley Local Environmental Plan (LEP) 2013.
- Bega Valley Development Control Plan (DCP) 2013.

The Environmental Assessment (EA) Report will review the legislation and EPIs presented originally in the EIS (Advisian, 2016) and make specific reference to legislation and EPIs that have been repealed and replaced since that time.

## 5 Engagement

### 5.1 Overview

Community and stakeholder engagement is a critical element in all project stages, and it is acknowledged that different stakeholders will have distinct interests in MOD 3. It is proposed that Port Authority, with support from Advisian, will work closely with key stakeholders and the wider community to understand these interests and any other issues related to the MOD 3.

A timely and proactive approach for stakeholder engagement and communications activities will be adopted for the proposed modification with objectives to:

- Inform stakeholders and the community early about the MOD 3.
- Capture and report on any constraints, issues and opportunities identified by stakeholders.
- Ensure that stakeholder views and feedback are considered throughout the MOD 3.
- Communicate relevant environment, design, engineering and socio-economic aspects.
- Establish, maintain and/or develop good, working relationships with stakeholders.

To provide practical and logistical guidance to this process, a tailored Community and Stakeholder Engagement Plan has been developed. This Plan details:

- Identified key stakeholders.
- Anticipated stakeholder issues and interests related to the MOD 3.
- Targeted communication approaches and tools for each stakeholder group.
- Logistical consultation schedule, detailing specific consultation to take place during the preparation of MOD 3.
- Task list to guide the preparation and implementation of all engagement activities.
- Key messages and communication protocols, including grievance procedures and reporting arrangements.
- Back-up arrangements in the event that in-person engagement activities are not possible due to COVID-19 restrictions.
- How engagement will be integrated into the EA Report.

### 5.2 Key stakeholders identification

Key stakeholders are expected to include at least the following:

- Eden Harbour Master
- Internal teams within Port Authority
- Bega Valley Shire Council (the Council)
- Department of Planning and Environment including Planning, Crown Lands and Biodiversity and Conservation Divisions

- NSW Environmental Protection Authority (EPA)
- Department of Primary Industries (DPI Fisheries)
- Department of Regional NSW
- Transport for NSW (TfNSW)
- Maritime Infrastructure Delivery Office (MIDO)
- Property NSW
- NSW Water Police
- Australian Border Force
- NSW Water Police
- Eden Cruise Wharf Community Consultative Committee (CCC) which includes representatives from:
  - Local residents
  - Eden Chamber of Commerce
  - Port of Eden Marina Inc
  - Eden Local Aboriginal Land Council (LALC)
  - Cruise Eden
  - Svitzer Australasia
  - Eden Tourism
  - Eden Access Centre
  - Cattle Bay Marina.
- Destination Southern NSW
- Destination NSW
- Eden Port Welfare Committee
- Eden Marine Rescue
- Eden Tourism
- Sapphire Coast Destination Marketing.
- Commercial fishers and local aquaculture facilities.
- Port of Eden Marina
- Cattle Bay Marina
- Businesses and organisations such as Cat Balou Cruises, Gotcha Bait, Eden Ice Supplies, Eden Slipway, Freedom Charters, Pacific Tugs, Svitzer, GAC Shipping Port Kembla, Inchcape Shipping

Services Pty Ltd, Twofold Bay Shipping & Agency, L.D. Shipping Pty Ltd, Wilhelmsen Ships Service

- Other local residents and organisations.

### **5.3 Proposed Engagement Activities**

It is proposed that the following engagement activities will be undertaken during the EA Report preparation phase:

- Presentation to the CCC, either in-person at Eden (at a suitable venue) or virtually depending on the CCC's preference and meeting schedule.
- Presentation to the Council, either in-person at Eden or virtually depending on the Council's preference and availability.
- Conduct up to two community information sessions (open invite) at Eden at a suitable time and venue to be determined in order to maximise attendance. The sessions will provide the community with the opportunity to find out more, ask questions and share views on the MOD 3.
- Preparation and distribution of letters (via email) to government agencies and identified individual stakeholders and organisations to provide written comments on the MOD 3.
- Development of MOD 3 communication materials. This includes the presentation to the CCC and Council; frequently asked questions (FAQs); poster(s), newspaper advertisements and web notifications for the community information sessions; and new web content for Port Authority's website.

It should be noted that face to face consultation may be affected by COVID-19 related restrictions and therefore virtual mechanisms may be required.

A summary of the consultation activities will be included in the EA Report to document the stakeholders who were consulted and by which methods, and a summary of key issues raised by stakeholders and where these are addressed in the EA Report.

## 6 Proposed assessment of impacts

### 6.1 Overview

An EA Report will be prepared to satisfy DPE's SSI modification assessment requirements and guidelines, as applicable, including feedback provided on this Scoping Report. The EA Report will be informed by the specialist studies and assessments identified by Port Authority and Advisian based on discussions with DPE, experience gained in previous approval processes for the Eden Cruise Wharf and the Port, and experience gained during construction and operation of the Eden Cruise Wharf. It is considered that the majority of these assessments will follow the 'Standard' level of assessment (DPIE, 2021a). These are detailed in the Sections below with a scoping summary table provided in Appendix A. Key specialist studies will be appended to the EA Report, with summaries included within the body of the EA Report.

The EA Report will include mapping and figures using geographic information systems (GIS), where appropriate, to identify the location, study area, environmental and social features. Mapping of identified issues will be at suitable scale to clearly identify the issue mapped, the location of the issue and the curtilage of the mapped area as it relates to the study area and the MOD 3.

### 6.2 Noise Impact Assessment

#### 6.2.1 Existing environment

Background noise monitoring indicated a semi-rural environment, strongly influenced by intermittent noise sources such as traffic and activities around the Port (commercial and industrial) (PEL, 2016). The closest sensitive residential receiver (10 By Street, Eden) is approximately 250 metres from the Eden Cruise Wharf.

