



Eden Breakwater Wharf Extension

*State Significant Infrastructure
Modification Assessment
(SSI 7734 MOD 1)*



November 2018

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Cover photo

A visual simulation of a cruise ship berthed at the extended Breakwater Wharf as seen from the existing Multi-purpose Berth (source: Figure 9-51 of the Environmental Impact Statement prepared by Advisian, November 2016).

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Glossary

Abbreviation	Definition
Approval	Infrastructure Approval
AMSA	Australian Maritime Safety Authority
CCC	Eden Breakwater Wharf Extension Community Consultative Committee
Council	Bega Valley Shire Council
Department	Department of Planning and Environment
DPI	Department of Primary industries
ECA	Emissions Control Area
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
GRT	Gross registered tonnage
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973 (short for marine pollution): (a) as corrected by the Proces-Verbal of Rectification dated 13 June 1978, and (b) as affected by any amendment made under Article 16 of MARPOL, other than an amendment not accepted by Australia or that has not entered into force in Australia, and (c) as modified and added to by the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, as affected by any amendment to that Protocol made under Article VI of that Protocol other than an amendment not accepted by Australia or that has not entered into force in Australia.
MARPOL Annex VI	Regulations for the prevention of air pollution from ships
Minister	Minister for Planning
MOD 1 Request Report	<i>Eden Breakwater Wharf Extension Modification Request to Infrastructure Approval SSI 7734</i> (Advisian, 2 July 2018)
MOD 1 Addendum	<i>SSI 7734 Mod 1 – Addendum Modification Report</i> (Advisian, 14 October 2018)
OEHL	Office of Environment and Heritage
OEMP	Operation Environmental Management Plan
Offensive noise	Defined in the POEO Act as: (a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances: (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or (ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or (b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.

Abbreviation	Definition
offensive odour	<p>Defined in the POEO Act as:</p> <p>(a) that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances:</p> <p>(i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or</p> <p>(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or</p> <p>(b) that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations.</p>
Refined SO ₂ Emission Modelling	Appendix C to the <i>Eden Breakwater Wharf Extension Modification Request to Infrastructure Approval SSI 7734</i> (2 July 2018)
RMS	Roads and Maritime Services
RtS	<i>Response to Submissions Report Eden Breakwater Wharf Extension</i> (dated 24 February 2017)
SEARs	Secretary's Environmental Assessment Requirements
Sensitive Receiver	Includes residences, educational institutions (including preschools, schools, universities, TAFE colleges), health care facilities (including nursing homes, hospitals), religious facilities (including churches), child care centres, passive recreation areas (including outdoor grounds used for teaching), active recreation areas (including parks and sports grounds), commercial premises (including film and television studios, research facilities, entertainment spaces, temporary accommodation such as caravan parks and camping grounds, restaurants, office premises, retail spaces and industrial premises), and others as identified by the Secretary
Secretary	Secretary of the Department of Planning and Environment
SSI	State Significant Infrastructure
TfNSW	Transport for NSW



Executive Summary

The Eden Breakwater Wharf Extension (SSI 7734) was approved on 5 July 2017 under delegated authority from the Minister for Planning. The Approval permitted dredging adjacent to the existing breakwater wall (now completed) and construction and operation of an extension to the existing breakwater wharf for use by cruise ships.

The modification request seeks changes to 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 Modification Request Report (MOD 1 Request Report) was publicly available on the Department's website from 13 to 27 July 2018 with submissions invited from the community and agencies. A total of 18 submissions were received with one objection to the proposed modification.

On 14 October 2018, the modification request was expanded by submission of an addendum to modify construction noise and vibration conditions to allow extension of construction hours for some limited works. The addendum was made available on the Department's website.

The Department considers the modification request can be approved in relation to limited extended work hours as impacts on local residents would not be significant. The Department also considers the modification request can be approved in relation to removing specific air quality and noise requirements for cruise ships in transit through the Port of Eden. This is based on additional information presented in the MOD 1 Request Report and associated Response to Submissions Report, the short transit time through the Port, and community views that ship emissions and deck PA broadcasts would not significantly impact local amenity when a cruise ship was underway.

In relation to the requested changes to operational noise and air quality requirements, the Department considers the modification approvable subject to amended conditions that ensure protection of local amenity. This includes conditions that:

- give effect to the mitigation measures identified in the EIS and specialist assessments
- require a procedure for management of non-compliant cruise ships including details on proposed actions, timeframes and consequences for non-compliance
- provide for ongoing community consultation on environmental management
- require a review of the first five years of operation to verify air quality modelling predictions, assess complaints and identify and implement additional mitigation measures through revision of the Operational Environmental Management Plan, if required.



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1. Introduction

This report provides an assessment of a request to modify the State significant infrastructure approval (SSI 7734) for the Eden Breakwater Wharf Extension. The request seeks approval for changes to operational noise and air quality conditions and was lodged on 2 July 2018 by the NSW Department of Industry (the Proponent), under section 5.25 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The original modification request was expanded by submission of an addendum, dated 14 October 2018, to modify construction noise and vibration conditions to allow extension of construction hours on a limited number of days.

1.1 Background

The Port of Eden is located within Twofold Bay in the Bega Valley local government area. It is the southern-most declared port in NSW, approximately equidistant between Sydney and Melbourne and approximately 40 km from the NSW/Victorian border. The declared port limits and pilotage area encompass the area west of a line joining Red Point with Worang Point to the north.

The Breakwater Wharf is located at the end of Weecoon Street within Snug Cove which is on the northern side of Twofold Bay. A woodchip terminal and multi-user wharf are located on the southern side of Twofold Bay. The Breakwater Wharf is located approximately 800 m from the Eden town centre, with the closest residences being approximately 240 m from the wharf. See **Figure 1** for Project location.

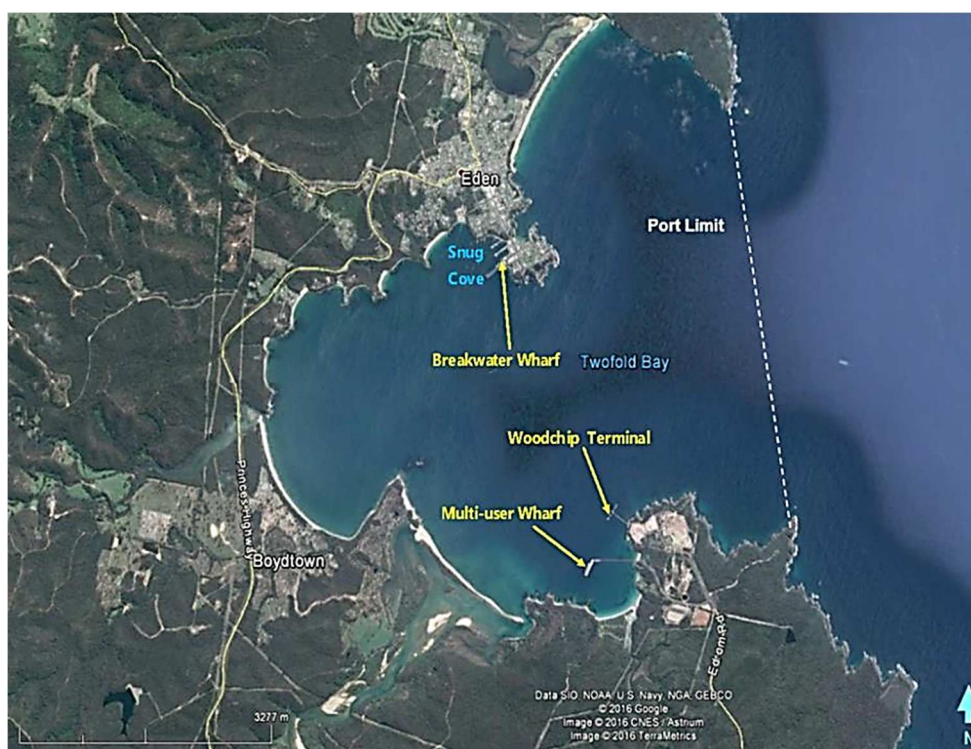


Figure 1 | Project Location (source: EIS 2016)

Construction of the Breakwater Wharf Extension included dredging of the approach channel and berth pocket to accommodate cruise ships up to 325 m in length. Cruise ships currently anchor in Twofold Bay with passengers being transported to shore by tenders.

