

Environmental Assessment Report

Devonport East Terminal 3 Dredging and Reclaim

Port of Devonport
**Tasmanian Ports
Corporation**

May 2022



ENVIRONMENT PROTECTION AUTHORITY

Environmental Assessment Report

Proponent	Tasmanian Ports Corporation Pty Ltd (TasPorts)
Proposal	Devonport East Terminal 3 Dredging and Reclaim
Location	Port of Devonport
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Assessment Process Milestones

26/06/2019	Notice of Intent lodged
5/08/2019	Guidelines Issued
20/12/2022	Case for assessment (EIS) accepted
8/01/2022	Start of public consultation period
7/02/2022	End of public consultation period
4/03/2022	Additional information (Supplement) submitted to the Board
13/04/2022	Date draft conditions issued to proponent
3/05/2022	Statutory period for assessment ends

Acronyms

Board	Board of the Environment Protection Authority
DPEMP	Development Proposal and Environmental Management Plan
NRE	Department of Natural Resources and Environment Tasmania
EIA	Environmental impact assessment
EL	Environmental licence
EMPC Act	<i>Environmental Management and Pollution Control Act 1994</i>
EMPCS	Environmental management and pollution control system
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
LUPA Act	<i>Land Use Planning and Approvals Act 1993</i>
RMPS	Resource management and planning system
SD	Sustainable development
TasPorts	Tasmanian Ports Corporation Pty Ltd

Report Summary

This report provides an environmental assessment of the proposal by Tasmanian Ports Corporation Pty Ltd (TasPorts) for dredging and reclamation of the Devonport Terminal 3 at the Port of Devonport.

Dredging of approximately 45,900m³ material from the existing Berth 3 East pocket and construction of an adjacent 7,900m² reclaim area to accommodate new multilevel roll on roll off ship ramps is proposed. Some of the dredged material will be reused in the reclamation area subject to geotechnical and contaminant testing.

This report has been prepared based on information provided in the Environmental Impact Statement (EIS) and Supplement to the EIS. Relevant government agencies and the public were consulted and their relevant submissions, representations and comments considered as part of the assessment.

On 16 February, the Board requested that the proponent submit additional information to address issues raised during the public inspection period and to meet other information requirements. The proponent submitted satisfactory additional information on 4 March 2022, in the form of a Supplement to the EIS.

Further details of the assessment process are presented in section 1 of this report. Section 2 describes the statutory objectives and principles underpinning the assessment. Details of the proposal are provided in section 3. Section 4 reviews the need for the proposal and considers the proposal, site and design alternatives. Section 5 summarises the public and agency consultation process and the key issues raised in that process. The detailed evaluation of key issues is in section 6, and other issues are evaluated in section 7. Issues not assessed by the Board are discussed in section 8. The report conclusions are contained in section 9.

Appendix 1 contains details of matters raised by the public and referral agencies during the consultation process. Appendix 2 contains a table of proponent commitments. Appendix 3 contains the environment protection notice for the proposal.

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I Approval Process

The Board of the Environment Protection Authority (the Board) received a Notice of Intent for the project on 26 June 2019 as required under section 27(1) of the *Environmental Management and Pollution Control Act 1994* (EMPC Act).

The proposal is defined as a 'level 2 activity' being the Conduct of Certain Activities in Waters Within the Limits of the State: the dumping of dredge spoil (clause 7(e), Schedule 2 of the EMPC Act).

The Board required an EIS to be prepared in accordance with guidelines issued by the Board on 5 August 2019.

The final EIS was advertised for public inspection for 28 days commencing on 8 January 2022. Advertisements were placed in *The Advocate* and on the EPA website. The EIS was also referred to relevant government agencies for comment. One representation was received.

On 16 February 2022, the Board requested that the proponent submit additional information to address matters raised during the public consultation period. Satisfactory additional information was submitted by the proponent on 4 March 2022.

2 SD Objectives and EIA Principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) (both sets of objectives are specified in Schedule 1 the EMPC Act). The functions of the Board are to administer and enforce the provisions of the Act, and in particular to use its best endeavours to further the RMPS and EMPCS objectives.

The Board must assess the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.

3 The Proposal

The proposal involves dredging the berth pocket and reclamation using some of the dredged materials to construct an area to facilitate boarding of vessels. Two options for removing material from the berth pocket are presented in the EIS:

1. Land based dredging using a long reach excavator (LRE).
2. Marine based dredging using a backhoe dredge (BHD) on a floating barge.

Examples of both types of plant are shown in Figure 1.

TasPorts has advised that either or both of the dredging options may be used, and this will be determined by the outcome of the dredging tender process and the likely availability of suitable equipment. The EIS states the dredging portion of the works is expected to run for 4 to 10 weeks, depending on the method used. Land based dredging can be done during daylight hours only, whereas marine based dredging can operate both day and night.

Once construction is complete no ongoing level 2 operational activities are proposed.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 2 of the EIS.

Table 1: Summary of the proposal's main characteristics

Activity	
Dredging of 45,900 m ³ of sediment from the Port of Devonport with placement of some dredged material into a reclamation area (dumping of dredge spoil within the limits of State waters).	
Location and planning context	
Location	Devonport East Terminal 3, Port of Devonport (refer Figure 2 and Figure 3)
Land zoning	The site is zoned 25.0 Port and Marine under the <i>Tasmanian Planning Scheme 2020</i> .
Land tenure	The land portion of the site comprises Authority Freehold while the river portion of the site comprises a Crown Licence (refer Figure 3)
Existing site	
Land Use	The site is currently used for port operations.
Topography	The site is generally flat, with the topography of the surrounding area gently sloping to the west towards the Mersey River.
Geology	Underlying geology of the site is mapped as sand, gravel, mud, and other alluvial deposits derived from the Cenozoic period.
Soils	Geotechnical investigations indicate fill overlying fractured rock (dolerite) close to the proposed ramp abutments with soft sediments over consolidated silts and clays in the area to be dredged. Sampling indicates some potential for sediment contamination.
Hydrology	There are no natural drainage lines on site. Most of the site drainage is via constructed surface stormwater infrastructure such as gutters and culverts. Groundwater flow is likely to be perpendicular to the Mersey River and likely to be significantly diluted by river flow at any discharge locations.

Natural Values	<p>The site comprises hardstand and planted vegetation (grassed areas and roadside plantings) with no native communities present. No threatened terrestrial flora or fauna have been recorded. No threatened marine species were recorded during a survey of the site, however, threatened marine species have been recorded in the wider estuarine area.</p> <p>No geoconservation sites are mapped within or near to the site.</p>
Local region	
Climate	<p>The cooler months from May through to September have an average daily high of 13.8°C and the warmer months from October to April have an average daily high of 19.3°C.</p> <p>The mean annual rainfall for Devonport is 764 mm. Winter rainfall is approximately double that of the summer mean rainfall, with July being the wettest month. Evaporation is generally higher in the summer months when humidity is low and cloudless days provide high levels of evaporation.</p> <p>Morning winds tend to be from the south, southeast and west, with afternoon winds generally westerly or northerly, and influenced by sea breezes.</p>
Surrounding land zoning, tenure and uses	<p>The surrounding area is comprised of port facilities and a mix of residential, commercial and light industrial use (refer Figure 4). The closest residential property is located 27m to the east of the site. Other residential properties are located 237m to the north and 109m to the east of the site. The Mersey Yacht Club is located 127m to the south (refer Figure 5).</p> <p>A mix of commercial and residential properties are also located on the western side of the Mersey River at distances between 400 and 500m.</p>
Species of conservation significance	<p>An aquatic biodiversity assessment noted the potential for Australian Grayling (<i>Prototroctes maraena</i>) to move through the port during annual migrations. The historical presence of giant kelp (<i>Macrocystis pyrifera</i>) at the mouth of the estuary was also noted, although the species was absent during a 2016 survey.</p>
Proposed infrastructure	
Major equipment	<p>Long reach excavator (land based option) or backhoe dredge and barge (marine based option), drum cutter and rock breaker, 40t dump trucks for transporting and unloading spoil. D6 bulldozer, 20 to 30 t excavator and articulated dump trucks.</p>
Other infrastructure	<p>A 7,900 m² reclamation area is proposed. The reclamation area will require construction of a rocked berm with an internal geofabric layer. Approximately 30,000 m³ of material is required for the reclamation area with approximately 25,000 m³ proposed to be dredge spoil. A materials handling area for dewatering of dredge spoil is proposed.</p> <p>A temporary mobile structure (e.g., shipping container) containing site offices, crib room and portable toilets will be used during construction.</p>
Inputs	
Water and energy	<p>Power and water supplied via the existing port utilities.</p>
Other raw materials	<p>Fill material will be sourced from earthworks proposed for the broader port reconfiguration project. Additional material for the reclamation area may also be sourced from local quarries if required.</p>
Wastes and emissions	
Liquid	<p>Liquid waste from dewatering in the materials management area, suspended sediment in the Mersey River during dredging.</p>
Atmospheric	<p>Dust from internal traffic and material stockpiles.</p>
Solid	<p>General refuse including construction waste, food scraps, paper and packaging.</p>
Controlled wastes	<p>Dredge spoil classified as contaminated soil. Waste oils from equipment maintenance.</p>
Noise	<p>From dredging, excavation, and trucks on site, and vehicles going to and from the site.</p>