Operational noise at the Eden Cruise Wharf is managed through the provisions of the Eden Cruise Ship Facility Noise OEMP Sub-Plan (NSW Department of Industry, 2019b) and the Extended Use OEMP for non-cruise ship vessels (Port Authority, 2020). Noise monitoring was undertaken during a cruise visit of the Eden Cruise Wharf on 15 September 2019 (ERM, 2019) and noise monitoring during the visit of HMAS Supply (II) on 27 and 28 May 2021 (SLR, 2021).

While cruise ships are at berth noise sources generally include:

- Ship auxiliary power generation and ventilation fans.
- Vehicles (buses, taxis accessing the Eden Cruise Wharf).
- Ship public address system for safety announcements.
- Passengers talking on the wharf and gangway.

The key noise source while the ship is at berth is the exhaust stack and mechanical ventilation plant.

During the 2019/2020 cruise ship season, which included visitation of 18 large cruise ships to the Eden Cruise Wharf, no complaints or noise incidents were recorded. Noise monitoring undertaken in September 2019 during a cruise visit to the Eden Cruise Wharf showed measured levels within those predicted in the EIS (Advisian, 2016).

### 6.2.2 Potential impacts

Potential construction noise and vibration impacts associated with MOD 3 include:

- Noise emissions from the short-term use of construction plant and equipment and additional vehicles during standard hours on local amenity and to sensitive receivers.
- Vibration impacts to adjacent structures from the short-term use of construction plant and equipment.

Potential operational acoustic amenity impacts associated with MOD 3 include:

- Noise emissions from the additional ships while at berth (e.g. night time) on local amenity and to sensitive receivers.
- Noise emissions during ship operations (e.g. cargo unloading, passenger embarking / disembarking) on local amenity and to sensitive receivers.
- Noise emissions from additional vehicle (e.g. heavy vehicles and shuttle buses) and pedestrian movements relating to the operation of the Eden Cruise Wharf.

### 6.2.3 Assessment methodology

#### Construction

A qualitative assessment of potential construction noise and vibration impacts will be included within the EA Report. The assessment will review and utilise previous modelling and monitoring for the construction of the Eden Cruise Wharf, including the assessment contained in the Port of Eden Redevelopment – Noise, Vibration and Air Quality Assessment (Pacific Environment Limited (PEL), 2016) and previous results of construction noise and vibration monitoring by PEL/ERM.

#### Operation

A Noise Impact Assessment (NIA) will be undertaken by noise specialist, ERM (formerly Pacific Environment Limited (PEL)). The proposed methodology for this specialist study is outlined below.

A NIA must be undertaken in accordance with applicable guidelines to assess operational impacts of noise emissions from the additional ships while at berth, ship operations and additional vehicle and pedestrian movements.

The NIA report will be presented as a stand-alone document to be attached to the EA Report as an Appendix. A summary of the NIA will be presented in the EA main document.

The following methodology is proposed to deliver the above scope:

- Review previous noise studies and monitoring data conducted for the Eden Cruise Wharf to extract the following information e.g. Noise, Vibration, and Air Quality Assessment (PEL, 2016), noise monitoring during a cruise visit on 15 September 2019 (ERM, 2019) and noise monitoring during the visit of HMAS Supply (II) on 27 and 28 May 2021 (SLR, 2021):
  - Location of noise sensitive receivers.
  - Noise environment and baseline noise levels at noise sensitive receivers.
  - Details on existing operational activities.



- Applicable assessment criteria for the Eden Cruise Wharf.
- Noise emissions levels from ships.
- Develop a noise source database for cruise ships engines and exhaust, other mechanical and equipment noise sources, cruise ship manoeuvring etc., relevant to the assessment. The database will be based on previous studies and monitoring data for similar types of ships.
- Develop three noise modelling operational scenarios relevant to the proposed new use of the Eden Cruise Wharf including:
  - Large cruise ships (Oasis Class) at berth during the night, evening and daytime periods (with auxiliary power generation and ventilation plant on).
  - Large non-cruise ships carrying out operations such as unloading project cargo using a mobile shore crane to/from trucks on the wharf between 7:00am and 10:00pm.
  - Large cruise ships (Oasis Class) with passenger disembarking/embarking between 7:00am and 10:00pm.
- Road traffic noise will also be addressed based on any predicted traffic increases during cruise visits, to be determined by the Transport, Parking and Pedestrian Impact Assessment (refer Section 6.4).
- Consult with Port Authority to review and further inform the noise source database and the three noise modelling operational scenarios.
- Prepare a noise model to predict and understand the noise impact and noise propagation patterns of the new cruise and non-cruise ships and their operations at the Eden Cruise Wharf. The noise model will be developed to output noise impact levels for the three noise modelling scenarios.
- Prepare noise contour maps for each scenario representing the noise propagation levels, to be included in the final report.
- Based on the predicted impact levels, discuss potential mitigation and management measures to meet the applicable noise criteria.
- Assess the additional road traffic noise impact on the local road network from increased activity directly related to the new uses of the Eden Cruise Wharf including from shuttle buses and heavy vehicles.

## **6.3 Air Quality and Odour Impact Assessment**

### **6.3.1 Existing environment**

The EIS (Advisian, 2016) indicated that the air quality at Eden can be described as good, with the exception of isolated high pollution days or extreme events as a result of isolated events such as dust storms and bushfires.

Operational noise at the Eden Cruise Wharf is managed through the provisions of the Eden Cruise Ship Facility Air Quality OEMP Sub-Plan (NSW Department of Industry, 2019c) and the Extended Use OEMP for non-cruise ship vessels (Port Authority, 2020). An air quality monitoring program was set up in accordance with Condition D12 and E21 of the Infrastructure Approval, in which ambient air quality

monitoring was undertaken for the Eden Cruise Wharf during the 2019/20 cruise ship season. In consultation and agreement with the DPE, the program has been suspended since the temporary stoppage of cruise ship visits.

### **6.3.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Short-term impacts to air quality such as from minor generation of vehicle and vessel emissions.