Dredging work (Stage 1) was completed in February 2018. Construction of associated marine structures (Stage 2) commenced in March 2018 and is forecast for completion in early 2019. It is expected that the Breakwater Wharf Extension will be operational in March 2019.

The Proponent's request to extend construction hours is to ensure sufficient time for curing and finishing the concrete wharf deck, which is to be poured in four individual sections. In relation to operational conditions, the Proponent seeks a modification to optimise potential benefits to the local economy through maximised cruise ship visitation. The Proponent considers that the Approval noise and air quality conditions would act as a disincentive for cruise ships to utilise the Port of Eden (and the Breakwater Wharf Extension) as a destination port.

1.2 Approval History

On 5 July 2017, Approval was granted by the Executive Director, Priority Projects Assessments, for the Eden Breakwater Wharf Extension (SSI 7734). The Approval permitted the following works:

- dredging of approximately 231,500 m³ of in-situ material from the bed of Snug Cove/Two-fold Bay
- extension of the existing Breakwater Wharf by approximately 95 m
- installation of three mooring dolphins and two berthing dolphins
- installation of three mooring bollards on the existing wharf
- extension of existing services (lighting, potable water and emergency fire-fighting water)
- installation of navigation aids
- operation of the extended wharf for use by cruise ships and associated land-based facilities and services for management of passenger visitation including disembarkation, embarkation and transport.

The Approval permits construction work from 7 am to 6 pm during the week and from 8 am to 1 pm on Saturdays, with no work on Sundays or public holidays. It includes operational conditions relating to cruise ship deck announcements and music at berth and during transit, limits on the sulphur content in fuel used during transit to/from, and while at berth and associated complaints handling processes and actions in the event of cruise ship non-compliances.



2. Proposed Modification

The modification request consists of changes to some conditions or replacement conditions. The changes requested by the Proponent are as follows. Deletions are indicated by a strike through, additions by blue bold text and replacement conditions are in blue text and italics.

The works proposed outside standard construction hours are associated with construction of the wharf deck which would include four individual concrete pours, surface finishing and application of water as required for concrete curing.

E9 Construction (except for dredging and offshore disposal activities) must only be undertaken during the following standard construction hours:

- (a) 7:00am to 6:00pm Mondays to Fridays inclusive;
- (b) 8:00am to 1:00pm Saturdays; and
- (c) at no time on Sundays or public holidays

except in the following circumstances:

- i. for the delivery of materials required by the NSW Police Force or other authority for safety reasons;
- ii. where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; ~~and~~
- iii. where different construction hours are permitted or required under an EPL in force in respect of the Construction, in which case those construction hours must be complied with; and
- iv. **only the works as described in the Addendum Modification Report (Advisian, 14 October 2018) may be carried out between 6:00am to 10:00pm Monday to Fridays inclusive.**

E17 The Noise Management OEMP Sub-plan must identify measures to reduce noise impacts on Sensitive Receivers including:

- (a) no deck announcements and music from open decks while **berthed at the SSI** in the Port of Eden ~~or in transit~~, with the exception of safety announcements;
- (b) ship generators/engines/exhausts must be maintained, ~~upgraded~~ and operated efficiently to reduce noise emissions while in the Port of Eden;
- (c) ships must run on the minimum generator/engine power required while at the berth;
- (d) in the event of an overnight berth due to extenuating circumstances, community information and notification; and
- (e) management of non-compliant cruise ships.

E18 ~~In the event of complaints from Sensitive Receivers in relation to a specific cruise ship, the source of the offensive noise must be identified and action taken to reduce noise levels with details submitted to the Secretary. The ship must not be permitted to berth at the SSI in the future, unless it can be demonstrated that measures have been taken to reduce noise levels.~~

E18 Where a complaint is received from a Sensitive Receiver in relation to a specific cruise ship at the SSI in the Port of Eden, the source and nature of the noise shall be investigated and corrective actions implemented. If there are further complaints or the investigation indicates ongoing exceedance of the predicted noise levels, measures to reduce noise levels shall be investigated and implemented.

- E20 The Air Quality Management OEMP Sub-plan must include the following measures to reduce emissions from cruise ships:
- (a) ~~use of low sulphur fuels at berth. Sulphur content is not to exceed 0.1% m/m (mass/mass) unless alternative methods to meet sulphur emission restrictions are utilised such as exhaust gas cleaning systems or scrubbers which act to remove the SO_x directly from the ship exhaust. The use of an alternative method needs to be at least as effective, in terms of emission reductions, as the fuel oil requirements outlined above. Where low sulphur fuel is the proposed mitigation measure, ship fuel bunker notes must be provided and included in Operation Compliance Reports;~~
 - (b) ~~use of low sulphur fuels for the duration of transit (1 hour prior to arrival and following departure). Sulphur content is not to exceed 0.1% m/m (mass/mass) unless alternative methods to meet sulphur emission restrictions are utilised such as exhaust gas cleaning systems or scrubbers which act to remove the SO_x directly from the ship exhaust. The use of an alternative method needs to be at least as effective, in terms of emission reductions, as the fuel oil requirements outlined above. Where low sulphur fuel is the proposed mitigation measure, ship fuel bunker notes must be provided and included in Operation Compliance Reports; and~~
 - (a) *The Proponent shall operate the SSI with the objective that emissions from cruise ships berthed at the SSI at the Port of Eden do not result in an exceedance of the predicted concentrations;*
 - (b) deleted
 - (c) Ship generators/engines/exhaust must be maintained, ~~upgraded~~ and operated efficiently to reduce air emissions while ~~in~~ **at the SSI at the Port of Eden.**
- E22 In the event of dark smoke emissions, offensive odours and/complaints from residential receivers in relation to a specific cruise ship, additional details are to be provided to the Relevant Maritime Authority on the ship's exhaust management. Upon the return of that vessel, monitoring as per Condition D7 and testing of ship stack emissions and fuel used in transit and at berth must be undertaken by a suitably qualified specialist with the results submitted to the Secretary. Should further community complaints be received, and monitoring indicates emission levels in excess of that typically recorded for other cruise ships as part of the Operation Monitoring Program required under Condition D7, in the future the ship must not be permitted to berth at the SSI, unless it can be demonstrated that measures have been taken to reduce emission levels.
- E22 *Where it is identified that the predicted air quality concentrations have been exceeded or a complaint is received from a Sensitive Receiver in relation to a specific cruise ship about dark smoke emissions or odours, the source and nature of the exceedance will be investigated. If the investigation indicates an ongoing exceedance of the predicted concentrations, measures shall be investigated and implemented.*



3. Strategic Context

In the SSI assessment, the Department considered the local and regional benefits of the Project, identified in the following strategic plans.

- The *South East and Tablelands Regional Plan 2036*, specifically Action 2.1 which is to “Promote business and industry development to attract visitors and cruise vessels to Eden”. The Strategy envisages that a significant increase in cruise ship passenger numbers would lead to an increase in regional tourism sectors such as nature-based and food and wine tourism.
- The *Regional Development Australia - Far South Coast Strategic Regional Plan 2013-2018*, which identified the Port of Eden as having infrastructure (including for cruise ships) which supports economic development and employment.
- The *South Coast Destination Management Plan 2013-2020* which identified the Project as having potential to open up new tourism markets and increase visitation and/or visitor expenditure.
- *NSW Cruise Development Plan – Building on NSW’s Reputation as a World-Class Cruise Destination* (July 2018) which aims to capitalise on existing regional port locations by ensuring port infrastructure is suitable for cruise ship visitation.

The Department also notes the estimated 86 new indirect jobs that would be created once the Project was operational.



4. Statutory Context

4.1 Scope of Modifications

In accordance with section 5.25 of the *Environmental Planning and Assessment Act* (EP&A Act), a proponent may request the Minister to modify the approval for State significant infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval. As the modification seeks to change conditions, it is not consistent with the existing Approval. Consequently, modification of the Minister's approval under section 5.25 of the *Environmental Planning and Assessment Act* (EP&A Act) is required.

4.2 Delegated Authority

The Minister will be the approval authority under section 5.25 of the EP&A Act unless the Minister has delegated his determination functions to the Department.

Minister's delegate as determining authority

Under the Instrument of Delegation dated 11 October 2017, the functions and powers of the Minister for Planning under section 5.25 of the Act to determine a modification of the Minister's approval have been delegated to an Executive Director, where:

- the relevant local council has not made an objection;
- a political disclosure statement has not been made; and
- there are less than 25 public submissions in the nature of objections.