Greenhouse gases	Vehicle and equipment emissions during construction.
Construction and operations	
Proposal timetable	Total works including dredging and construction is expected to take between 5 and 8 months, with the dredging component taking from 4 to 10 weeks. The marine based option would take approximately 4 weeks (assuming 24 hour operation), while the land based option would take approximately 10 weeks (day time only).
Operating hours (construction)	<p>Mobilisation, demobilisation and offsite transport of materials: 7am to 6pm, Mon - Fri.</p> <p>Materials handling (stockpiling, testing and reclamation): 7am to 6pm Mon to Fri and 9am to 5pm Sat.</p> <p>Dredging: up to 24 hrs per day, seven days per week.</p>



Figure 1: Long reach excavator (above) and backhoe dredge (below)

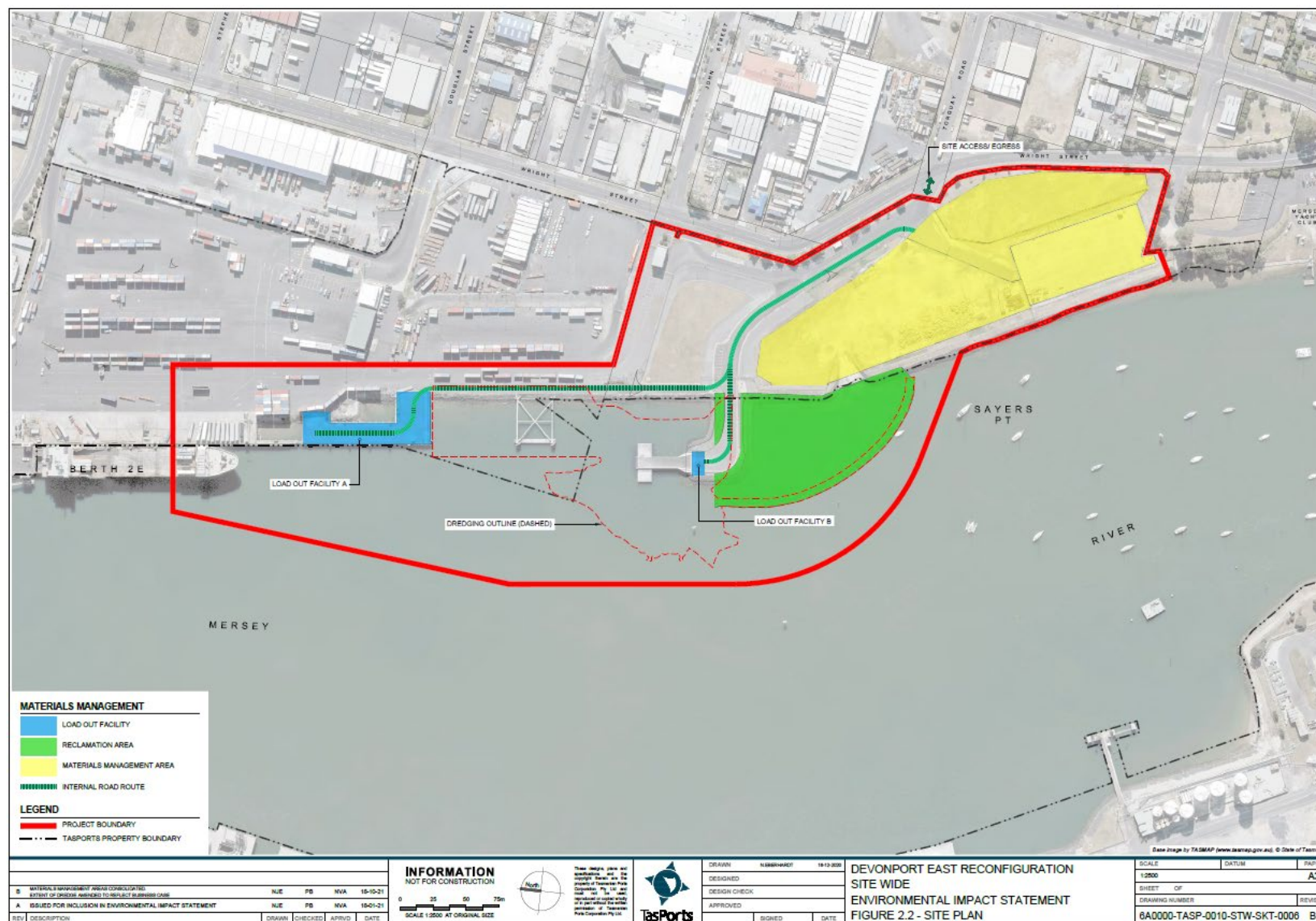


Figure 2: Location and proposed layout (Figure 2.3 of the EIS, TasPorts 2022)

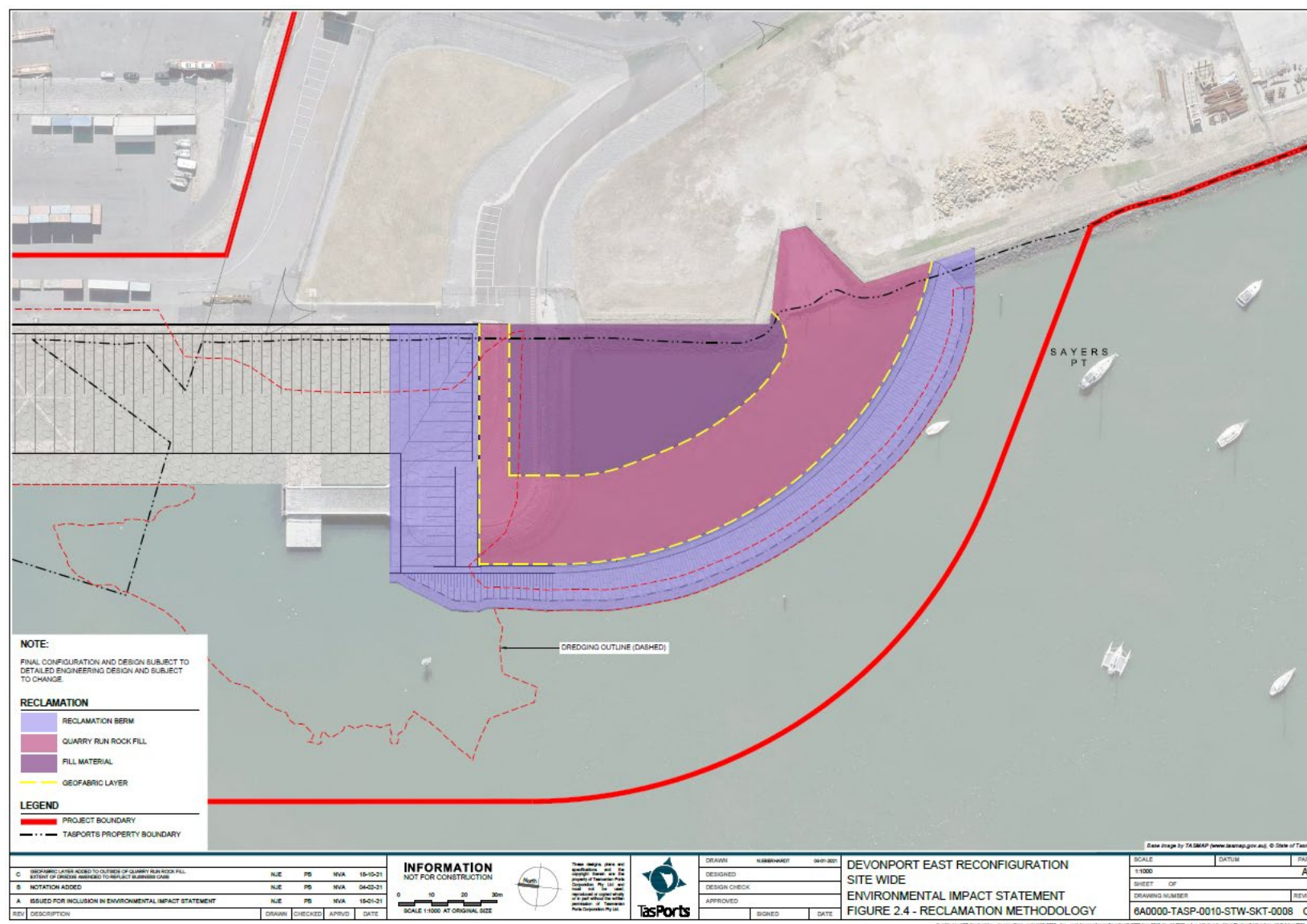


Figure 3: Reclamation area (Figure 2.4 of the EIS, TasPorts 2022)