Potential operational impacts associated with MOD 3 include:

- Atmospheric emissions from pollutants such as nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and particulate matter (PM<sub>2.5</sub>) from the additional ships while at berth and during ship operations.
- Odour emissions from additional ships at the Eden Cruise Wharf.
- Exhaust emissions from additional vehicle movements relating to the operation of the Eden Cruise Wharf.

### **6.3.3 Assessment methodology**

#### **Construction**

It is expected that construction impacts for air quality matters will not require further assessment since the original EIS (Advisian, 2016) as the impact is expected to be negligible.

#### **Operation**

A quantitative Air Quality and Odour Impact Assessment (AQOIA) will be undertaken by air quality specialist, ERM. The proposed methodology for the specialist study is outlined below.

An AQOIA must be undertaken in accordance with applicable guidelines to assess operational impacts of emissions from the additional ships and activities at the Eden Cruise Wharf. The assessment will consider potential worst-case cruise ship visitations with some night-time stays (noting that cruise ships typically do not stay overnight) and non-cruise vessels visitations which are expected to stay overnight at berth.

The AQOIA report will be presented as a stand-alone document to be attached to the EA Report as an Appendix. A summary of the AQOIA will be presented in the EA main document.

The following methodology is proposed to deliver the above scope:

- Review activities associated with MOD 3 and compile into a number of emission scenarios to be considered in the AQOIA.
- Review existing background air quality dataset (as applied by ERM in prior assessments for Eden Cruise Wharf) in the context of site-specific air quality monitoring conducted during 2019 and 2020, and the DPE air quality monitoring network. This review will consider discernible influences from cruise terminal operations (if any), as well as the 2020 bushfire season.
- Consider monitoring data available from the cruise activities during the 2019-2020 season.

- Confirm location of sensitive receivers.
- Use the existing meteorological dataset which was approved and accepted for SSI 7734.
- Prepare an emission inventory for the nominated modelling scenarios using site-specific activity data such as ship class and/or name, frequency of operations and plant and equipment used for loading and unloading operations. Emissions will be estimated using this activity data in conjunction with *Ports Emissions Inventory Guidance – Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions* (US EPA, 2020), which reflects the most up to date reference for port emission estimation, and incorporates fuel sulphur content-based sulphur dioxide and particulate matter emission factors, as relevant to the estimation of auxiliary/main engine emissions post IMO 2020 (MARPOL Annex VI) fuel sulphur limits. Cruise ship auxiliary engine demand will nominally be estimated from passenger numbers using the methodology of Espinosa (2016), as consistent with SSI 7734 MOD 1. The emission inventory will focus on key pollutants as outlined by relevant guidance and previous studies.
- Conduct atmospheric dispersion modelling via modification of the existing CALPUFF atmospheric dispersion model that has supported the Infrastructure Approval and MOD 1. This will nominally include the existing terrain, meteorology and land use datasets.
- Assess modelling predictions against the air quality impact assessment criteria listed in the EPA's *Approved Methods for the Modelling and Assessment and Air Pollutants in NSW* (2016) (Approved Methods). It is noted that on April 15, the National Environment Protection Council agreed to vary the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM). As potentially relevant to the AQOIA, this variation tightens nitrogen dioxide and sulphur dioxide standards (<http://www.nepc.gov.au/nepms/ambient-air-quality/variation-ambient-air-quality-nepm-ozone-nitrogen-dioxide-and-sulfur>). Historically, the AAQ NEPM standards have been adopted by the NSW Government as air quality impact assessment criteria for major developments. Hence, should it be required, an assessment against these standards, may be required by an updated Approved Methods, or as additional (prospective) standards to those contained in the 2016 Approved Methods.
- Assess odour via comparison of modelling predictions against odour-based impact assessment criteria contained within the Approved Methods, as well as publicly available references for odour emissions from port operations. This assessment can also incorporate operational information gained during operation of the Eden Cruise Wharf to date, or relevant information for similar facilities within NSW.
- Prepare a concise set of conclusions that incorporate consideration of cumulative impacts between port uses, as well as a discussion of relevant mitigation measures (as required).

## 6.4 Transport, Parking and Pedestrian Impact Assessment

### 6.4.1 Existing environment

Since the preparation of the original Traffic, Parking and Pedestrian Impact Assessment prepared by McLaren Traffic Engineering in 2016 for the EIS, operational land-based traffic, transport and access at the Eden Cruise Wharf has been managed through the provisions of the Eden Cruise Ship Facility Traffic Transport and Access OEMP Sub-Plan (Port Authority, 2019), the conditions of the Infrastructure Approval and the Extended Use OEMP for non-cruise ship vessels (Port Authority, 2020).

With the relocation of the Eden Visitor Centre from 116 Imlay Street, Eden to Weecoon Street at the Eden Breakwater Wharf in 2021, McLaren Traffic Engineering (2021) prepared a Consolidated Traffic and Pedestrian Access Plan (CTPAP) to address the new Eden Visitor Centre and as-built modifications to the drop-off and pick-up bus facilities for increased bus capacity. This plan will be considered in the Transport, Parking and Pedestrian Impact Assessment.

### **6.4.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Increase in traffic generation from land-based construction vehicle movements.
- Short-term changes to Eden Cruise Wharf access for construction activities and establishment and use of a land-based site compound area.

Potential operational impacts associated with MOD 3 include:

- Traffic generation from additional ships visiting the Eden Cruise Wharf and ship operations including shuttle buses, taxis and vehicles for servicing and loading.
- Increase in vehicle parking demand.
- Increase in additional vehicle (e.g. heavy vehicles and shuttle buses) and pedestrian movements relating to the operation of the Eden Cruise Wharf.
- Adequacy of pedestrian pathways, roads and/or road signage.

### **6.4.3 Assessment methodology**

#### **Construction**

A qualitative assessment of potential construction transport, parking and pedestrian impacts will be included within the EA Report.