The proposed modification meets the terms of this delegation.



5. Engagement

5.1 Department's Engagement

Under section 5.28(1)(g) of the EP&A Act, the Planning Secretary is required to make requests for modification of approvals determined by the Minister publicly available. Accordingly, the Department made the modification request publicly available on its website from 13 to 27 July 2018, with hard copies made available at:

- Bega Valley Shire Council, Zingel Place, Bega
- Eden Library, corner Mitchell and Imlay Streets, Eden.

The modification request was advertised in the:

- Eden Imlay Magnet on 12 July 2018
- Bega District News on 13 July 2018.

The modification request was referred to Bega Valley Shire Council (Council), Port Authority of NSW (PANSW) and the following Government agencies for comment:

- Transport for NSW (TfNSW) and Roads and Maritime Services (RMS)
- Department of Primary Industries (DPI)
- Environment Protection Authority (EPA)
- Office of Environment and Heritage (OEH).

5.2 Summary of Submissions

A total of 18 submissions were received, including five from public authorities which provided comments, four from special interest groups (with one submission received after the exhibition period ended) and nine from the community. One special interest group, the Bega Valley Shire Residents and Ratepayers Association Inc. (BVSRRRA), objected to the proposed modification. The remainder of the special interest groups supported the modification, as did the public submissions through direct indication of support or through comments that cruise ship noise and air quality impacts have not been/would not be an issue for the Eden community.

5.3 Government Agency Comments

The EPA advised that the main pollutant from ships is fine particles (PM_{2.5}) and that low sulphur marine fuel is the most common measure used overseas to reduce particle emissions from ships. It also noted that since January 2016, amendments to the Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* made the Commonwealth Government responsible for regulating fuel used by ships in all Australian Ports, with the Commonwealth introducing requirements for cruise ships to use 0.1 % mass/mass (m/m) or less sulphur fuel while at berth in Sydney Harbour (mirroring previous NSW at berth requirements).

The EPA supported the January 2020 reduction in the global sulphur cap for fuel oil used by ships from 3.5% to 0.5% m/m and considered that this would deliver good air quality outcomes for local communities.

The other agencies reviewed the modification request and had no comments.

5.4 Key Issues – Council/Community/Special Interest Groups

5.4.1 Council key issues

Council considered the proposed modification to noise conditions appropriate and that this would help support the practical functioning of the wharf extension and associated cruise shipping into the future.

It also considered the use of 0.1% m/m fuel by cruise ships at Eden either impractical for all ships or cost prohibitive for many and that this requirement may affect the viability of the emerging local cruise industry.

However, Council stressed the need for a timely, efficient, genuine and proactive response to noise and air quality complaints by the responsible authority and expected that an Operational Environmental Management Plan (including air quality monitoring) would be developed and fully implemented.

5.4.2 Community Views

Of the nine community members who provided submissions (including two from the Eden Breakwater Wharf Extension Community Consultative Committee (CCC)):

- four ran Bed and Breakfast (B&B) accommodation (two B&Bs in total with one located approximately 400 m from the Breakwater Wharf and the other approximately 2 km away)
- two were from outside the Eden area with one indicating they were the owner/operator of two tourism businesses in Eden
- one was local Eden business owner
- two were from individuals with one living approximately 450 m from the Breakwater Wharf.

The views expressed in the submissions are summarised in **Table 1**.

Table 1 | Summary of Views Expressed in Community Submissions

Issue	No. of times raised in submissions
Limitations and restrictions will hamper Eden cruise industry growth and economic benefits	5
Residents surrounding the Port of Eden are used to noise associated with a working port	4
Sydney Harbour restrictions are not applicable to Eden as Sydney experiences high cruise ship visitation and residential densities are high around the foreshores	2
The Breakwater Wharf would only operate for a short time before the global fuel 0.5 content cap comes into effect	2
The topography and typical climatic conditions at Eden during the day and over the cruise season would act to disperse ship exhaust emissions and direct these away from residences	1
The proposed amendments to conditions would prevent unreasonable complaints	1

5.4.3 Special interest groups

Of the four special interest group submissions, three were from tourism organisations or operators which considered that limitations and restrictions would hamper Eden cruise industry growth and economic benefits.

This was based on the view that the requirement for use of 0.1% m/m sulphur content fuel was likely to make cruise ship visits uneconomical. Comment was also made that predicted air quality exceedances for residual oils with 2.7 % m/m sulphur content were based on worst-case scenarios.

Comment was also made on the nature of current and future operational practices which the tourism organisation and operators considered adequately addressed noise and air quality impacts:

- noise emissions from engines and announcements from cruise ships anchored in Twofold Bay have been minimal
- deck announcements while ships are transiting into and out of Eden are necessary for passenger information such as onshore transport arrangements
- the intermittent nature of deck announcements during the day time when cruise ships are permitted to berth means noise from cruise ships would be less than construction noise and other industrial noise
- exhaust Gas Cleaning Systems (scrubbers) have already been installed and certified on a number of cruise ships
- the Operational Environmental Management Plan (OEMP) would include monitoring to determine actual air quality impacts including emissions from cruise ships, measures to minimise smoke emissions and offensive odours and a 24 hour complaints handling mechanism.

The BVSRRRA considered that the Mod 1 Request Report did not contain sufficient justification to change conditions of the Approval, and that the commercial interests of cruise ship and local tourism operators were being considered more important than the health and well-being of the Eden community. Concern was also expressed about the Refined SO₂ Emissions Modelling inputs. Key issues raised by the community group were that:

- no economic information was presented on the cost to cruise ships of complying with the 0.1% m/m sulphur content fuel requirement
- no evidence was presented from private commercial interests in support of claims that the Approval conditions are restrictive and act as a disincentive for cruise ships to visit Eden
- it was thought compliance costs would represent a small reduction in overall cruise ship profits
- emissions detected in excess of those predicted in the assessment would only be investigated after the event.

5.5 Response to Submissions

The Proponent prepared a Response to Submissions (RtS) dated 3 September 2018, which was made available on the Department's website.

The RtS was forwarded to the EPA for information and to Council for any further comments, as their submission raised concerns about complaints handling (no further response was received from Council). In response to Council's concerns, the RtS commits to the development and implementation of an appropriate and effective air quality monitoring program and an appropriate and effective noise and air quality complaints handling process.

Response to Bega Valley Shire Resident & Ratepayers Association Inc Submission

The RtS did not contain any specific information on the cost of compliance with the Approval, apart from advice from PANSW that:

Unless there was a regulatory requirement to use low sulphur fuel in Eden prior to 2020 cruise lines would not voluntarily make that choice, as there are additional costs involved with using low sulphur fuel, or operating scrubbers to meet with requirements. The industry has been preparing for many years

in advance of the 2020 requirements and it would be unreasonable to require compliance with MARPOL at a particular berth at short notice from 2019.

The RtS stated that the requested changes to the Approval were identified “following further analysis and stakeholder engagement”, not based on a financial decision. It is noted that the MOD 1 Request Report concludes that “if the modification request is not accepted the incentive for cruise ships to utilise the Port of Eden (and the Project) as a destination port will be compromised, it is considered by the Department [of Industry] that the Project is likely to be adversely impacted from restrictive conditions which in turn impact on the local and regional economy”.

With regard to concerns raised about the Refined SO₂ Emission Modelling inputs, the RtS stated that in the modelling:

- meteorological data from the Merimbula Airport weather station was used and was considered representative of Eden
- derived estimates of ship emissions were based on the 2018-2019 cruise ship fleet passenger capacity and associated estimated ship power demand at berth
- the cruise ship exhaust stack was positioned at the extended Breakwater Wharf
- prevailing breezes carrying emissions were taken into account.

5.6 Proponent's Engagement

Condition B1 of the Approval required formation of a CCC. The CCC comprises representatives from port businesses, maritime user groups, tourism operators, residents surrounding the Port of Eden, PANSW, a council representative, and members of the Project team.

The proposed changes to operational conditions were discussed at the CCC meetings in May with minutes published on the Project Website <https://www.industry.nsw.gov.au/lands/major-projects/infrastructure/eden/community-consultative-committee>.