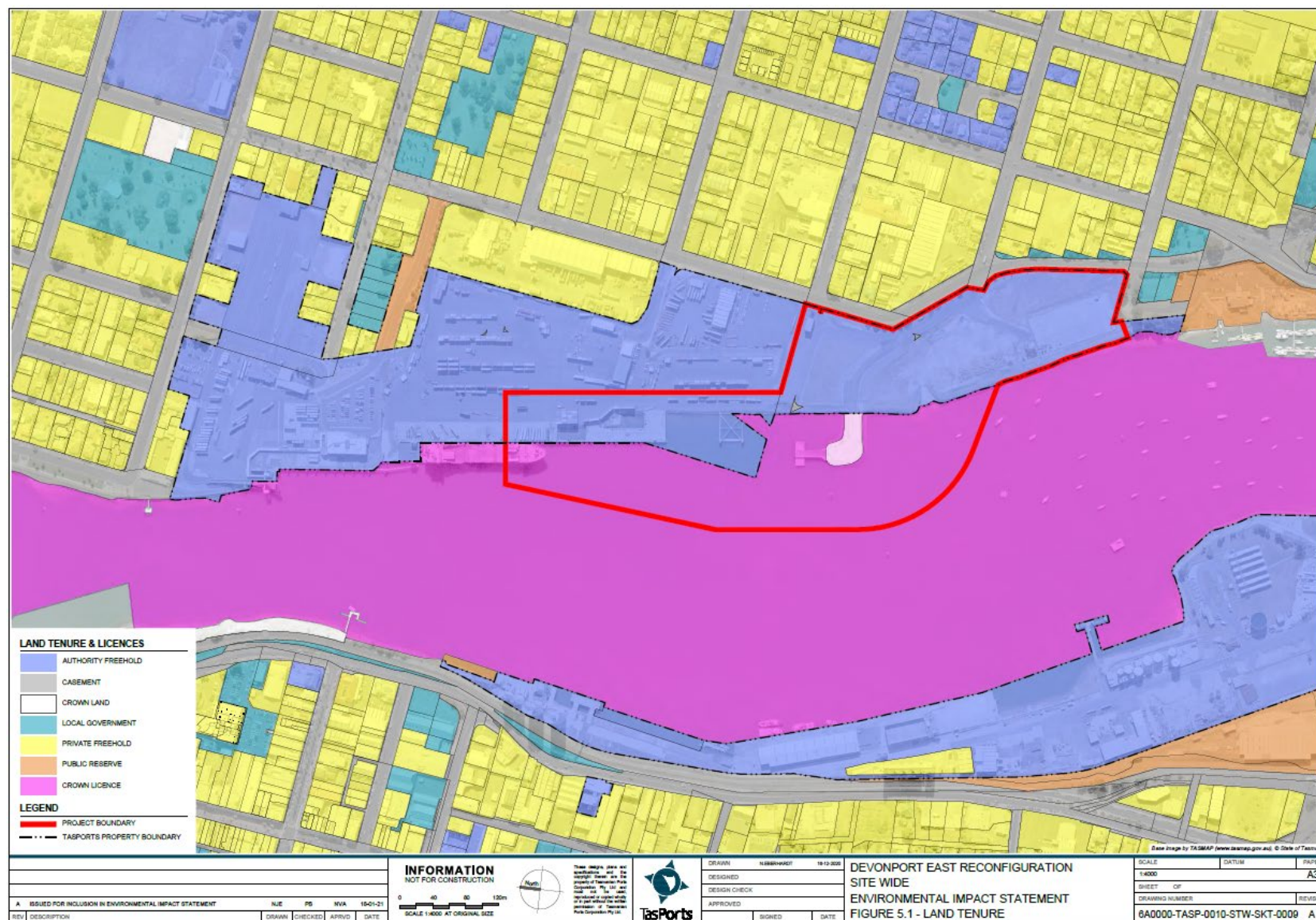


Figure 4: Land tenure and licences (Figure 5.1 of the EIS, TasPorts 2022)

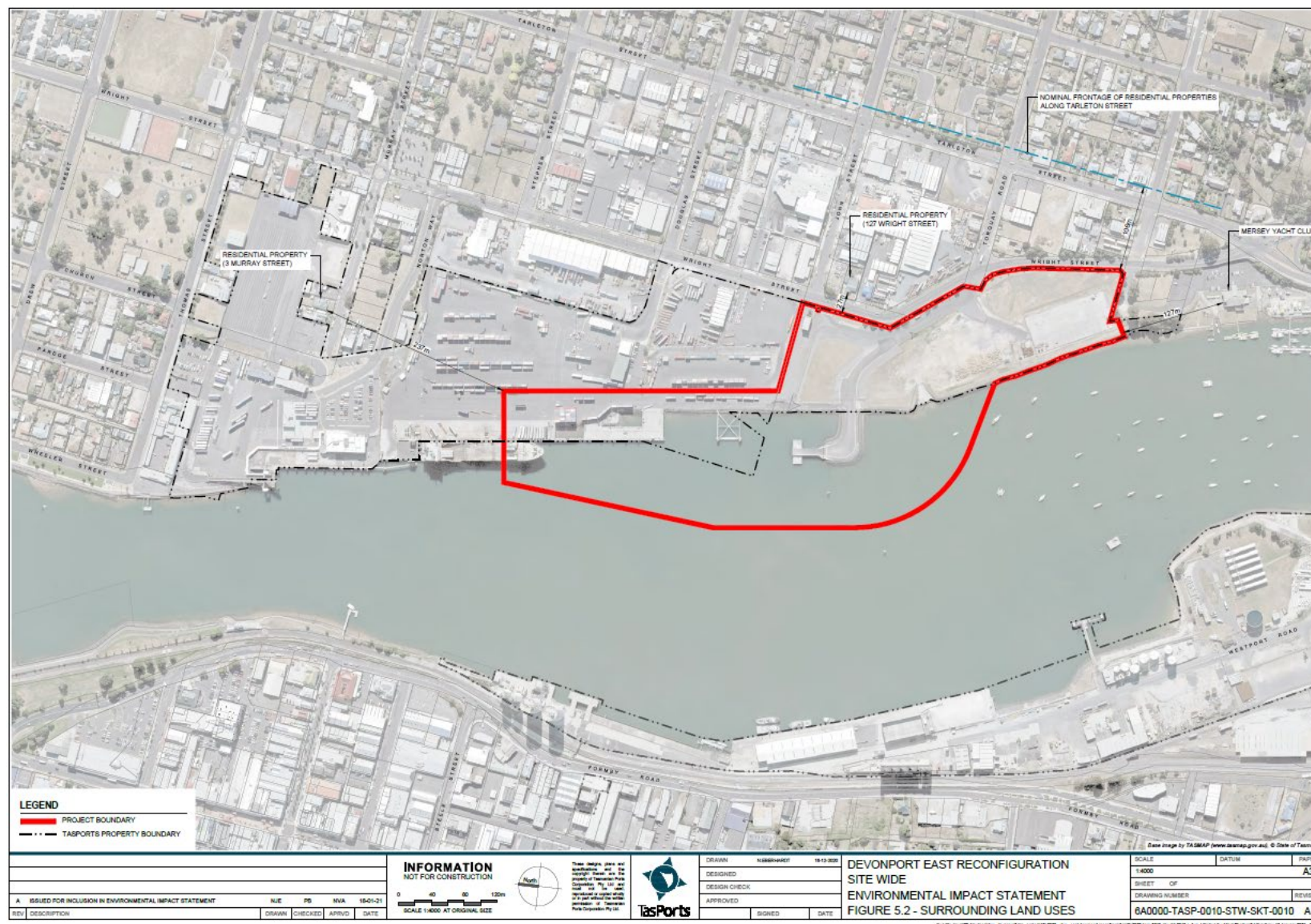


Figure 4: Distances to nearest sensitive receptors (Figure 5.2 of the EIS, TasPorts 2022)

4 Need for the Proposal and Alternatives

The EIS states the proposal is part of the Port of Devonport – Devonport East Reconfiguration project, which is a key part of TasPorts 15 year Master Plan for the Port of Devonport. A significant component of the master plan is addressing an anticipated change to new larger vessels (particularly TT-Line and SeaRoad vessels) requiring access to the port, and acknowledgement that the current port infrastructure will not be suitable to accommodate these larger vessels.

A number of design options were explored during the master plan development phase, with the dredging and reclaim design identified as the preferred option based on a lower dredge, consecutive staging (demolition and construction) and minimal disruption to shipping services.

Consideration was given to disposal options for dredge spoil. Offshore disposal was considered but discarded due to potential environmental impact, approval timeframes, and TasPorts preference for beneficial reuse of dredge spoil locally wherever possible.

TasPorts is considering transport of some dredge spoil for use as fill material at Devonport Airport. The use of dredge material off site is outside the scope of the current proposal and any use of dredge spoil at the airport would be subject to a separate approval.

Disposal to landfill has been identified as a contingency only if required.

5 Public and Agency Consultation

A summary of the public representations is contained in Appendix I of this report.

One public representation was received. The main issues raised in the representations included:

- The validity of hydrodynamic modelling used to predict water movement in the estuary.
- Potential for impacts to scallop beds from dredged sediments.
- Financial impacts to recreational fishing, commercial fishing, and tourism.

The EIS was referred to a number of government agencies with an interest in the proposal. No submissions from government agencies were received.

Advice was sought from the following areas of the EPA:

- Regulator
- Air specialist
- Noise specialist
- Water specialist

The Conservation Assessment Section of the Natural and Cultural Heritage Division of the Department of Natural Resources and Environment Tasmania (CAS) also provided advice on the EIS.

The Supplement to the EIS prepared by the proponent provides a response to relevant environmental issues raised during public consultation.

6 Evaluation of Key Issues

The key environmental issues relevant to the proposal that were identified for detailed evaluation in this report were:

- Key Issue 1: Noise
- Key Issue 2: Sediment quality
- Key Issue 3: Water quality
- Key Issue 4: Biodiversity

Each of these issues are discussed in the following subsections.

General conditions

The following general conditions will be imposed on the activity:

- G1: Access to and awareness of conditions and associated documents
- G2: Incident response
- G3: No changes without approval
- G4: Change of responsibility
- G5: Change of ownership
- G6: Complaints register
- G7: Notification prior to commencement

6.1 Key Issue 1: Noise

6.1.1 Description

Noise impacts are addressed in Section 6.1 of the EIS, with a noise assessment report provided in Appendix C of the EIS.

The proposed works will generate noise emissions through dredging, transportation of material, handling of dredge spoil, reclamation works and removal of excess dredge spoil from site. Noise has the potential to impact sensitive receptors, including existing residential properties on both sides of the river. Noise could also potentially impact marine fauna.