#### **Operation**

A Transport, Parking and Pedestrian Impact Assessment will be undertaken by a traffic specialist McLaren Traffic Engineering. The assessment will assess worst case scenarios in terms of the maximum number of passengers (up to 6,780 passengers) and crew (up to 2,300) arriving at the Eden Cruise Wharf (i.e. for Oasis class cruise ships), estimated additional pedestrian and vehicle movements and the operations of project cargo vessels (e.g. cargo loading/unloading/transport).

The Transport, Parking and Pedestrian Impact Assessment will include:

- Forecast travel demand, modes and traffic volumes for MOD 3 and the surrounding road and public transport network based on surveys already obtained in previous assessments.
- Travel time analysis including intersection analysis based on surveys already completed for the Eden Cruise Wharf.
- Public transport accessibility assessment and wider transport interactions.
- Parking assessment.
- Pedestrian assessment based on the scale of the increase.

- Revise previous plans, traffic and parking impact assessments, drawings, and concepts to align with the proposal for Oasis class cruise ships, assessing any updated arrangements in relation to bus and heavy rigid vehicle movements, including swept paths where required.
- Any required or recommended mitigation measure to address identified impacts.

The study will also assess heavy vehicle access to the wharf for the purposes of loading/unloading project cargo ships. It is anticipated that semi-trailers or similar vehicles may need to access the wharf to allow for project cargo (e.g. parts, equipment, etc) to be moved to/from ships. Recommendations will be made to manage identified traffic impacts/issues.

The Transport, Parking and Pedestrian Impact Assessment report will be presented as a stand-alone report to be attached to the EA report as an Appendix. A summary of findings will be presented within the EA report.

## **6.5 Socio-Economic Impact Assessment**

### **6.5.1 Existing environment**

The local Eden community values the benefits from cruise ship tourism as it provides cash flow and other benefits to the local economy (Advisian, 2016). In addition, the Eden Cruise Wharf provides important infrastructure for the berthing of fishing vessels, tugs, barges, lines boats, yachts and other vessels with lengths of up to 100m, when not occupied by a cruise ship.

As a result of national and state legislative responses to the COVID-19 crisis, cruise ship operations have ceased in Eden with no clear return date for these operations. This, paired with the 2020 bushfires and Covid-19 related border closures, has resulted in reduced business activity in the region and subsequent negative economic impacts to the local community.

### **6.5.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Short-term changes to local amenity from potential construction noise emissions.
- Short-term changes to Eden Cruise Wharf access during construction.
- Short-term changes to the visual amenity of the locality from presence of construction plant, equipment and vehicles.

Potential operational impacts associated with MOD 3 include:

- Positive socio-economic benefits to the local and regional communities.
- Potential local amenity impacts (e.g. noise, air, visual) from additional ships and operations.
- Potential impacts to the local road network and access from additional ships and operations.
- Negative socio-economic impacts perceived from some community members.

### 6.5.3 Assessment methodology

#### Construction

It is expected that construction impacts for socio-economic matters will not require further assessment since the original EIS (Advisian, 2016) as the impact is expected to be negligible.

#### Operation

A Socio-economic Impact Assessment (positive and negative impacts) will be undertaken by Advisian to inform the EA Report. The proposed changes to the use of the Eden Cruise Wharf have the potential to bring key socio-economic benefits to the local community, vessel operators and local businesses. The changes also present the potential to increase amenity impacts relating to noise, transport and parking, air quality and visual amenity. To effectively assess, reduce or avoid impacts and enhance potential benefits the Socio-Economic Impact Assessment will be prepared through a desktop review and update of the original EIS Socio-Economic Impact Assessment (Advisian, 2016) and through an analysis of the consultation activities undertaken for MOD 3 as described in Section 5.

The Socio-economic Impact Assessment report will be presented as a stand-alone report to be attached to the EA report as an Appendix. A summary of findings will be presented within the EA report.

The Socio-economic Impact Assessment will:

- Describe the activities associated with MOD 3, with regard to the social and economic implications and within the context of existing cruise and vessel activities at Eden.
- Describe the existing socio-economic environment, focusing on any changes that have occurred since the EIS (Advisian, 2016) and with respect to the size and nature of MOD 3. This will require an update of key Census data to reflect the 2016 Census results. The description of the existing environment will include:
  - Social values.
  - Demographics.
  - Economic characteristics.
  - Social infrastructure (including transport and access).
- Assessment of potential impacts and benefits of MOD 3 on the socio-economic environment, using desktop data and consultation results.
- Presentation of proposed mitigation and enhancement measures for socio-economic impacts.

The assessment will also consider the requirements for modifications in the *Social Impact Assessment Guideline for State Significant Projects* (DPIE, 2021b).

## 6.6 Aquatic Ecology Assessment

### 6.6.1 Existing environment

Twofold Bay contains a wide variety of natural marine habitats including intertidal rocky shores, sandy beaches, intertidal and subtidal reefs, deep-water areas, sand flats and coastal wetlands which provide important habitat for marine life including cetaceans and threatened and migratory birds.



The Eden Cruise Wharf is located within Snug Cove and there are a number threatened and protected marine fauna species listed under the EPBC Act, BC Act and FM Act known to occur or with the potential to occur near the Eden Cruise Wharf, including whales, dolphins, sharks, syngnathids and migratory bird species.

Marine habitats located adjacent to the Eden Cruise Wharf consist of unvegetated subtidal soft sediments. Within Snug Cove, subtidal habitats include seagrass beds (including the species *H. ovalis*, *Zostera* and *P. australis*) and temperate subtidal rocky reef inhabited by a large variety of macroalgae. Intertidal rocky reef fringes Mirare Point and also extends off the rocky beach west of the boat ramp. Artificial marine habitats including the rocky breakwaters made up of large boulders, concrete boat ramps and wooden jetty structures also occur.

### 6.6.2 Potential impacts

Potential construction impacts associated with MOD 3 include:

- Short-term increased risk of aquatic and terrestrial fauna being impacted by water pollution, noise, human interaction and vessel strike.
- Short-term increased risk of the introduction of invasive/exotic marine species impacting on local biodiversity.