A memo from the Proponent to the CCC, dated 16 May 2018, for discussion at the CCC meeting on 30 May was included in the MOD 1 Request Report. This outlined the proposed changes to operational conditions, together with background information on the potential reduction in PM_{2.5} emissions for various emission controls, i.e. scrubbers, liquefied natural gas (LNG) fuel, low-sulphur distillate (0.1% and 0.5% m/m sulphur content fuel), heavy fuel oil with 0.1% and 0.5% m/m sulphur content and shore-side power.

Capital and operating costs associated with each option were also outlined. Compared to 2.7% m/m sulphur content fuel, the higher fuel costs were identified as:

- +40-80% for low sulphur distillate (0.1% or 0.5% m/m sulphur content)
- +34-68% for heavy fuel oil (0.1% or 0.5% m/m sulphur content).

Written submissions were invited from CCC members on the proposed change to operational conditions. Of the five submissions received, the MOD 1 Request Report states that three CCC members were in favour and two opposed the proposed changes with concerns expressed about noise and air quality impacts at nearby residences.

Over 10 to 12 October, local residents potentially impacted by the proposed extended construction hours and those who made a submission on the changes to operational conditions were contacted, with no objections raised (noting that one submitter, who was in support of the proposed modification, was unable to be contacted).



6. Assessment

The Department relied on the key documents listed in Appendices A to D in the assessment of the modification request. Consideration was also given to the matters raised in submissions and the Proponent's assessment of potential noise and air quality impacts.

As a point of comparison, the Department also considered noise and air quality impacts and associated operational controls for the White Bay Cruise Terminal (WBCT) in Sydney:

- received a total of 120 cruise vessel visits in the 2016 financial year (including 16 overnight visits) and 117 cruise vessel visits in the 2017 financial year (including 23 overnight visits), with cruise ships generally arriving from 6 am and departing by 6 pm - the Eden Breakwater Wharf Extension Approval is for up to 60 visits per annum (as 40 to 60 ships was the number of visits assumed in the assessment of impacts) with no overnight berthing (i.e. no ship at berth at the Breakwater Wharf Extension between 10 pm and 7 am)
- is located adjacent to residential development with the closest residential receivers being approximately 120 to 190 m from the berth - the closest residential receiver to the Eden Breakwater Wharf is approximately 240 m away, with the closest sensitive receiver being a commercial premises approximately 130 m away.

The Department acknowledges that White Bay is impacted by a number of other emission sources and is subject to different meteorological conditions.

Consideration was also given to the following:

- the nature of air quality complaints for the WBCT - smoke, strong fumes and respiratory system symptoms
- noise complaints as documented in the *White Bay Cruise Terminal – Cruise Operations Noise Impact Mitigation Strategy* (November 2017), which were primarily ship engine noise (engines, generators, fans and exhaust systems) followed by ship public address announcements and on-deck music
- variation in measured noise levels for different cruise ships
- the *White Bay Cruise Terminal Noise Restriction Policy* which prohibits external non-safety announcements and on-deck music while at berth and includes penalties for non-compliant cruise ships
- the Sydney Harbour Master's Direction that "music and non-safety related announcements must be kept to internal ship areas until well clear of the berth"
- amendments to Annex VI of MARPOL which have set progressively more stringent regulations to control emissions from ships, including for sulphur oxides (SOx), with the current limit on fuel sulphur content of 3.5 % m/m having been in force since 1 January 2012
- the MARPOL requirement that fuel sulphur content not be more than 0.5 % m/m from 1 January 2020, which followed a review that found sufficient compliant fuel oil would be available by this date (<https://www.amsa.gov.au/marine-environment/air-pollution/australian-consultation-low-sulphur-fuel>, accessed 4 September 2018)

- availability of alternatives to low sulphur fuel oil to comply with MARPOL including compliant marine diesel oil, and an equivalent method to reduce SOx emissions approved by the International Maritime Organization (IMO) e.g. exhaust gas cleaning systems (scrubbers)
- the Australian Maritime Safety Authority (AMSA) direction under section 246(1)(b) of the Commonwealth *Navigation Act 2012* (in force since December 2016) that cruise ships use low sulfur fuel (maximum 0.1% m/m) in Sydney Harbour within one hour of a vessel's arrival at berth until one hour before the vessel's departure
- that a 0.1% m/m sulphur fuel content limit has been applied under MARPOL Annex VI since 1 January 2015 within Emission Control Areas (ECAs) in the Baltic Sea, North Sea, United States Caribbean Sea and adjoining North America
- results of WBCT air quality monitoring for September and October 2015 which showed significantly lower sulfur dioxide (SO₂) levels after 1 October 2015 following commencement of low-sulfur fuel use by cruise ships at berth – noting that this had little effect on ambient PM_{2.5} concentrations due to the number of potential PM_{2.5} sources in the Sydney airshed
- recommendations contained in the Proponent's EIS Noise, Vibration and Air Quality Assessment and Addendum Report "that cruise ships entering the port adopt low sulfur fuels, as per the emissions restrictions currently in place in Sydney Harbour" and the proposed mitigation measure included in the EIS and RtS, i.e. "To minimise potential air quality impacts during the operational phase it is recommended that cruise ships entering the port adopt low sulphur fuels "[defined in the EIS and MOD 1 Refined SO₂ Emission Modelling as 0.1% m/m sulphur content fuel]
- the views of CCC members
- the number of ships scheduled to visit the Port of Eden, and date of arrival in relation to when the Breakwater Wharf Extension is anticipated to be operational and the introduction of the new MARPOL emissions restriction.

6.1 Air Quality Impacts

6.1.1 Request to remove requirement for use of low sulphur fuel in condition E20

Condition E20 requires the use of low sulphur fuel (0.1% m/m sulphur content) to be included in the OEMP as a measure to reduce emissions from cruise ships. As noted above, the current maximum sulphur content in ship fuel is 3.5% m/m which will reduce to 0.5% m/m on 1 January 2020. In Sydney Harbour and ECAs, the more stringent 0.1% m/m applies.

Dispersion modelling undertaken as part of the Project EIS (2016) found that the EPA (2016) impact assessment criterion for SO₂ would be exceeded when ships used residual fuel oil (i.e. 2.7 % m/m sulphur content, which it is understood is the average sulphur content of this type of fuel).

The EIS modelling was based on the following scenario for ships at berth including transit, and:

- a cruise ship with a large engine capacity (and hence higher potential for atmospheric emissions), the 285 m long *Noordam*, with auxiliary engine power while at berth estimated to be 13,000 kW (a quarter of the main engine power while underway)
- one ship entering and leaving the Port of Eden each day
- emissions at berth and for an assumed maximum 2-hour period (arrival plus departure) - a transit time of 30 minutes from the Port limit to Snug Cove was adopted
- worst-case meteorological conditions (calm conditions and low convection mixing).

The Refined SO₂ Emission Modelling presented in the MOD 1 Request Report was based on ships at berth, and:

- the cruise ships scheduled at that time to visit and re-visit Eden from October 2018 to the end of 2019 which range from the 90 m *Caledonian Sky* to the 294 m *Norwegian Jewel* with engine power at berth based on passenger capacity and ranging from 3,000 to 10,000 kW
- the 2018-2019 ship schedule (20 visits by 13 ships) ('current or typical operations scenario')
- the 2018-2019 fleet mix and 60 visits per annum ('expanded operations scenario') based on tripling the 'typical operations' schedule and adjusting this to avoid more than one cruise ship arriving on the same day
- cruise ship emissions at berth only, as it was considered that "due to the significantly higher levels of dispersion present under transit, the relative effect of transit emissions at key receptors is likely to be small to negligible"
- the 2013 meteorological data for the 2018-2019 fleet arrival dates (i.e. meteorological data for the same date and month in 2013).

The same exhaust parameters (apart from velocity which was scaled according to the power demand at berth for the 2018-2019 fleet mix) and emissions per unit of power for the same fuel grades were used in both assessments. Due to a lack of local data, modelling in both the EIS and Refined SO₂ Emission Modelling utilised 2013 meteorological data from Merimbula Airport (which is approximately 18 km north of Eden) and 2013 background air quality SO₂ data for Albion Park in the Illawarra, south of Wollongong. Note that the Approval conditions included operational air quality monitoring to confirm local conditions.

Based on data for Merimbula Airport, predominant wind directions during the cruise season are as follows:

- Spring: south-west, north-east and east
- Summer: north-east (away from the closest sensitive receivers)
- Autumn: south-west, west.