The EIS states works are highly unlikely to generate ground vibration levels of any consequence to the structural integrity of buildings or other structures. The activity with greatest potential for vibration is rock breaking which may be required for dredging if unweathered rock is encountered. The EIS states that ground vibration levels at amplitudes that could result in structural damage are considered highly unlikely, given the distance to structures would exceed 50 m. Modelling for vibration impacts was not undertaken.

Existing noise environment

The EIS states the proposed works are within a working port and industrial area, which is subject to considerable existing noise, particularly during the day. Noise measurements taken over a one week period in 2018 indicate noise levels in and around the port area are generally higher during the day (with $LA_{eq,5min}$ typically between 50 and 60 dBA and $LA_{90,5min}$ typically between 50 and 55 dBA), lower on weekend mornings and also lower at night ($LA_{eq,5min}$ typically between 40 and

45 dBA). Existing noise emissions are generated by vehicles and plant including highlift forks, Terberg movers (used to move heavy loads), small forklifts, light vehicles and refrigeration containers. Appendix C of the EIS discusses the 2018 survey.

The EIS identifies sixteen sensitive receptors, that are representative of the receiving environment (refer Figure 5). Two of these (R5 and R7) are individual residential properties situated close to the boundaries of the site. The remainder are larger areas of residential land including houses along Tarleton Street, Stephen Street and Murray Street on the eastern side of the Mersey River and houses along Wenvoe Street on the western side of the Mersey River.

The EIS states dredging and seabed levelling has occurred in the port previously on a number of occasions. Most recently, seabed levelling was undertaken in February 2019, with works undertaken largely during daylight hours except for a 5 day period of night works.

The last major maintenance dredging campaign was completed in 2015, where over 300,000 m³ of sediment was removed from eastern and western port berths as well as from the Mersey River mouth. During the 2015 campaign, dredging was undertaken on a 24 hour basis, seven days per week for a period of approximately three months. The EIS states that during this time only one noise complaint was received.

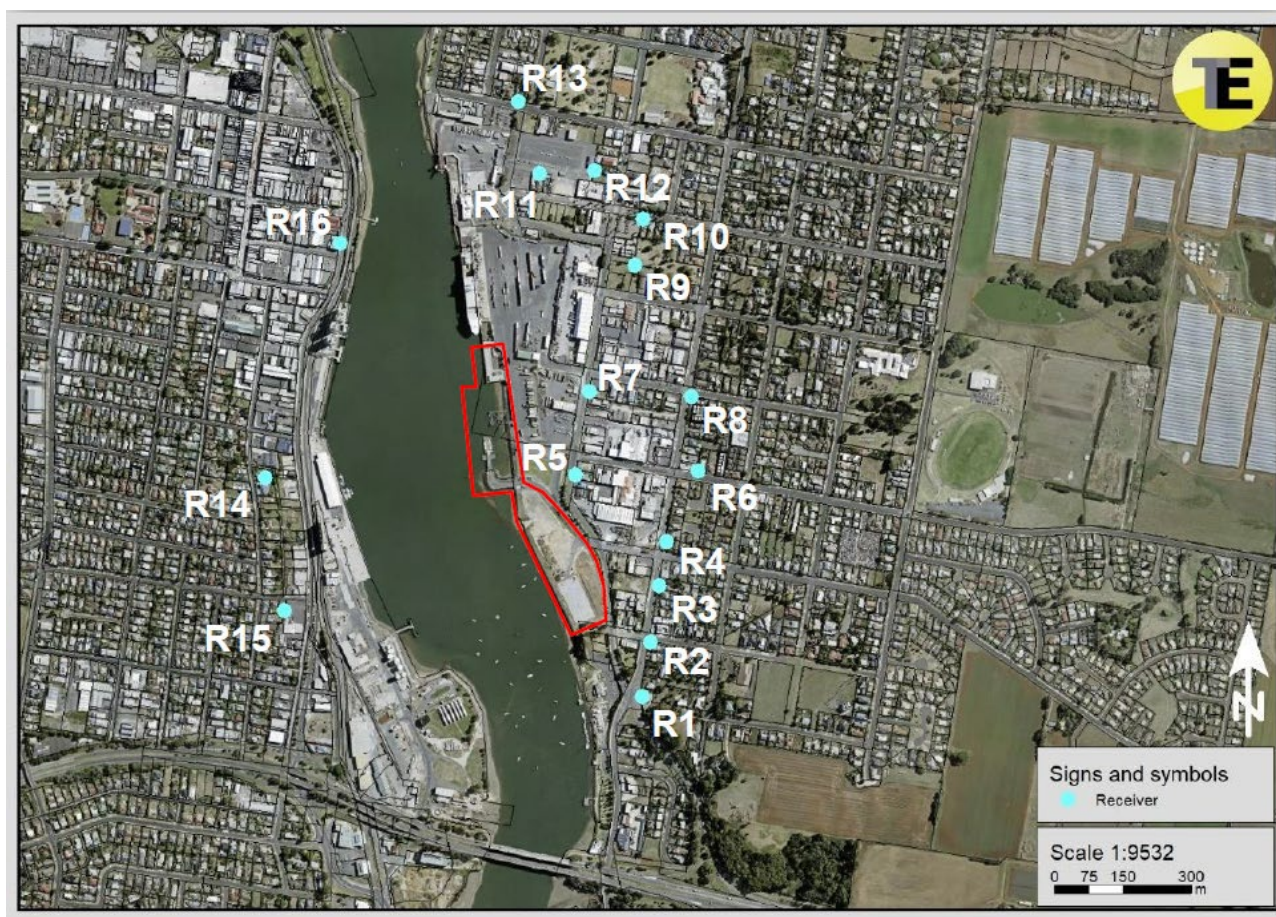


Figure 5: Noise sensitive receptors (Figure 6-1 of the EIS, Tarkarri Engineering Pty Ltd, September 2021)

Proposed noise management levels

The EIS proposes noise management levels based on the *NSW EPA Draft Construction Noise Guideline*. These were chosen over the indicator levels provided in the *Tasmanian Environment*

Protection Policy (Noise) 2009 (Noise EPP) as being more suitable for temporary construction work because the noise management levels provide more flexibility to accommodate works planning.

The NSW guidelines set out 'noise affected' and 'highly noise affected' management levels for both standard operating hours and non-standard operating hours.

The following noise management levels are proposed for the activity:

Noise affected management level

- 50dBA $LA_{eq, 10min}$ for standard operating hours (7am to 6pm weekdays and 9am to 5pm Saturday)
- 45dBA $LA_{eq, 10min}$ for non-standard operating hours during the day on Sundays (7am to 6pm Sunday)
- 35dBA $LA_{eq, 10min}$ for non-standard operating hours but excluding during the day on Sundays

Highly noise affected management level

- 75dBA $LA_{eq, 10min}$ (standard operating hours)
- 65 dBA $LA_{eq, 10min}$ (non-standard operating hours)

Section 3.2.2 Appendix C of the EIS notes noise management levels are based on default rated background levels provided in the *NSW Noise Policy for Industry, 2017* as the limited data from the 2018 survey did not enable site specific levels to be determined.

The EIS further notes the standard operating hours in the NSW guidelines are from 9am to 1pm on Saturday, but argues that standard hours should be extended to 5pm, as the existing port operates until 5pm on Saturdays and Sundays.

Noise modelling

Noise modelling was undertaken using SoundPLAN software with equipment and sound power levels listed in Appendix C of the EIS. The existing noise levels associated with port operations (including the SeaRoad and TTLine berths) were modelled to enable current and proposed noise impacts to be determined. Both the Long Reach Excavator (LRE) and Backhoe Dredge (BHD) construction options were modelled noting that the LRE is only able to operate during the day, while the BHD is able to operate 24 hours a day.

Neutral and worst-case weather conditions were both considered:

- Neutral propagation: These atmospheric conditions typically occur in the hour before sunset and the hour after sunrise or during still, cloudy conditions. Little vertical mixing.
- Worst case propagation: Assumes all receiver points to be downwind with a vector wind speed of 2 m/s. Moderate vertical mixing. Under these conditions noise contours represent the highest predicted noise levels at any location.

Based on the two construction options and the standard/non-standard hours, a total of four scenarios were modelled with results used to determine the potential impacts to the 16 sensitive receptors identified in Figure 5.

The four scenarios were as follows:

- Standard hours (7am to 6pm weekdays and 9am to 5pm Saturdays)
 - Scenario 1: All sources with backhoe dredge including dredging, unloading, materials management and reclamation works. This represents the marine based excavation

option running concurrently with port activities (existing SeaRoad and TT Line operations are predominantly daytime).

- Scenario 2: All sources with long reach excavator including dredging, unloading, materials management and reclamation works. This scenario is the same as scenario 1 but with the excavator instead of the dredge. This represents the land-based excavation option running concurrently with port activities.
- Non-standard operating hours (all other times)
 - Scenario 3: Dredging and port operations. This scenario assumes the backhoe dredge, unloading, materials management and all port operations are occurring but that land reclamation is not. This represents a daytime Sunday scenario.
 - Scenario 4: Dredging only. This scenario assumes the backhoe dredge, unloading and materials management but no port operations or land reclamation. This represents an evening and night-time scenario when the port is not operational.

Terrestrial noise impacts

Section 6.1.3.1 of the EIS summarises the potential for terrestrial noise impacts from the proposed works.