Potential operational impacts associated with MOD 3 include:

- Aquatic flora and fauna detrimentally impacted by additional operational activities causing habitat disruption.
- Increased risk of aquatic and terrestrial fauna being impacted or injured by entanglement in debris, water pollution, night time lighting, increased noise, human interaction (e.g. feeding) and vessel strike.
- Increased risk to nearby mussel aquaculture facilities through water quality impacts.
- Increased risk of the introduction of invasive/exotic marine species impacting on local biodiversity.
- Increased risk of damage to nearby sensitive marine habitats including seagrass bed, subtidal and intertidal rocky reefs through water quality and sedimentation impacts.

The proposed changes to use of the Eden Cruise Wharf have the potential to impact on nearby aquatic habitats (which include expansive areas of seagrass as well as subtidal and intertidal rocky reefs), aquatic biodiversity (including threatened and protected marine fauna, in particular marine mammals and migratory/marine birds), increased potential for the introduction of exotic marine species and impacts on nearby mussel aquaculture facilities.

Sediment and water quality impacts resulting from MOD 3 are also possible and separate assessments for these are outlined in Section 6.7.

### 6.6.3 Assessment methodology

#### Construction and Operation

An Aquatic Ecology Impact Assessment will be prepared via desktop review and will draw heavily on background information reported by Advisian and others for recent similar aquatic ecology assessments in Snug Cove (e.g. Advisian, 2017 and Advisian, 2020).

A standalone Aquatic Ecology Impact Assessment Report will be prepared and appended to the EA Report, with a summary of findings included within the EA Report.

The Aquatic Ecology Impact Assessment Report will include the following:

- Description of the proposed modification and comparison to the previously approved use of the Eden Cruise Wharf.
- Description of the existing aquatic environment including:
  - Twofold Bay – general information.
  - NSW DPI Waterway and Fish Habitat Classification.
  - Commonwealth Marine Regions / Bioregions.
  - Protected Areas Managed under the *National Parks and Wildlife Act 1974* (NP&W Act).
  - Coastal Wetlands mapped under State Environmental Planning Policy (Coastal Management) 2018.
  - Wetlands listed on the Directory of Important Wetlands.
  - Land Identified as Critical Habitat (under the FM Act and EPBC Act) and Areas of Outstanding Biodiversity Value under the BC Act.
  - Key Ecological Marine Features.
  - Mapped aquatic vegetation (via the NSW DPI Spatial Data Portal).
  - Aquatic habitats in the study area (natural and artificial) (described via a background review only).
  - Marina fauna and marine/migratory birds (including identification of threatened and protected species listed under the FM Act, BC Act and EPBC Act).
  - Aquaculture in the study area.
  - Invasive marine species.
- Assessment of potential impacts of the proposed modification on all aquatic ecological matters covered in the background data review.
- Assessments of Significance under the FM Act, BC Act and EPBC Act for any aquatic fauna with the potential to occur and be impacted by the proposal. It may be the case that groups of taxa with similar impacts are assessed together.
- Identification of management/mitigation measures to avoid or reduce the severity of potential impacts.

## **6.7 Marine Sediment and Water Quality Assessment**

### **6.7.1 Existing environment**

The Twofold Bay area is an open oceanic embayment with a catchment area of approximately 11km<sup>2</sup> and an average depth of approximately 10.9m. The area adjacent to the Breakwater Wharf extension was dredged as part of the construction phase of the Eden Cruise Wharf to -10.5m.

A baseline water quality monitoring program was undertaken by Elgin Associates (2017) for the Eden Cruise Wharf construction phase in 2016 and 2017 at six sites within Twofold Bay. The monitoring results indicated that turbidity was relatively low across all sites.

A 2020 field survey by Advisian noted that there was some increased (although unquantified) sedimentation of inshore subtidal rocky reef, macroalgae and seagrass beds in Snug Cove, compared that seen during the 2017 Advisian field survey. It is also expected that the changes to sediments in this area (particularly within the cruise ship turning basin) has likely occurred following construction of the Breakwater Wharf Extension and increased use of the area by cruise ships (with fine sediments likely to have settled within the previously dredged area).

Commercial mussel farming in Twofold Bay is conducted by Eden Sea Farms with an existing aquaculture area located about 700m to the west of the Eden Cruise Wharf, off Cocora Point, and an alternate farm established within an existing aquaculture lease area at Boydtown.

The operational impact of increased turbidity resulting from cruise shipping movements at the Eden Cruise Wharf was assessed originally in detail by Jacobs (2017). The modelling showed that cruise vessel operations may generate a substantial suspended sediment plume along the vessel arrival and departure route. However, the spatial extent is limited and the total suspended solids (TSS) increases at the identified sensitive receptors (i.e. seagrass habitats and mussel aquaculture), away from the arrival and departure routes, are generally short-lived (usually less than one hour). The modelling also confirmed that most of the elevated TSS will occur along the seabed and through the water column with relatively minor TSS visible at the surface.

### **6.7.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Short-term changes to sediment and water quality from water-based construction activities including piling works.
- Increased risk of pollution of the waterway with contaminants, accidental spills of fuels and oils, general waste or 'foreign materials' from onshore stormwater runoff or directly from construction vehicles and vessels.

Potential operational impacts associated with MOD 3 include:

- Increased potential for impacts on sediment quality from additional ships and changes to operational conditions.
- Remobilisation of surface sediments caused by additional ship movements and/or increased size, draft and required engine thrust with potential impact on local water quality, nearby mussel aquaculture and sensitive aquatic habitats including seagrass and subtidal reefs in the study area. Quantum and Oasis class vessels have a wider beam, deeper draft and different thruster configuration than the vessels currently approved to berth at the Eden Cruise Wharf,

hence there is the potential for higher velocities at the seabed and greater mobilisation of seabed sediments (in terms of the frequency of occurrence and the extent of sediment plumes, which are likely to be beyond the currently modelled areas).