Based on Albion Park data, adopted SO₂ background concentrations for various averaging periods are shown in **Table 2**, along with the EPA (2016) air quality criteria.

Table 2 | Adopted Background SO₂ Concentrations and Assessment Criteria for various averaging periods

Averaging Period	EIS Adopted Background SO ₂ Concentration µg/m ³	*SO ₂ Impact Assessment Criteria µg/m ³
10 minutes	149	712
1 hour	104	570
24 hour	24	228

*from *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA 2016)

Emission (incremental) contour plots for the 1-hour averaging period for 2.7 % m/m sulphur content fuel for all modelling scenarios are presented in **Figures 2, 3 and 4**.

Table 3 provides a comparison of the EIS and Refined SO₂ Emission Modelling results for the same averaging periods for ship emissions (incremental concentrations) and the cumulative concentrations which represent background concentrations plus ship emissions.

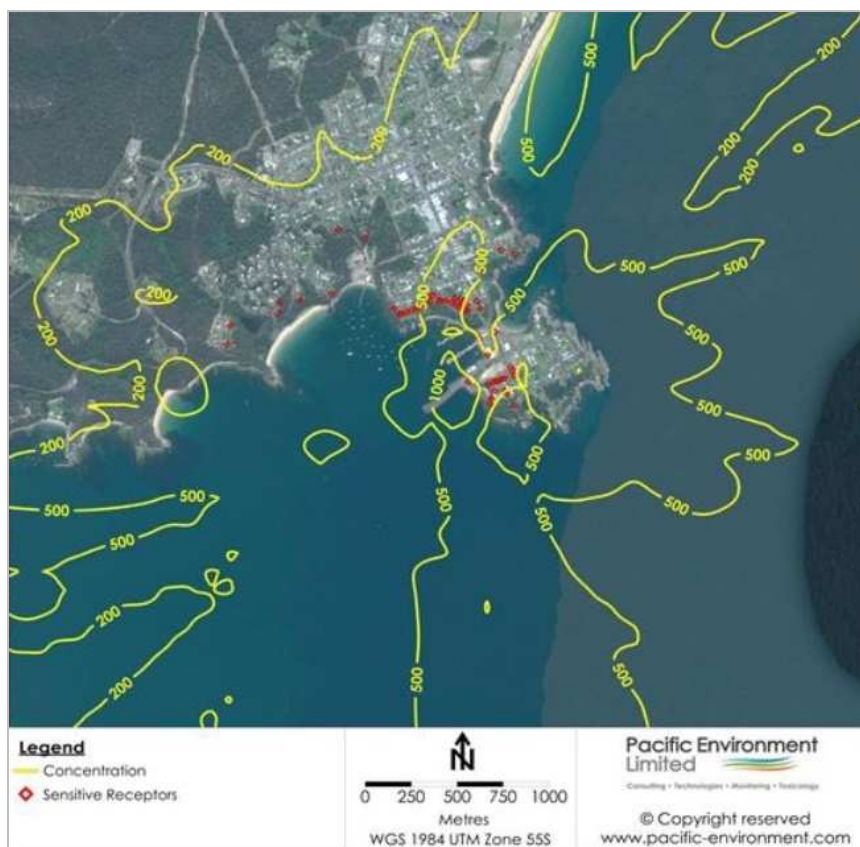


Figure 2 | Predicted 100th Percentile 1-hour SO₂ Concentrations (µg/m³) (Incremental) for 2.7% m/m sulphur residual oil ship at berth and in transit (source: EIS 2016)

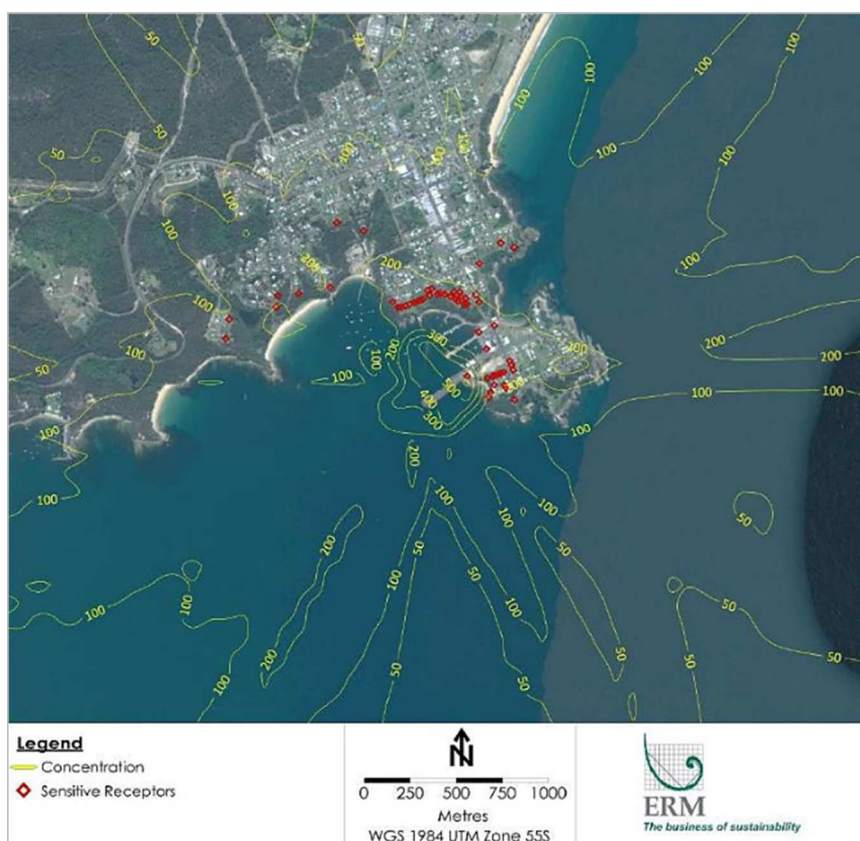


Figure 3 | Predicted 100th Percentile 1-hour SO₂ Concentrations (Incremental) for 2.7 % m/m sulphur residual oil (µg/m³) ship at berth for 'Expanded' Operations (source: MOD 1 Request Report 2018)

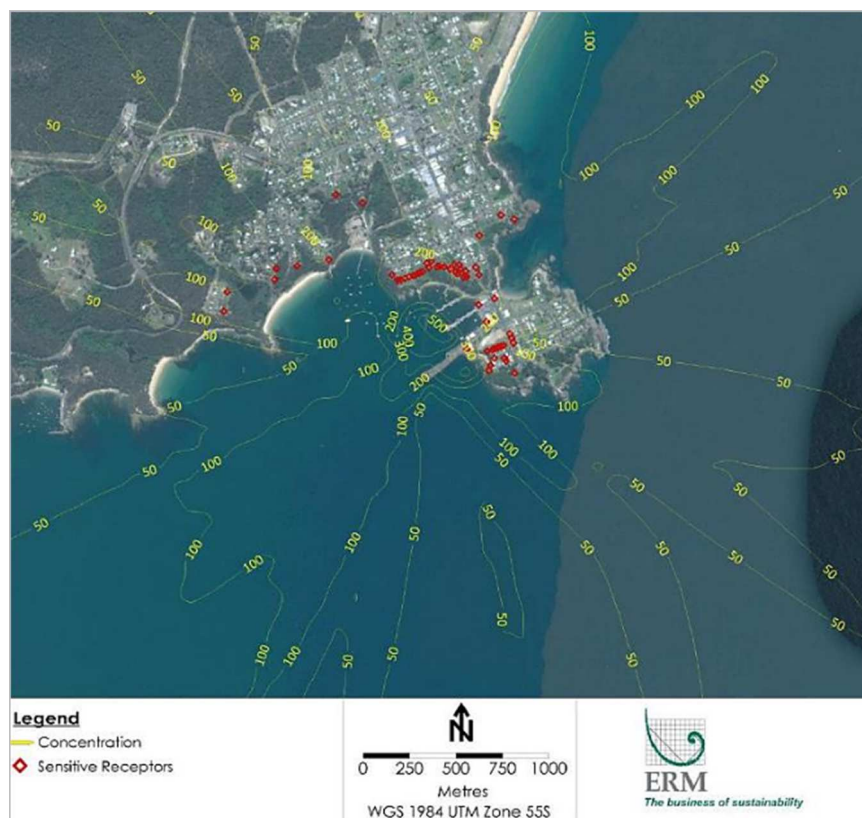


Figure 4 | Predicted 100th Percentile 1-hour SO₂ Concentrations (µg/m³) (Incremental) for 2.7 % m/m sulphur residual oil ship at berth for 'Typical Operations' (source: MOD 1 Request Report 2018)