The results of the modelling are provided in Table 1 for scenario 1 and scenario 2 (standard hours) and Table 2 for scenario 3 and scenario 4 (non-standard hours). The column headings in the tables relate to the scenarios as follows:

- Scenario 1: BHD Table 1
- Scenario 2: LRE Table 1
- Scenario 3: Dredging and port ops (Sunday) Table 2
- Scenario 4: Dredging only Table 2 (evening and night)

Standard hours (7am to 6pm weekdays and 9am to 5pm Saturdays)

Modelling data provided in Table 1 can be summarised as follows:

- The 50 dBA noise management level would be exceeded at 4 receivers during neutral weather conditions and 13 out of 16 receivers during worst case weather conditions for the marine based (BHD) option.
- The 50 dBA noise management level would be exceeded at 4 receivers during neutral weather conditions and 10 out of 16 receivers during worst case weather conditions for the land based (LRE) option.
- The greatest exceedance of 50 dBA noise management levels is at Receiver 5 with predicted sound pressure levels being 57 dBA and 60 dBA for the BHD option for neutral and worst case weather respectively. Sound pressure levels for the LRE option are 57 dBA for neutral and 69 dBA for worst case weather.
- Source area contributions from dredging and land reclamation (D and R) are generally similar for both dredging options.
- Existing port activities (Searoad and TT Line) are the highest contributing source areas for sound pressure levels at receiver 9 and receivers 11, 12, 13 and 16.

- Modelling indicates receivers 11, 12, 13 and 16 already experience sound pressure levels above Noise Management Levels from existing port activities.

Receiver 5 is a residence located less than 200m from the dredging location and approximately 60m from the route for trucks transporting dredge spoil to the materials management area.

Receivers R5 and R7 are located on the truck entry/exit route for the port. Section 3.3.4.1

Appendix C of the EIS states traffic noise levels above 55 dBA are likely during standard operational times and on Sundays in these locations and suggests the 50 dBA noise management level (which is based on a Rated Background Level of 40 dBA), is therefore conservative.

The EIS states the difference in overall noise impacts to sensitive receivers between the land-based (LRE) and marine-based (BHD) dredging methods are negligible during standard operating hours when all sources at the port are operating. The EIS further states the noise predicted by modelling were well within typical levels measured during ambient monitoring undertaken in 2018.

The EIS concludes that noise impacts from dredging during standard operating hours are likely to be reasonable, in the context of the relatively short duration of works and the noise emitted from the existing port.

Table 1: Predicted noise emission levels for standard hours (Table 3-3 in Appendix C of the EIS, Tarkarri Engineering, 2021)

Predicted sound pressure levels (dBA) standard hours									
Receivers	Met	BHD				LRE			
		Total	Source area contributions			Total	Source area contributions		
			D and R	Searoad	TT Line		D and R	Searoad	TT Line
R1	neu	46	46	32	26	46	46	32	26
	wcw	50	50	38	32	50	49	38	32
R2	neu	49	49	33	26	49	49	33	26
	wcw	52	51	38	32	52	51	38	32
R3	neu	47	47	34	29	48	47	34	29
	wcw	50	50	39	34	51	50	39	34
R4	neu	48	48	30	27	48	48	30	27
	wcw	52	52	35	32	52	52	35	32
R5	neu	57	57	41	33	57	57	41	33
	wcw	60	60	45	38	59	59	45	38
R6	neu	47	47	35	31	46	45	35	31
	wcw	51	51	39	36	50	50	39	36
R7	neu	50	49	45	35	50	48	45	35
	wcw	54	52	48	39	54	52	48	39
R8	neu	46	46	35	26	44	44	35	26
	wcw	51	50	39	31	49	48	39	31
R9	neu	48	39	45	43	47	39	45	43
	wcw	51	44	48	45	51	43	48	45
R10	neu	47	39	44	42	46	35	44	42
	wcw	50	44	47	45	50	40	47	45
R11	neu	56	43	49	55	56	40	49	55
	wcw	58	48	52	56	58	45	52	56
R12	neu	52	39	43	51	52	33	43	51
	wcw	54	44	46	53	54	38	46	53
R13	neu	52	40	42	51	51	38	42	51
	wcw	54	46	46	53	54	43	46	53
R14	neu	47	46	38	34	46	44	38	34
	wcw	52	51	43	39	51	49	43	39
R15	neu	46	45	34	29	45	44	34	29
	wcw	51	50	39	34	50	49	39	34
R16	neu	50	46	45	44	49	43	45	44
	wcw	55	51	50	48	54	49	50	48

Exceeds standard hours NML (50 dBA). highest contributing source area.

Table Notes: BHD – Backhoe dredge, LRE – Long reach excavator, wcw – worst case weather conditions, neu – neutral weather conditions.

Noise contours for Scenarios 1 and 2 are presented in Section 3.3.4.2 of Appendix C in the EIS.

Non-standard hours (Sunday and night time)

Noise contours for Scenario 3 (Sunday works) and Scenario 4 (night works) are shown in Figure 6 and Figure 7 respectively. For both figures the light blue contour is representative of the Noise Management Levels proposed in the EIS. These are 45 dBA for Sunday works and 35 dBA for night works.

Both Figure 6 and Figure 7 show modelling for worst case weather conditions which the EIS states represents a conservative case. Noise contours for neutral weather conditions are presented in Section 3.3.4.2 of Appendix C in the EIS.

It is noted that Table 2 of the EIS does not present predicted noise levels for the land based option (LRE) for Sunday hours, although it is understood land based dredging could be undertaken on Sunday during daylight hours. Table 1 indicates noise emissions from land based and marine based dredging are similar.

The data provided in Table 2, Figure 6 and Figure 7 can be summarised as follows:

- The daytime Sunday noise management level of 45 dBA would be exceeded at 11 receivers during neutral weather conditions and all 16 receivers during worst case weather conditions.
- The night-time noise management level of 35 dBA would be significantly exceeded at all 16 receivers for both neutral and worst case weather conditions.
- The greatest exceedance is at Receiver 5 with modelling indicating Sunday day time works would result in sound pressure levels of 55 dBA and 57 dBA for neutral and worst case weather respectively (10 and 12 dBA over the 45 dBA noise management level).
- Modelling indicating night time works would result in sound pressure levels of 54 dBA and 57 dBA for neutral and worst case weather respectively. This is 19 dBA and 22 dBA over the night-time noise management level of 35 dBA.
- Existing Sunday daytime port activities (Searoad and TT Line) are the highest contributing source areas for sound pressure levels at receivers 9, 10, 11, 12, 13 and 16.
- Modelling indicates receivers 11, 12, 13 and 16 already experience sound pressure levels above Noise Management Levels from existing Sunday day time port activities.
- Modelling indicates receivers 1, 2, 3, 4, 5, 6, 7, 8, 14 and 15 do not experience sound pressure levels above Noise Management Levels from existing Sunday daytime port activities. Dredging works would result in a significant change for these receivers.
- Night works would result in exceedance of noise management levels with a large area of impact.

Section 3.4 of Appendix C of the EIS concludes that dredging activity outside of standard operating hours has the potential to generate significant community annoyance, particularly during night time when the port is not operational.

Table 2: Predicted noise emission levels for non-standard hours (Table 3-4 in Appendix C of the EIS, Tarkarri Engineering, 2021).

Predicted sound pressure levels (dBA) non-standard hours (BHD)						
Receivers	Met	Dredging only	Dredging and port ops (Sunday)			
		Total	Total	Source area contributions		
				Dredge	Searoad	TT Line
R1	neu	45	45	45	32	26
	wcw	49	49	49	38	32
R2	neu	48	49	48	33	26
	wcw	51	51	51	38	32
R3	neu	46	47	46	34	29
	wcw	49	50	49	39	34
R4	neu	46	46	46	30	27
	wcw	49	49	49	35	32
R5	neu	54	55	54	41	33
	wcw	57	57	57	45	38
R6	neu	45	45	45	35	31
	wcw	49	50	49	39	36
R7	neu	45	48	45	45	35
	wcw	49	52	49	48	39
R8	neu	44	45	44	35	26
	wcw	49	49	49	39	31
R9	neu	36	47	36	45	43
	wcw	41	50	41	48	45
R10	neu	38	47	38	44	42
	wcw	43	50	43	47	45
R11	neu	42	56	42	49	55
	wcw	47	58	47	52	56
R12	neu	39	52	39	43	51
	wcw	44	54	44	46	53
R13	neu	39	51	39	42	51
	wcw	44	54	44	46	53
R14	neu	44	45	44	38	34
	wcw	49	50	49	43	39
R15	neu	43	44	43	34	29
	wcw	48	49	48	39	34
R16	neu	45	49	45	45	44
	wcw	50	54	50	50	48

 Exceeds non-standard hours excluding Sunday NML (35 dBA).

 Exceeds non-standard hours on Sunday NML (45 dBA). highest contributing source area.

Table Notes: BHD – Backhoe dredge, LRE – Long reach excavator, wcw – worst case weather conditions, neu – neutral weather conditions.