- Increased risk of pollution of the waterway with contaminants, accidental spills of fuels and oils, general waste or 'foreign materials' from onshore stormwater runoff or directly from the vessels and their associated passengers and crew.

MOD 3 involves a change in the type of vessels that can berth at the Eden Cruise Wharf and potential changes in the frequency and timing of vessel visitation.

Any remobilisation may result in either physical impacts from increased turbidity and sedimentation or chemical impacts from increased bioavailability of contaminants. Although the latter is far less likely based on historical data and on activities and operations undertaken since sediments were assessed prior to dredging, completed as part of the EIS (Advisian, 2016).

### **6.7.3 Assessment methodology**

#### **6.7.3.1 Marine Sediment Quality Assessment**

##### **Construction and Operation**

A Marine Sediment Quality Assessment will be undertaken via desktop review to determine the potential for impacts from disturbance and remobilisation of sediments from the proposed modification. The current status of marine sediments within the berth area will be based on recent historical results.

The Marine Sediment Quality Assessment will include the following:

- Review of background sediment quality data from the study area, e.g. data collected for the EIS (Advisian, 2016) and Eden Safe Harbour Project (Advisian, 2017).
- Assessment of potential impacts on a) local marine sediments from construction activities and changes to berth use, and b) potential for remobilisation of sediments and associated impacts relating to turbidity and remobilisation of contaminants on local water quality, aquaculture and sensitive habitats.
- Recommendation of mitigation/management measures where required.

It is proposed that the Marine Sediment Quality Assessment is combined with the Marine Water Quality Assessment and attached as an Appendix to the EA Report, with a summary to be included within the main EA Report.

#### **6.7.3.2 Marine Water Quality Assessment**

##### **Construction and Operation**

The proposed construction activities and changes to the use of the Eden Cruise Wharf may result in increased potential for impacts on local water quality. The potential remobilisation of sediments caused by the increased frequency of shipping movements and differing draft configurations, as well as increased use of the Eden Cruise Wharf by differing vessels, has the potential to impact on water quality through increased turbidity (caused by disturbance to sediments within the turning basin and berths). There is also a greater potential for spills of fuels, oils, waste etc. directly resulting from an increase in use. Increased turbidity and other water contamination may impact on local water quality

values, aesthetics, nearby mussel aquaculture areas and sensitive aquatic habitats including seagrass and subtidal reefs.

A Marine Water Quality Assessment will be undertaken to determine the potential for water quality impacts from the proposed changed use of the Eden Cruise Wharf.

The Marine Water Quality Assessment will include the following:

- Review of background water quality data from the study area (e.g. data collected for the EIS (Advisian 2016) and Eden Safe Harbour Project (Advisian 2017)) including any data collected during the dredge monitoring program (reference).
- Assessment of potential impacts on a) ambient water quality from construction activities and operational changes to berth use, and b) potential for impacts from increased turbidity and other potential water contamination on local water quality, aquaculture, sensitive habitats and biodiversity.
- Presentation of proposed mitigation/management measures, where available.

It is proposed that the Marine Water Quality Assessment is combined with the Marine Sediment Quality Assessment in a single report and attached as an Appendix to the EA Report. A summary to be included within the main EA Report.

### **6.7.3.3     *Sediment Plume Assessment***

#### **Construction**

Potential construction impacts will be considered as part of the Marine Sediment Quality Assessment as described in Section 6.7.3.1.

#### **Operation**

The proposed changes to the use of the Eden Cruise Wharf have the potential to cause increased localised mobilisation of sediments, leading to potential impacts on nearby aquatic ecology and aquaculture. Since the Eden Cruise Wharf's construction and dredging, the sediments in this area have likely changed in nature to some extent. It is envisaged that material with a higher fines content than the native sediment may be accumulating within the dredge basin. This may potentially be remobilised as a result of the increased usage and changes to the class of ships allowed to visit the Eden Cruise Wharf. The current status of marine sediments within the berth area will be assumed, based on recent historical results.

To assess these potential impacts, a high-level qualitative desktop assessment will be undertaken by Advisian. The desktop assessment will include the following:

- Analysing the wash characteristics of the Quantum and Oasis class vessels that are proposed to berth at the Eden Cruise Wharf, using the methods outlined in the PIANC publication "Guidelines for Protecting Berthing Structures from Scour caused by Ships", PIANC Report No. 180 Maritime Navigation Commission, Brussels (2015).
- Assessing near-bed velocities that will be generated by these vessels around the berth area, based on assumed approach and departure paths for the vessels. These will be compared against near-bed velocities assessed from the existing design vessels. Higher near-bed velocities than what was predicted under the existing berth design will have the potential to increase mobilisation of sediments.

- Undertaking a comparative assessment of the near-bed velocities from thruster wash from up to four design vessels at set agreed locations throughout Snug Cove to gauge the impact on existing and proposed port infrastructure. The assessment will use the desktop methods as outlined in the Guidelines for Protecting Berthing Structures from Scour caused by Ships (PIANC, 2015).

The assessment will be documented as a chapter within the main EA Report, with recommendations included for further assessment, if required.

## **6.8 Navigation Assessment**

### **6.8.1 Existing environment**

Several port related facilities are located at the Port such as the Breakwater Wharf and extension, Multipurpose Jetty and Mooring Jetty within Snug Cove. Port Authority has a responsibility to perform port safety functions including safe navigation under a Port Safety Operating Licence which also includes the role of Harbour Master.

### **6.8.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Short-term impacts to existing waterway users from water-based construction activities and additional vessels.

Potential operational impacts associated with MOD 3 include:

- Impacts to existing waterway users from additional ships movements.
- Impacts to future developments of maritime infrastructure in Snug Cove.

### **6.8.3 Assessment methodology**

#### **Construction and Operation**

A desktop assessment will be undertaken by Advisian in conjunction with Port Authority to assess impacts on navigation associated with the proposed construction activities and changes to use of the Eden Cruise Wharf. The Eden Harbour Master will provide the navigational requirements associated with MOD 3 in form of a letter that will be attached to the EA Report.