Table 3 | Comparison of Predicted Maximum Emission Concentrations of SO₂ and Cumulative (background plus ship emission) at most affected sensitive receptor (exceedances of criteria shown in **bold**)

Fuel Type/ Averaging Period	EIS scenario µg/m ³	MOD 'typical' operations scenario µg/m ³	MOD 'expanded' operations scenario µg/m ³
<i>Residual Oil - 2.7% sulphur content m/m</i>		emissions (cumulative) concentrations	
10 minute	1843 (1992)	340 (489)	707 (856)
1 hour	1288 (1392)	237 (341)	494 (598)
24 hour	273 (297)	86 (110)	94 (118)
<i>Marine Distillate - 0.5% sulphur content m/m</i>		emissions (cumulative) concentrations	
10 minute	323 (472)	59 (208)	124 (273)
1 hour	226 (330)	42 (146)	86 (190)
24 hour	48 (72)	15 (39)	16 (40)

As indicated in **Table 3**, in the case of 0.5% m/m sulphur content fuel, modelling predictions for all scenarios indicated SO₂ concentrations below the EPA criteria. However, the SO₂ criteria is exceeded when 2.7 % m/m sulphur content fuel is used under the EIS worst-case scenario (large cruise ship visit coinciding with worst case meteorological conditions for dispersion) and for the Refined SO₂ Emission Modelling for the 10 minute and 1- hour averaging periods (modelled 2018-2019 fleet mix scaled up to 60 cruise ship visits per annum and 2013 meteorological conditions).

The Department sought further information on the modelling parameters resulting in the significant changes between the EIS and Refined SO₂ Emission Modelling, noting that the predicted maximum SO₂ concentration under the 'typical' scenario for 2.7 % m/m sulphur content fuel (Refined SO₂ Emissions Modelling) is similar to that predicted in the EIS for fuel with a 0.5% m/m sulphur content for a large ship under the worst-case meteorological conditions.

By email dated 21 September 2018, the Proponent advised that the maximum SO₂ concentration for 'typical' operations using 2.7 % m/m sulphur content fuel occurred in the refined model at 1pm on 31 December for the 2013 meteorological conditions, for a ship with a power demand at berth of 10,000 kW (the largest ship in the modelled 2018-2019 fleet). At this time the wind was from the south with a speed of 3.5 m/s and the temperature was 18° C, possibly indicating the start of a southerly change. Under these conditions emissions would affect the residential properties on the northern side of Snug Cove. As noted above, winds in summer are predominantly from the north-east and mean wind speed during December (at Merimbula Airport) is 3.2 m/s at 9 am and 5.4 m/s at 3 pm, with the mean maximum temperature being 23.1° C.

The maximum SO₂ concentration predicted in the EIS using 2.7 % m/m sulphur content fuel was for a ship with a power demand at berth of 13,000 kW and occurred on 9 May for the 2013 meteorological conditions. May is just outside the typical cruise season, when winds are predominantly from the south-west and west. These conditions would result in emissions blowing over residential properties to the north and east of Snug Cove.

It should be noted that the difference between the Refined SO₂ Emission Modelling 'typical' scenario (no exceedance of criteria for 2.7% m/m sulphur content fuel) and 'expanded' operations modelling (which shows exceedance for this sulphur content fuel) is only due to meteorological conditions, with the expanded operations (60 ships per annum) maximum emission concentration indicating a large cruise ship visit coinciding with adverse meteorological conditions.

With regard to the Proponent's request to remove the requirement for use of 0.1% m/m sulphur content fuel (or equivalent method to reduce SO₂ emissions) while a ship is in transit through the Port of Eden, the Department considers this reasonable as an exceedance of the EPA (2016) criteria would be highly unlikely due to:

- the predominant wind direction during a large part of the cruise season
- dispersion of emissions when a ship is underway
- the short transit time through the Port (approximately 30 minutes)
- the imminent move to 0.5% m/m sulphur content fuel under MARPOL Annex VI on 1 January 2020
- the Proponents emission modelling which showed no exceedance of the EPA (2016) criteria for any of the EIS and Refined SO₂ modelling scenarios when 0.5% m/m sulphur content fuel is used.

However, the Proponent's request to remove the requirement for use of 0.1% m/m sulphur content fuel (or equivalent method to reduce SO₂ emissions) while a ship is at berth required further information and consideration.

By letter dated 19 October 2018, the Proponent advised that it is anticipated that the Breakwater Wharf Extension will be completed in February 2019 and the first cruise ship booked to berth at the wharf extension would arrive on 10 March 2019. Information was also provided on the name of cruise ships, the dates of arrival including arrival and departure times for the other ships currently scheduled to berth at the Breakwater Wharf Extension, prior to 1 January 2020. This comprises:

- five visits, approximately one week apart, until the end of the 2018/2019 cruise season with arrival times between 7 am and 10 am and departure times between 2 pm and 6 pm
- three visits, at this stage, from late September to December 2019.

As noted earlier, the 'typical' operations scenario was for 20 ship visits per annum. Based on this, the probability of an exceedance of the air quality criteria due to the use of 2.7% m/m sulphur content fuel at berth is considered low. It is also noted that currently only eight ship visits are scheduled prior to 1 January 2020.

However, compared to the adopted background concentrations (which are based on data from Albion Park, a more industrialised location), the predicted SO₂ concentrations from ship emissions are the main contributors of SO₂ at sensitive receivers. Under the 'typical' scenario the maximum SO₂ emission concentration for 2.7 % m/m sulphur content fuel represents about a 330% increase in the adopted background concentration. Assuming air quality at Eden is better than the adopted background SO₂ concentration, the percentage increase in SO₂ concentrations resulting from ship emissions could be higher.

The Department notes, however, that the Proponent's emission modelling showed no exceedance of the EPA (2016) criteria for any of the EIS and Refined SO₂ modelling scenarios for 0.5% m/m sulphur content fuel and the EPA commented that the use of 0.5% m/m sulphur content fuel would deliver good air quality outcomes for local communities. As such, the Department recommends that the OEMP includes the following measure to reduce cruise ship emissions after 1 January 2020: cruise ships at berth must meet emission restrictions specified under MARPOL Annex VI, or more stringent emission restrictions under the relevant Australian Maritime legislation.

Prior to 1 January 2020, the Department recommends that:

- the current reference to use of 0.1% m/m sulphur content fuel at berth be replaced with the following performance measure: that emissions from cruise ships berthed at the Breakwater Wharf Extension must not result in an exceedance of the maximum cumulative SO₂ concentration at the most affected sensitive receiver, as predicted in the Refined SO₂ Emission Modelling for 'typical operations'
- the maximum number of ship visits to the Breakwater Wharf Extension prior to 1 January 2020 not exceed the 20 cruise ship visits per annum used in the modelling.

6.1.2 Request to remove "upgraded" and for condition E20 (c) to only apply for a ship at berth

Condition E20 (c) requires ship generators, engines and exhaust systems to be maintained, upgraded and operated efficiently to reduce air emissions in the Port of Eden (i.e. in transit through the Port and at berth). The Department considers that deletion of "upgraded" from condition E20 (c) is acceptable as condition E22 (see below), relating to dark smoke emissions and offensive odours, requires demonstration that measures have been taken to reduce emission levels (which could include upgrades of exhaust systems).

The Department does not object to the removal of ships in transit through the Port of Eden from this condition as this requirement is primarily a mitigation measure while a ship is at berth at the Breakwater Wharf Extension, e.g. operating on minimum power to reduce emissions.

6.1.3 Request to replace condition E22 – investigation and management of ship emissions

In relation to condition E22, the Proponent's request would remove the timeframe over which exceedances of the air quality criteria, dark smoke emissions and offensive odours from an individual ship would be required to be addressed and the specific consequence for continued emission issues. Also, the requested wording of the condition refers to "exceedance of predicted concentrations". The Department considers this criterion problematic as it is possible that, in the future, EPA air quality assessment criteria and MARPOL emission caps will be reduced, hence the conditions should not be inconsistent with any future lower emission criteria.