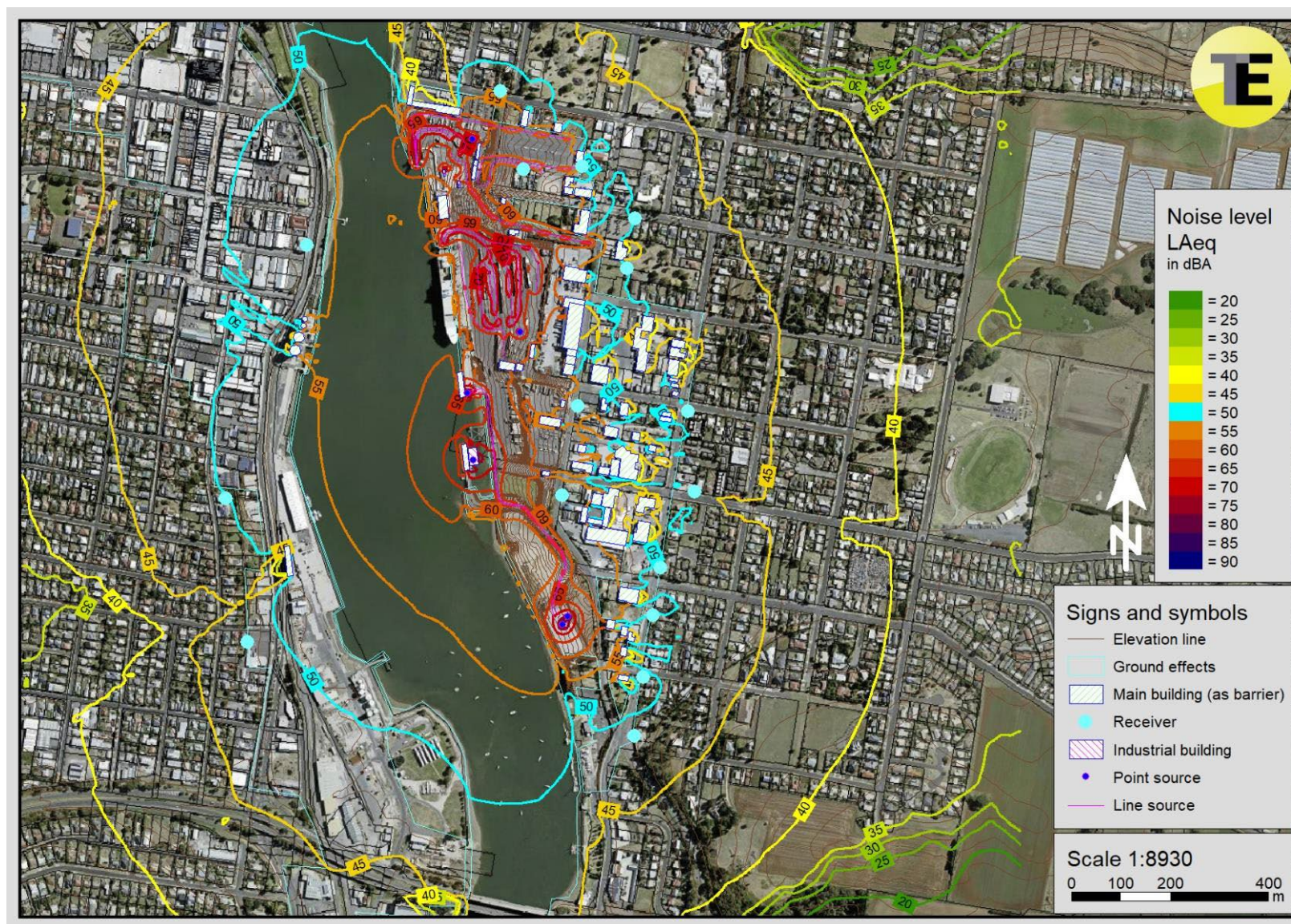


Figure 6: Dredging with BHD and port operations (representative of Scenario 3 - Sunday works) (Figure 3-20 in Appendix C of the EIS, Tarkarri Engineering).

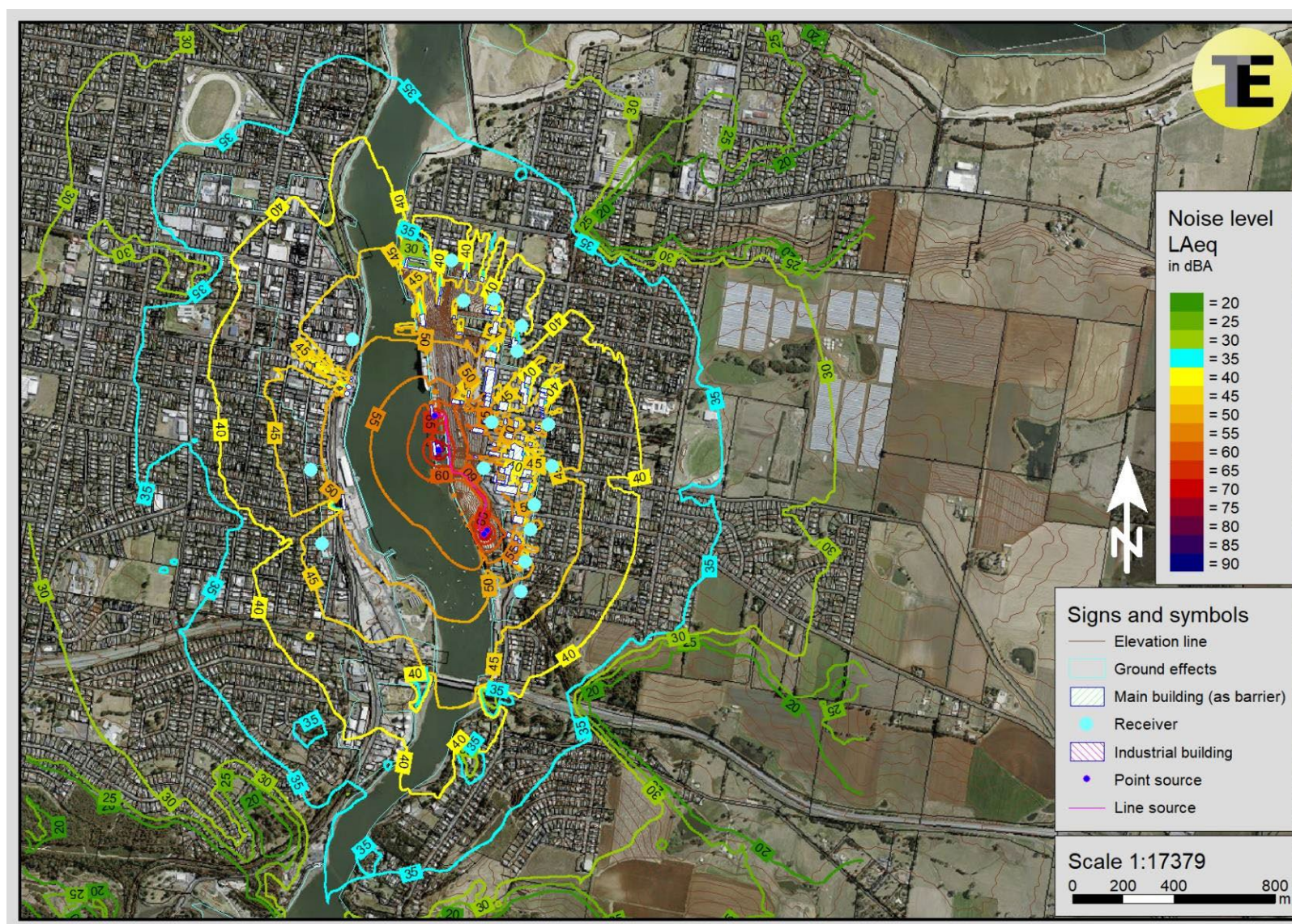


Figure 7: Dredging with BHD (representative of Scenario 4 - evening and night works) (Figure 3-18 in Appendix C of the EIS, Tarkarri Engineering).

Aquatic noise impacts

Section 6.1.3.2 of the EIS summarises the potential for aquatic noise impacts from the proposed works.

The following behavioural disturbance threshold values for marine mammals were applied, noting that underwater dB are referenced to a pressure of 1 microPascal (μPa):

- 120 dB re 1 μPa : minor disturbance.
- 140 dB re 1 μPa : significant disturbance.

The EIS states these are considered to be conservative underwater noise criteria as significant shipping activity in the port is likely to generate sound levels well in excess of these thresholds. Measurement of existing underwater noise was not undertaken.

Modelling of key dredging equipment found the predicted levels are below the 140 dB re 1 μPa criterion level (significant disturbance) at distances of less than 300 m for all sources. Predicted levels are below the 120 dB re 1 μPa criterion level (minor disturbance) at a distance of less than 1 km for the backhoe dredge bucket and hydro hammer noise sources. For the drum cutter, levels drop below the 120 dB re 1 μPa criterion level at distances greater than 2 km. Data from aquatic noise modelling is provided in Section 4, Appendix C of the EIS.

The EIS states that, given the industrial nature of the port and the existing level of shipping activity, the use of the river by cetaceans is considered to be very unlikely. The river mouth is just over 2km downstream of the dredge site and noise impacts are not expected to extend this far.

Noise from offsite transport

The modelled noise scenarios do not include transport of excess dredge spoil from the site. The EIS states materials will only be transported during the day when the port is operational. Up to four trucks per hour will move excess dredge material from the site during the active dredging period. The EIS states this will contribute to a relatively small additional traffic volume on an existing road network that already carries a high number of vehicles, including significant heavy vehicle movements.

The EIS states noise impacts from offsite transport of excess dredge spoil are therefore expected to be negligible.

6.1.2 Management measures

Terrestrial noise

Section 6.1.4.1 states that if the land based dredge option is selected, further noise management and mitigation is unlikely to be warranted as works would largely be restricted to standard hours due to the LRE not being able to operate at night.

The EIS states that if the marine-based BHD option is selected, works would be undertaken during non-standard hours, and a Noise Management Plan prepared and implemented in accordance with the *NSW EPA Draft Construction Noise Guidelines*.

The Noise Management Plan will be prepared and submitted to the EPA prior to commencement of construction and would include the following.

- Work practices for adopting quieter work methods.
- Regular noise monitoring to identify and address adverse noise impacts.
- Regular inspection and maintenance of work equipment.