The assessment will draw upon the Eden Harbour Master's advice and is expected to include the following:

- Identification of impacts of the construction activities and changes to the use of the Eden Cruise Wharf on existing waterway users.
- Confirmation of the ability for Snug Cove to accommodate the associated waterway use and traffic (with regards to safe navigation area and interactions with other vessels).
- Documentation of future navigation constraints associated with the fixed wave attenuator proposed to be constructed within Snug Cove in 2022.
- Inclusion of a plan displaying existing and proposed navigation uses of the area.



- Provision of recommendations for additional management controls and procedures to be considered.

It is noted that any future development in the lee of the wave attenuator (such as a marina) is currently unknown, thus it is assumed such future development will not form part of this assessment.

The assessment will be documented as a chapter within the main EA Report, with the Eden Harbour Master letter attached as an Appendix to the EA Report.

## **6.9 Visual Impact Assessment**

### **6.9.1 Existing environment**

The Eden Cruise Wharf exists within a working port, which is dominated by existing maritime infrastructure and associated vessels. This includes roads, footpaths, sea walls, car parking, public amenities building, commercial, industrial and administrative buildings, tourism and hospitality businesses and various maritime facilities and the vessels that occupy and use those facilities and the Port.

The visual receptors of the Eden Cruise Wharf include:

- Commercial, government and public users of existing maritime facilities.
- Commercial, retail, industrial and government users of existing buildings.
- Pedestrians and vehicle drivers on and adjacent to Breakwater Wharf and surrounding footpaths and roads.
- Tourists or visitors to Port of Eden and Snug Cove.
- Residents from the closest residential areas.

### **6.9.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Short-term changes to the visual amenity of the locality from presence of construction plant, equipment and vehicles.

Potential operational impacts associated with MOD 3 include:

- Changes to the visual amenity of the locality from additional ships and addition of new infrastructure over the water.
- Additional lighting impacts from vessels berthed overnight.

### **6.9.3 Assessment methodology**

#### **Construction and Operation**

A Visual Impact Assessment will be undertaken by Advisian to understand the temporary and permanent visual impacts resulting from construction activities, the proposed changes to the Eden Cruise Wharf and the overall impact to the character of the area. This assessment will be included within the body of the EA Report. The assessment will review and update the original Visual Impact Assessment contained in the EIS (Advisian, 2016) having regard to the size and nature of the proposed

modification including the proposed larger cruise ships (length and breadth) compared to the vessels simulated originally (with the largest being the 305m length overall Costa Diadema) and proposed berthing of navy and non-bulk cargo vessels.

The Visual Impact Assessment will include:

- Analysis of the combined value of the built, natural and cultural environment taking into account any changes in the environment since 2016.
- Review of the visual characteristics of the locality and assessment of the impact, if any, of MOD 3 on previously identified and assessed viewpoints in the region, having regard to the 3D perspective images (refer below).
- Recommendations for appropriate safeguards and management measures to minimise any additional potential impacts.

The scope of the vessel simulations will comprise the creation of four 3D perspective images as aerial view images at 4K resolution (3840 × 2160 @ 300 dpi) for the following:

- Oasis class cruise ship at berth (day scene).
- Oasis class cruise ship at berth (day scene) alongside proposed marine dolphin and catwalk.
- Non-bulk cargo vessel at berth with truck and 55 tonne mobile crane at wharf (day scene).
- Navy vessel (destroyer) at berth (day scene).

## **6.10 Hazards and Risks**

### **6.10.1 Existing environment**

Snug Cove is an active working waterfront/port area with a mix of light industrial, commercial, and retail, and government administration, car parking uses and various maritime facilities.

### **6.10.2 Potential impacts**

Potential construction impacts associated with MOD 3 include:

- Environmental hazards and risks from land and water-based construction activities such as water pollution, and aquatic ecology impacts.

Potential operational impacts associated with MOD 3 include:

- Environmental hazards and risks from additional ship movements and operations such as water pollution, and aquatic ecology impacts,
- Operational safety hazards and risks from additional ship movements and operations such as safety of passengers, crew and the public at the Eden Cruise Wharf.

### **6.10.3 Assessment methodology**

#### **Construction**

It is expected that construction impacts for hazard and risks matters will not require further assessment since the original EIS (Advisian, 2016) as the impact is expected to be negligible.

## **Operation**

Advisian will undertake a desktop risk assessment for the broader operational hazards and risks which will be included within the EA Report. The assessment will review and update the original assessment contained in the EIS (Advisian, 2016) having regard to the size and nature of the MOD 3. The assessment will evaluate any additional potential safety issues and impacts resulting from operation activities associated with the proposed modification. The assessment will consider the Eden Cruise Wharf's existing OEMP and Sub-Plans, the wider operational safety requirements at the Port of Eden, Twofold Bay and in the Tasman Sea. Additional management and mitigation measures will be proposed, where appropriate.

## **6.11 Cumulative Impacts**

### **6.11.1 Existing environment**

There has been additional project developments approved or proposed in the vicinity of Snug Cove since the publication of the EIS (Advisian, 2016) including the:

- Eden Welcome Centre – operation commenced in 2021.
- Eden Harbourside Activation Project – demolition of Sapphire Coast Marine Discovery Centre building in 2021.
- Eden Safe Harbour Project – construction planned by TfNSW for 2022.
- Cattle Bay Marina – Development Application approved by Southern Region Planning Panel on 10 2020.

### **6.11.2 Potential impacts**

Potential operational impacts associated with MOD 3 include:

- Positive cumulative socio-economic impact on the local community of Eden.
- Changes to local amenity from potential increased noise and traffic in the Port from any concurrent construction and operational activities.
- Increased demand for local infrastructure and services.
- Potential for vessel strikes to marine fauna and other vessels from increased vessel movements.

### **6.11.3 Assessment methodology**

#### **Construction**

It is expected that construction impacts for cumulative impacts matters will not require further assessment since the original EIS (Advisian, 2016) as the impact is expected to be negligible.