The justification put forward by the Proponent that a ship may be prevented from berthing at the Breakwater Wharf Extension without investigation and due to a complaint not being 'valid' is not accepted, as it would be expected that the Complaints Register, required under condition A32, would include a process for investigating air quality complaints and vexatious complaints. Further, it is stated in the MOD 1 Request Report that "any

complaint received will be recorded, investigated and closed out". However, to address the Proponent's concerns and the issue with the proposed criterion identified above, the Department recommends re-wording of condition E22 to refer to the procedure for dealing with non-compliant ship emissions and offensive odours, as recommended in the change to condition E20 and the Secretary's agreement for specific actions, timeframes and consequences in the event of repeat non-compliances by individual cruise ships.

6.1.4 Summary of the Department's air quality assessment

Although the Department recommends changes to the operational air quality conditions in response to the modification request, it considers that conditions must:

- include specific measures to reduce emissions from cruise ships, reflecting the Proponent's proposed mitigation measures identified in the EIS and specialist reports
- allow for future changes in the fleet mix and air quality criteria and retain a timeframe for action and consequences for inaction for non-compliant cruise ships.

In relation to Council's concerns, the Department considers that these are addressed through the recommended timeframes and consequences for non-compliant cruise ships and the following Approval conditions:

- the requirement for consultation with Council on the preparation of the air quality monitoring program (condition D7)
- monitoring under condition D8 which will enable validation of the air quality modelling results under local conditions
- condition E21 which sets out the minimum requirements for monitoring including parameters (NO_x, SO₂ and PM_{2.5}) and timeframes for monitoring
- condition A32 which sets out requirements for complaints handling.

6.2 Noise Impacts

Condition E9 of the Approval specified that construction works only be undertaken during standard construction hours with the exception of activities permitted outside these hours due to safety issues, emergencies or as otherwise permitted under an Environment Protection Licence. The EIS construction noise assessment predicted some exceedances for the modelled activities, i.e. site establishment and dredging (completed), piling and wharf extension. Construction of the wharf extension was generally predicted to have the lowest impact, i.e. no or 10 dB(A) or less exceedance of the noise criteria with the least number of residences affected.

The EIS operational noise modelling used meteorological data from both Merimbula Airport (primarily) and Green Cape and presented predicted noise levels for ships in transit through the Port and while at berth. Background noise levels for two Noise Catchment Areas, NCA 1 and NCA 2 (see **Figure 5**), were determined from attended and unattended monitoring in December 2015. This indicated a semi-rural environment strongly influenced by intermittent noise sources such as traffic and activities around the port (commercial and industrial). Based on noise monitoring, operational noise criteria were adopted for each catchment.

For the worst-case meteorological conditions, the modelling predicted the following exceedance of the criteria:

- for a ship in transit, up to 11 dB(A) in NCA 1 and up to 6 dB(A) in NCA 2 with nearly all residential receivers affected
- for a medium sized ship (approximately 250 m long) at berth, up to 2 dB(A) at seven residences in NCA 1.
- for a large ship (> 300 m in length and >100,000 gross registered tonnage (GRT)) at berth, up to 13 dB(A) in NCA 1 and up to 9 dB(A) in NCA 2 with nearly all residential receivers affected (see **Figure 6**).



Figure 5 | Noise Catchment Areas and Noise Monitoring Location (source: EIS 2016)

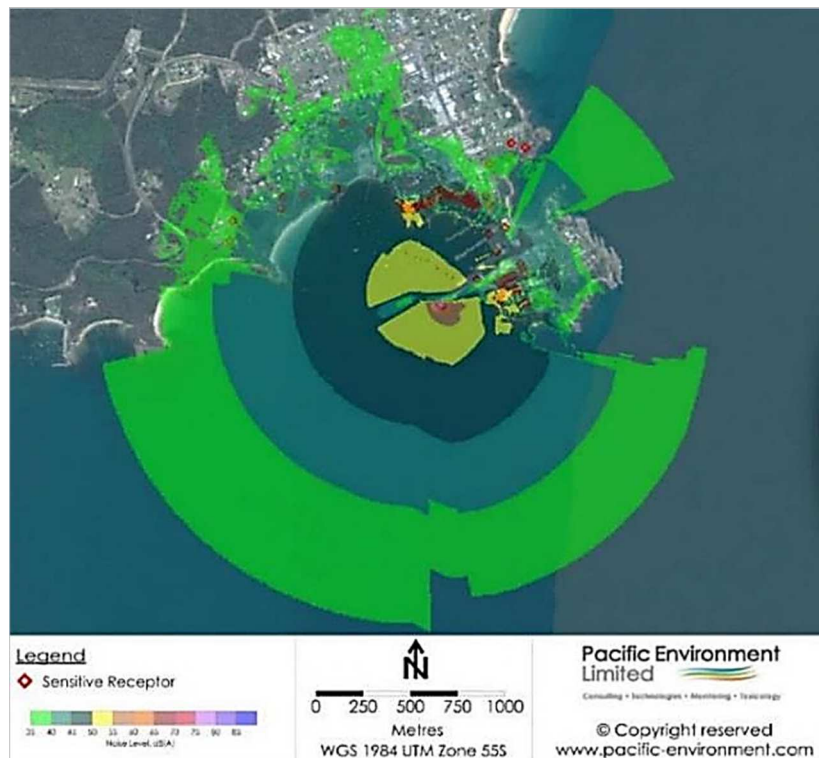


Figure 6 | Noise Contours for a large ship and worst case meteorological conditions (source: EIS 2016)

The noise levels for the Stage 2 marine structures works (excluding pile driving) were up to 50 dB(A) in NCA 1 and up to 53 dB(A) in NCA 2 with 19 residential properties potentially affected in NCA 1 and nine in NCA 2.

The MOD 1 Addendum included additional noise monitoring during September 2018 for the evening period (6 to 10 pm).

6.2.1 Request to extend construction hours under condition E9

The extended hours work between 6 and 7 am would be for site start up in preparation for 7 am concrete pours. Work in the evening from 6 to 10 pm would involve surface finishing, when a petrol motor powered float may be used. This would be the only major noise source.

Table 4 shows that the noise criteria based on monitoring in 2015 and 2018 are similar, with the predicted noise levels for the proposed extended hours work 2 to 4 dB above the criteria at the closest residential receiver in NCA 1 and 6 to 8 dB above the criteria at the closest residential receiver in NCA 2.

It is noted that the predicted noise level associated with extended hours work is less than the predicted noise levels for overall construction of the wharf structure and is similar to maximum background noise levels. In addition, the Proponent has identified only four residences would potentially be affected.

Table 4 | Noise criteria, background noise levels (2015) and predicted noise levels for work during extended hours

	*Noise Criteria EIS (2015) dB(A)	*Noise Criteria MOD 1 (2018) dB(A)	2018 Median Background Noise Level LA90	2018 Max. Background Noise Level LA90	Predicted Noise Level dB(A) LAeq 15 mins
NCA 1	38	40	35	45	42
NCA 2	42	40	35	46	48

*background noise plus 5 dB(A)

The Department considers that the request to extend work hours for construction of the wharf deck is reasonable as this would:

- occur only on a few occasions (predicted to be four evenings)
- not occur on consecutive evenings
- not extend into the night period
- not be likely to result in significant impacts, as associated noise levels would be similar to the maximum background noise levels determined during evening monitoring in September 2018.

The modification request only recommended notification to residents as an additional mitigation measure if noise levels were predicted to exceed 10 dB(A) above background noise levels. However, the Department considers residents should be notified of the requested evening works as they were not anticipated in the EIS, and recommends that the approved Community Communication Strategy be updated to include this.

6.2.2 Request for removal of “in transit” from condition E17(a)

Condition E17(a) only permits the use of deck PA systems for safety announcements while at berth and during transit through the Port of Eden.

The MOD 1 Request Report contained an assessment of the contribution of a ship’s PA system (for on deck announcement and music) to the overall predicted noise levels at the most impacted receiver in each NCA. This information, together with the operational noise criteria adopted in the EIS, is presented in **Table 5**.