- Effective notification of stakeholders to manage community expectations.
- Use of barriers (natural or otherwise), quieter equipment, restricting movement or scheduling respite periods and varying intensity of works to mitigate noise impacts.

The EIS states that for either dredge option, a Construction Environmental Management Plan (CEMP) will be prepared and will include an incidents and complaints register. Any noise complaints received will be recorded, investigated, and resolved.

Table 8-1 of the EIS contains the following:

- In the event dredging is to be undertaken outside the adopted standard operating hours of 7am to 6pm weekdays and 9am to 5pm Saturdays, a Noise Management Plan in accordance with the *NSW EPA Draft Construction Noise Guidelines* will be prepared and submitted to the EPA prior to the commencement of works (Commitment 2).
- A CEMP reflecting the commitments in this EIS will be prepared prior to the commencement of construction (Commitment 3).
- An Incident and Complaints Register will be established, and all complaints recorded, actioned and the outcomes communicated back to the complainant (Commitment 4).

Aquatic noise

Section 6.1.4.2 includes the following mitigation measures for aquatic noise:

- To condition animals to underwater noise generated by operations, prior to commencement of any works (either at commencement of the works or following any cessation of dredging works) the BHD engine will be started on idle and ramped up over an approx. 10 minute period. This is termed a 'soft start'.
- Where marine mammals or reptiles are observed within 300m of dredging, activity will cease until the animal(s) have moved outside of the 300m zone. The dredge operator will have a marine mammal observer on the dredge to manage this risk.

Table 8-1 of the EIS contains the following:

- To mitigate the risk of underwater noise impact on aquatic species, soft starts will be employed, and a stop work zone of 300m will be applied around the dredge in the event marine mammals or reptiles are sighted in this zone (Commitment 5).

Transport noise

Table 8-1 of the EIS contains the following:

- Transportation of excess dredge spoil off site will occur only on weekdays during daylight hours (7am to 6pm Monday to Friday). (Commitment 1).

6.1.3 Public and agency comment and responses

No public or agency comments received.

6.1.4 Evaluation

The key difference between the two dredging options is the proposed timing of works with marine based dredging (BHD) proposed to run 24 hrs per day whereas removal of material by land based excavator (LRE) can only be undertaken during the day. It is noted that because the land based excavator cannot operate at night, the period of works will have a longer duration.

The EPA Noise Specialist considers the *NSW EPA Draft Construction Noise Guideline* to be appropriate for managing short term construction works where an adaptive management plan

approach is required. The application of noise emission management levels for standard and non-standard hours is considered appropriate.

Condition **N1** defines standard hours as being the period 0700 hours to 1800 hours on weekdays and 0900 to 1700 on Saturdays. This is an extension to the 1300 hours specified on Saturday in the *NSW EPA Draft Construction Noise Guideline* to reflect the Saturday working hours of the port. Condition **N1** defines non-standard hours as all other hours outside standard hours as well as statewide public holidays.

The EPA Noise Specialist notes the noise emission management levels proposed in the EIS are 35 dBA (rating background level + 5 dB) for non-standard hours, and 50 dBA (40 dBA + 10 dB) which are considered reasonable to prevent nuisance noise impacts. The *NSW Noise Policy for Industry* is acknowledged to provide an appropriate mechanism to set rating background levels for construction activities. The EIS states the noise management levels proposed in the EIS are conservative as it is likely that the rating background levels would be higher than the default 30 dBA (non-standard hours) and 40 dBA (standard hours) rating background levels in the policy.

Condition **N2** specifies noise management levels as rating background level + 5dB for non-standard hours and rating background level +10 dBA for standard hours. This allows for survey of background noise levels prior to commencement of works to enable site specific rating background levels to be determined. If site specific noise management levels are proposed the plan will need to demonstrate appropriate preconstruction noise monitoring to justify these levels. Condition **N2** also precludes the use of equipment that emits impulsive noise during the period 2200 hours to 0700 hours and specifies adjustment for impulsiveness, modulation, and low frequencies.

It is acknowledged that residences are located in close proximity to an operational port and that nearby residential areas are already impacted by noise during the daytime. However, the EPA Noise Specialist considers that modelled night-time noise at nearby residences are unacceptably high, particularly as the port does not operate at night. While sound barriers may mitigate impacts to some sensitive receivers, barriers would be impractical over a larger area. In addition, sound barriers could not be used to mitigate noise impacts to areas on the western banks of the Mersey River.

Condition **N3** requires a noise management plan to be submitted for approval where any works are proposed during non-standard hours. The plan will also need to specify appropriate noise management levels, demonstrate how noise management levels will be met as well as mitigation and contingency measures for exceedances. The noise management plan will also need to detail a community engagement plan.

The commitment to noise monitoring is supported and condition **N4** requires deployment of continuous noise loggers to demonstrate noise management levels are not exceeded at sensitive receivers. Reporting of noise monitoring results, exceedances and associated corrective measures will be required on a monthly basis by condition **M2**.

The commitment to including noise management in the Construction Environmental Management Plan (CEMP) is supported and will be required by condition **CN1**. The CEMP will also be required to include measures to mitigate aquatic noise impacts.

Based on the information provided in the EIS, it is agreed that impacts from vibration are unlikely.

6.1.5 Conclusions

The proponent will be required to comply with the following conditions:

- N1** Hours of construction
- N2** Noise emission management levels
- N3** Noise management plan
- N4** Continuous noise logger (s)
- M2** Monthly monitoring reports
- CNI** Construction Environmental Management Plan

6.2 Key Issue 2: Sediment quality

6.2.1 Description

The sediments proposed to be dredged are described in Section 6.2.1 of the EIS.

The EIS describes the sediments as interbedded layers of sand, gravel silt and clay with an underlying rippable rock stratum. Silty and clayey sand dominate the upper 5 to 7 meters of the sediment profile with consistent particle size. The EIS states clay is not common.

Disturbance of sediments during dredging has the potential to release contaminants into the water column. Storage of materials on site awaiting testing, reuse or disposal may also release contaminants if not appropriately managed.

Contamination

Sampling of sediments in the dredge area was undertaken in September 2019 and April 2020. The EIS states a second sampling event was undertaken after design changes required an increase in the area proposed to be dredged.

Samples were analysed for the following:

- Metals and metalloids: antimony, arsenic, cadmium, chromium, cobalt, copper, lead manganese, mercury, nickel, selenium, silver, vanadium, and zinc
- Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN)
- Polycyclic aromatic hydrocarbons (PAH)
- Polychlorinated biphenyls (PCB)
- Tributyl Tin
- Total and recoverable petroleum hydrocarbons
- Organochloride and organophosphorus pesticides

Sediment contamination concentrations were assessed against threshold levels in the *National Assessment Guidelines for Dredging, 2009* (ANGD), which are equivalent to the toxicant default guideline values for sediment in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2018* (ANZG). Elutriate testing was undertaken for arsenic, nickel and tributyl tin. Toxicity Characteristic Leaching procedure (TCLP) testing was undertaken for arsenic and manganese, and porewater testing was undertaken for arsenic and nickel.

Details of all sampling are presented in Appendix D and Appendix E of the EIS. The EIS states the majority of analytes were either below the limit of detection, below the NAGD 2009 and/or below the Tasmanian EPA *Information Bulletin 105 – Classification of Contaminated Soils* level for fill material (level I).

A summary of sampling results for contaminants of concern is provided in Table 3.

The results provided in Appendix D, Appendix E and Section 6.2.1.2 of the EIS can be summarised as follows:

- Arsenic was not above any screening or threshold levels in any sample within the proposed dredging area, although section 6.2.1.2 of the EIS notes that several samples in other areas of the harbour exceeded arsenic screening levels in testing undertaken in 2013 and 2016.
- Chromium exceeding the NAGD screening level in one sample.
- Mercury exceeding the NAGD screening level in one sample.
- Of the contaminants tested only nickel was consistently above the screening level of the NAGD with 4 samples over the high NAGD threshold.
- One sample was found to contain tributyltin above the NAGD high level. The EIS states this is most likely related to a single flake of antifoul paint rather than the compound being distributed throughout the sediments, as no other sample returned a positive result.
- PCB, BTEXN, PAH and Total and Recoverable Petroleum Hydrocarbons were all below thresholds.
- No organochloride and organophosphorus pesticides were detected.
- Porewater concentrations of nickel were above the ANZG default guideline value in three samples.
- Elutriate concentrations (total and dissolved) of nickel in all samples were well below the ANZG 99% species protection level for both marine and freshwater systems.
- TCLP leachate concentrations for manganese are considerably higher than the ANZG value for manganese in marine waters (80 µg / L), noting that this value is not provided in Table 3. This trigger value is deemed by ANZG to be of low reliability due to a limited dataset of ecotoxicity studies for manganese.

The EIS states the elutriate test more accurately simulates the effects of dredging (vigorous mixing with water), while porewater tests are more relevant where the sediment is removed with minimal mixing with water.

The TCLP leachate test simulates the leaching of contaminants into groundwater under conditions found in solid waste landfills and uses a fluid of pH 2.9 to extract the leachate from the samples to reflect the strong acidity of landfill conditions. The EIS states the stored dredge spoil is highly unlikely to reach a low pH and therefore the potential for manganese contaminated leachate is low.

Section 6.1.2 of the EIS states naturally occurring high nickel levels are not uncommon in Australian sediments, with the NAGD noting that sediments in Australia commonly have high natural levels of arsenic and nickel. The EIS states concentrations of nickel have been similarly elevated in all past sediment sampling programs in the Port of Devonport with no clear trend through time. The EIS states no specific source of nickel contamination has been identified during previous studies and it is thought nickel may be derived from geology within the Mersey River catchment.