#### **Operation**

Advisian will include within the EA Report an assessment of cumulative impacts, having regard to the interaction of MOD 3 with other known developments in the area including but not limited to the Eden Safe Harbour Project, Eden Harbourside Activation Project and Cattle Bay Marina. Potential cumulative

impacts and benefits arising from the interaction of the Eden Cruise Wharf, including the proposed modification, with those developments will be identified and assessed in a detailed qualitative manner and documented. Any additional management and mitigation measures (when compared to the original EIS; Advisian, 2016) will be proposed, where appropriate. The assessment will also consider the requirements of the *Cumulative Impact Assessment Guideline for State Significant Projects* (DPIE, 2021c) that will come into force from 1 October 2021.

## **6.12 Other impacts**

The EA Report will consider the following other impacts which are expected to minor for construction and operation. The assessment will include a basic desktop assessment to review the proposed modification against the original EIS assessment (Advisian, 2016):

- Property and land use.
- Aboriginal heritage.
- Historic heritage.

## **6.13 Matters requiring no further assessment**

The following matters will not require further assessment since the original EIS (Advisian, 2016) as there will be no impact or the impact is expected to be negligible for construction and operation:

- Terrestrial ecology.
- Health and safety.
- Coastal processes.
- Hydrology.
- Soils and geotechnical.
- Utilities and services.
- Waste management.
- Greenhouse gas and energy.

## 7 References

Advisian (2016a), Eden Breakwater Wharf Extension State Significant Infrastructure – Environmental Impact Statement.

Advisian (2017), Aquatic Ecology Assessment Eden Safe Harbour Project.

Advisian (2020), Eden Safe Harbour Proposal – Aquatic Ecology Report.

Bega Valley Local Environmental Plan 2013.

Bega Valley Development Control Plan 2013.

*Biodiversity Conservation Act 2016 (BC Act).*

DPIE (2021a), State significant infrastructure guidelines – preparing a scoping report.

DPIE (2021b), Social Impact Assessment Guideline for State Significant Projects.

DPIE (2021c), Cumulative Impact Assessment Guideline for State Significant Projects.

Elgin Associates (2017), Eden Breakwater Wharf Extension Project Baseline Water Quality Data Collection.

*Environmental Planning and Assessment Act 1979.*

*Environment Protection and Biodiversity Conservation Act 1999.*

Environment Protection Authority (2016), Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

ERM (2019), Eden Cruise Wharf Operational Noise Monitoring.

Espinosa, S. (2016), Hoteling Cruise Ship's Power Requirements for High Voltage Shore Connection Installations, Journal of Maritime Research Vol XIII. No. II (2016) 19–28, available at: <https://www.jmr.unican.es/index.php/jmr/article/view/447/490>.

*Fisheries Management Act 1994.*

IMO (2020), 'Prevention of Air Pollution from Ships' including MARPOL Annex VI, available at: <https://www.imo.org/en/OurWork/Environment/Pages/Air-Pollution.aspx>.

Jacobs (2017), Sediment Plume Impact Study.

McLaren Traffic Engineering (2016), Traffic, Parking and Pedestrian Impact Assessment of Eden Breakwater Wharf Extension at Weecoon Street, Eden.

McLaren Traffic Engineering (2021), Consolidated Traffic and Pedestrian Access Plan for the Eden Breakwater Wharf Extension during Cruise Days & Non-Cruise Days at Weecoon Street, Eden.

NSW Department of Industry (2019a), Eden Cruise Ship Facility Operational Environmental Management Plan.

NSW Department of Industry (2019b), Eden Cruise Ship Facility Operational Environmental Management Plan Noise OEMP Sub-plan.

NSW Department of Industry (2019c), Eden Cruise Ship Facility Operational Environmental Management Plan Air Quality OEMP Sub-Plan.

Pacific Environment Limited (PEL) (2016), Port of Eden Redevelopment – Noise, Vibration and Air Quality Assessment.

PIANC (2015), MarCom WG 180: Guidelines for Protecting Berthing Structures from Scour caused by Ships.

Port Authority (2019), Eden Cruise Ship Facility Traffic Transport and Access OEMP Sub-plan.

Port Authority (2020), Extended Use Operational Environmental Management Plan.

*Protection of the Environment Operations Act 1997.*

SLR (2021), Eden Wharf HMAS Supply (II) Operational Noise Monitoring.

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

State Environmental Planning Policy (Coastal Management) 2018.

State Environmental Planning Policy (Infrastructure) 2007.

US EPA (2020), Ports Emissions Inventory Guidance – Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, available at: <https://www.epa.gov/state-and-local-transportation/port-emissions-inventory-guidance>.



## Appendix A

### Scoping summary table



## MOD 3 Scoping Summary Table

Level of assessment	Matter	CIA	Engagement	Scoping report reference
Standard	Noise and Vibration – construction	N	General	Section 6.2
Detailed	Noise – operation	Y	General	Section 6.2
Detailed	Air Quality and Odour – operation	Y	General	Section 6.3
Standard	Transport, Parking and Pedestrian Impact – construction and operation	Y	General	Section 6.4
Standard	Socio-Economic Impact – operation	Y	Specific	Section 6.5
Standard	Aquatic Ecology – construction and operation	Y	General	Section 6.6
Standard	Marine Sediment Quality – construction and operation	N	General	Section 6.7
Standard	Marine Water Quality – construction and operation	N	General	Section 6.7
Standard	Sediment Plume – operation	N	General	Section 6.7
Standard	Navigation – construction and operation	Y	General	Section 6.8
Standard	Visual Impact – construction and operation	N	General	Section 6.9
Standard	Hazards and Risks – operation	N	General	Section 6.10
Standard	Cumulative Impacts – operation	Y	General	Section 6.11
Standard	Property and land use – construction and operation	N	General	Section 6.12
Standard	Aboriginal heritage – construction and operation	N	General	Section 6.12
Standard	Historic heritage– construction and operation	N	General	Section 6.12

CIA = Cumulative Impact Assessment