Table 5 | Predicted noise levels and PA system contribution

	Noise Criteria*	Ship in Transit	Medium Ship at Berth	Large Ship at Berth	PA Contribution L _{Aeq} 15 mins	PA Contribution instantaneous L _{Aeq}
NCA 1	38	49	40	51	17	32
NCA 2	42	49	41	52	20	35

*daytime/evening criteria noting ships would not overnight at the Breakwater Wharf Extension

Although the deck PA contribution is below overall ship noise levels, it was noted that “due to the frequency and characteristics of the PA system operations and the short term noise level, it is expected that deck PA sources will be audible in both noise catchments”. In response to further information sought by the Department, the Proponent advised that for a medium sized ship at berth, with the PA system operating continuously over a 15 minute period, a 0.5 to 2 dB increase in overall noise levels would result. For a large ship, no increase in overall noise levels was predicted for deck PA announcements (ERM letter dated 17 August 2018).

The Department does not object to the removal of “in transit” from condition E17(a) as:

- when a ship is underway, transit through the port is expected to be relatively short (30 minutes)
- the predicted noise contribution of a ship’s PA system is minor compared to engine noise when a ship is underway.

6.2.3 Request to remove “upgraded” from condition E17(b)

Condition E17 (b) requires ship generators, engines and exhaust systems to be maintained, upgraded and operated efficiently to reduce noise emissions in the Port of Eden.

The Department considers that deletion of “upgraded” is acceptable as condition E18 requires the investigation of noise sources and demonstration that measures have been taken to reduce noise levels (which could include upgrades to mechanical systems). The Department also recommends that ventilation systems including air conditioning systems be added to this condition, as they have been found to be source of noise complaints at WBCT.

6.2.4 Request to replace condition E18

Condition E18 requires details on actions to be taken to address noise complaints to be submitted to the Secretary and that a ship subject to previous complaints must not be permitted to berth at the Breakwater Wharf Extension, unless it can be demonstrated that measures have been taken to reduce noise levels.

As for ship specific air quality complaints, the Department recommends changes to address the Proponent’s concerns and considers actions, timeframes and consequences in the event of non-compliances must be set out in the OEMP, with specific requirements agreed by the Secretary for repeat non-compliances.

6.2.5 Summary of the Department’s noise assessment

The Department recommends an additional exception to works that may be undertaken outside of standard construction hours to accommodate limited extended hours work, as this is not likely to result in significant impacts and the affected residents have been consulted and raised no objections.

The Department recommends some changes to the operational noise management conditions in response to the modification request but considers that timeframes for action and consequences for inaction should remain. This also addresses Council’s concerns regarding complaints management. The requirement for consultation

with Council on the preparation of the OEMP Noise Management Sub-plan (as specified in condition D3) provides further assurance to Council that measures would be taken to reduce noise emissions.

6.3 Environmental Management and Operational Compliance

It is noted that the EIS air quality modelling was based on the 285 m long *Noordam* which has a GRT of approximately 83,000 and the revised SO₂ modelling for expanded operations was based on the 2018-2019 fleet mix. It is also noted that the EIS noise assessment showed exceedance of the noise management levels at the most sensitive receivers for cruise ships exceeding 100,000 GRT in the worst case weather conditions.

The EIS identified that the project “will future proof the extension by enabling the berthing of a range of ‘mega liners’ class cruise ships, defined as passenger cruise ships with a gross registered tonnage (GRT) exceeding 100,000 tonnes, at the wharf. Selection of the preferred option has especially been informed by extensive consultation with the cruise ship industry and the Port Authority of NSW (PANSW) where it was revealed that there will likely be an increasing number of longer vessels (300 m+) operating in the domestic and international marketplace within the next 5-10 years”.

As no site meteorological or air quality data was available for the assessments and in view of the consideration given to the modification request to remove direct reference to specific mitigation measures (i.e. use of 0.1 m/m sulphur content fuel and restriction of access to the Breakwater Wharf Extension to address noise and emissions non-compliances), the Department recommends specific requirements in relation to:

- air quality monitoring, including real time air quality monitoring at least until the end of the 2019/2020 cruise season to verify modelling predictions
- ongoing local community consultation on environment management
- communication of environmental and compliance obligations to cruise ship operators
- five yearly operational compliance summary reporting which includes information on any changes to the cruise ship fleet mix from cruise season to cruise season, and any complaints in relation to specific ships
- revision of the OEMP or OEMP Sub-plans to address any identified operational issues.

These requirements, along with the requirement for the OEMP to include a procedure for management of non-compliant cruise ships, also address the need for timely, efficient, genuine and proactive response to noise and air quality complaints, as identified by Council.

To provide an assessment of operational air quality impacts before and after the introduction of the new MARPOL emission restrictions, and to align the more regular operation compliance reporting required under condition A 21 with the cruise season, the Department recommends that a report be submitted at the end of the first calendar year of operation and following this, after the end of each cruise season.

In addition, as the assessments were based on a maximum 60 cruise ship visits to the Breakwater Wharf Extension each year, the Department recommends that this is specifically referred to in the Approval Description of the State significant infrastructure.

6.4 Administrative Conditions

Modification of the Approval would require amendment of the general administrative conditions to include the further assessment contained in the MOD 1 Request Report and to make reference to the most recent documents in the event of any inconsistencies. Accordingly, the Department recommends new conditions to replace conditions A1, A2 and A4, along with additions to Table 1: Definitions and Table 2 which is the summary of reporting requirements.



7. Evaluation

The Department considers the proposed modification to construction hours reasonable as work outside the approved hours would be limited and potentially impacted residents have raised no objections.

With regard to the Proponent's proposed changes to air quality and noise conditions, the Department is generally in agreement with the minor wording changes proposed and removing specific air quality and noise requirements for cruise ships in transit through the Port. The latter is based primarily on the additional information presented in the MOD 1 Request Report and associated RtS, the short transit time through the Port, and community views that ship emissions and deck PA broadcasts would not significantly impact local amenity when a cruise ship was underway.

Although the Department recommends some changes to the operational air quality and noise conditions in response to the modification request, it considers that conditions must include:

- specific measures to reduce emissions from cruise ships, reflecting the Proponent's proposed mitigation measures identified in the EIS and specialist reports
- a procedure for management of non-compliant cruise ships including details on proposed actions, timeframes and consequences to provide certainty for the local community that operational impacts will be minimised.

On this basis, the Department recommends that the modification be approved, subject to the conditions set out in the Modification Instrument (Appendix E).



8. Recommendation

It is recommended that the Executive Director, Priority Projects Assessment, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report
- **determines** that the request for the Eden Breakwater Wharf Extension SSI 7734 MOD 1 falls within the scope of section 5.25 of the EP&A Act
- **forms the opinion** under section 7.17(c) of the *Biodiversity Conservation Act 2016* that a biodiversity development assessment report is not required to be submitted with this application as the modification will not increase the impact on biodiversity values of the site.
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the request
- **agrees** with the key reasons for approval listed in the draft notice of decision
- **modify** the approval SSI 7734
- **signs** the attached Notice of Modification (Appendix E).

Recommended by:

Dominic Crinnion

Team Leader, Ports and Water Assessments



9. Determination

The recommendation is **adopted by:**

David Gainsford

Executive Director

7/11/18

Priority Projects Assessment



Appendices

Appendix A – List of Documents

- *Eden Breakwater Wharf Extension State Significant Infrastructure - Environmental Impact Statement* (dated 3 November 2016)
- *Response to Submissions Report Eden Breakwater Wharf Extension* (dated 24 February 2017)
- Letter to DPE, “Eden Breakwater Wharf Extension – Independent Air Quality Review SSD 7734” (dated 29 June 2017)

These documents can be found at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7734

Appendix B – Environmental Assessment

- *Eden Breakwater Wharf Extension Modification Request to Infrastructure Approval SSI 7734* (dated 2 July 2018)
- *Refined SO₂ Emission Modelling* (dated June 2018), Appendix C to the *Eden Breakwater Wharf Extension Modification Request to Infrastructure Approval SSI 7734*.
- *SSI 7734 Mod 1 – Addendum Modification Report* (Advisian, dated 14 October 2018)

These documents can be found at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9456

Appendix C – Submissions

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9456

Appendix D – Submissions Report

- Response to Submission Eden Breakwater Wharf Extension MOD 1 (SSI 7734) (dated 3 September 2018)
- ERM letter “Re: Eden Breakwater Wharf MOD 1 – Response to Submissions – Air Quality and Noise” (dated 17 August 2018)

These documents can be found at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9456

Appendix E – Notice of Modification