Appendix G of the EIS states a per- and poly-fluoroalkyl substances (PFAS) audit previously undertaken for TasPorts infrastructure, did not identify any storage or historical use of PFAS (such as firefighting foam) on any part of the East Devonport site. The upstream catchment also does not include activities that would have likely produced this type of contaminant. The EIS concludes there is insufficient evidence to identify PFAS as a potential contaminant of concern and it was therefore not screened for during sediment sampling.

Table 3: Summary of sediment analysis (Table 6-1 in the EIS, Marine Solutions, 2019 and 2020)

Contaminant	Analysis	Units	Number of samples	Min.	Median	Mean	95% upper confidence limit	Max.	Standard deviation	Guideline values			
										NAGD/ANZECC sed.		ANZG water	
										Screening level	High level	99%	95%
Arsenic	Sediment	mg/kg	30	3.6	12.9	12.3	13.3	17.8	3.2	20	70	-	-
Chromium	Sediment	mg/kg	30	14	41	47	54	138	22	80	370	-	-
Manganese	Sediment	mg/kg	30	56	208	250	300	731	151	-	-	-	-
	TCLP	µg/L	20	437	1,955	2,029	2,280	3,790	682	-	-	-	-
Mercury	Sediment	mg/kg	30	0.01	0.07	0.07	0.09	0.16	0.03	0.15	1	-	-
Nickel	Sediment	mg/kg	30	12	26	36	59	165	29	21	52	-	-
	Elutriates - dissolved	µg/L	18	0.5	0.5	0.7	0.9	2.0	0.4	-	-	7	70
	Elutriates - total	µg/L	18	0.5	0.5	0.8	0.9	2.3	0.5	-	-	7	70
	Porewater	µg/L	20	1.1	2.1	4.2	9.8	26.0	5.8	-	-	7	70
TBT	Sediment	µgSn/kg 1% OC	30	0	0.6	3.8	17.0	91.5	16.6	9	70	-	-

Note: yellow indicates exceedance of the NAGD/ ANZECC Screening guideline level, orange indicates exceedance of the NAGD/ ANZECC High level guideline level and blue indicates exceedance of the ANZG 99% species protection level.

Acid Sulphate Soils risk

The risk of acid sulphate soils is discussed in appendix, D, appendix E and section 6.2.1.5 of the EIS. Analyses indicates that sediments are alkaline, with an average pH of 8.8. The potential acidity of the soil was high with an average concentration of chromium reducible sulphur of 0.39 %.

The potential risk of acidic conditions developing would depend on the acid neutralising capacity (ANC) of any excavated sediments. The EIS states the acid neutralising capacity of the sediment was also high with an average of 23 % calcium carbonate. EIS notes that although large shell fragments may be too coarse to react to the extent indicated by measured ANC, the absence of visible shell fragments in sediment cores suggests that the calcium carbonate in the sediment is finely grained and should be able to achieve the measured neutralising capacity.

The EIS concludes that there is a low probability of acidity developing in dredged sediments and the requirement for liming of dredge spoil is unlikely.

Toxic dinoflagellates

Appendix D of the EIS states that four sediment cores were analysed for dinoflagellates. Although some cysts were present, no toxic dinoflagellates were recorded. Section 6.2.1.6 of the EIS notes that past dredging of the harbour has not resulted in dinoflagellate blooms.

Materials management

Excavated material will be loaded onto trucks and transported to a materials management area by internal roads. The proposed materials management area is approximately 25,000 m² and consists of an existing concrete pad and gravel hardstand areas (refer Figure 10). The EIS states the area is large enough to temporarily stockpile, dewater and manage the dredge material. Materials will be segregated into consolidated rock and gravel and unconsolidated sand, silt, and clay materials.

Comparison of sediment sampling results against Tasmanian EPA *Information Bulletin 105 – Classification of Contaminated Soils* and the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM) was undertaken to inform the potential reuse of dredge spoils onsite for reclamation purposes or for disposal to an approved location offsite. Details are provided in appendix G of the EIS.

The assessment concluded the following:

- Approximately 75% of samples were classified as Fill Material – Level 1 (Information Bulletin 105).
- A small number of samples had chromium, manganese, and nickel concentrations above the level 1 upper threshold and fell within the lower range of Low Level Contaminated Soil – level 2 (Information Bulletin 105) .
- Although the elevated concentration of tributyl tin in one sample is considered to be an outlier from a paint flake, further testing was recommended.
- Segregation of unconsolidated materials may not be entirely possible, and dredge spoil may need to be treated as a combination of level 1 and level 2 soils.

Construction of the reclamation area will include building a rock berm around the perimeter. The EIS states the berm will be built from rock and competent material and will be lined with geofabric to contain sediments to be placed in the remainder of the reclamation.

The EIS states dredged sediments will be sampled and characterised prior to reuse or disposal. Consolidated material is not proposed to be tested as it is considered to pose little risk to the environment.

Where materials are not suitable or required for reuse, off site transport to a licenced facility is proposed. The permitting and management of material disposed of offsite is not included in this assessment.

Impacts relating to stormwater and water from dewatering are discussed in Key Issue 3: Water quality.

6.2.2 Management measures

The EIS states unconsolidated dredge spoil will only be used for land reclamation under the following circumstances:

- Where the material is similar in contaminant characteristics to the existing in-situ sediment and therefore represents a negligible increase in potential contamination to the environment.
- Unconsolidated dredge material will only be placed within the geofabric lined rock bund in order to minimise the potential for material to migrate into the adjacent Mersey River environment.

A Waste Material Management Plan will be prepared to document the waste handling, testing, reuse, and disposal procedures for all extracted material. The following will be included:

- pH monitoring within the drainage system at the materials management area, along with daily checks for visual or olfactory signs of acidification.
- Testing of stockpiled unconsolidated material will be undertaken in accordance with the requirements of *Information Bulletin 105 – Classification of Contaminated Soils* to determine its suitability for reuse in the reclamation area or for disposal offsite.

The following commitments are included in table 8-1 of the EIS:

- A Waste Material Management Plan will be prepared and submitted to the EPA prior to the commencement of dredging (Commitment 6).
- Unconsolidated material extracted from the dredge area will be subject to characterisation sampling in accordance with Information Bulletin 105 prior to reuse in the reclamation area, offsite reuse, or disposal (Commitment 7).

6.2.3 Public and agency comment and responses

No public or agency comments received.

6.2.4 Evaluation

The use of the sediment contaminant guideline values provided in the NAGD are considered appropriate as the materials will be removed via dredging and at least partially reused in land reclamation.

While it is agreed that elutriate testing most closely mimics dredging actions, elevated metals may be problematic if acidic conditions develop in dredged sediments (as indicated by elevated manganese during TCLP tests). The commitment to monitor pH is supported and will be required as part of a Waste Materials Management Plan to be approved by the Director (condition **CN2**). Condition **CN2** also includes a requirement to identify and implement contingency measures if acidic conditions develop in stockpiled sediments.

It is noted that the EIS predates the *Waste and Resource Recovery Act, 2022* which took effect on the 29 March 2022. The EIS does not reference the new Approved Management Method (AMM) which applies to the disposal of clean fill in quantities less than 100 tonnes. It is considered that as

the quantity of material is greater than 100 tonnes the AMM does not apply and testing to characterise materials prior to reuse or disposal is therefore appropriate.

The EIS concludes that elevated chromium, mercury and tributyl tin detected during sampling were not representative of the material to be dredged as they were only detected in limited samples. While this may be the case, elevated levels were detected and the commitment to sample dredged material before reuse or disposal is supported. Sampling of dredged material and classification according to *Information Bulletin 105 – Classification of Contaminated Soils* is required by condition **CWI**.

Condition **CWI** also requires placement of dredged materials in a suitably prepared and bunded area for storage and testing.

It is noted that some dredge spoil is proposed be moved off site, which is not within the scope of this assessment. The management of waste material is subject to the requirements of EMPCA and subordinate legislation including the *Environmental Management and Pollution Control (Waste Management) Regulations 2020*. Requirements include the use of registered controlled waste transporters for transport of controlled waste, and the management of waste materials (including clean fill) in accordance with an approved management method or otherwise under a relevant authority as defined in the Waste Regulations. The proponent is made aware of the requirements for controlled waste transport (**LO2**) and the requirements of the waste management regulations, (**LO3**).

It is acknowledged that the elevated levels of nickel and manganese are likely to be naturally occurring, based on the results presented in the EIS, and it is therefore considered that the environmental risk to the marine environment from contaminated sediment is low. While the use of dredged sediments with elevated nickel and manganese is not precluded, condition **CN2** requires arsenic, chromium, manganese, mercury, nickel tributyl tin and pH levels to be specified for reuse materials. Validation sampling and reporting is also required by condition **CN2**.

Condition **MI** specifies the requirements for sampling and measurements for undertaken for monitoring purposes.

6.2.5 Conclusions

The proponent will be required to comply with the following conditions:

CWI Management of spoil material

CN2 Waste Materials Management Plan

MI Samples and measurements for monitoring purposes

The proponent is also made aware of the following:

LO2 Controlled waste transport

LO3 Waste management regulations

6.3 Key Issue 3: Water quality

6.3.1 Description

Section 6.3.1 of the EIS describes the Mersey River water temperature and salinity as typical for a northern Tasmanian estuarine environment with cooler low salinity water overlying a wedge of high salinity marine water. Freshwater flows from the Mersey River into the estuary and port varies with season and is also affected by water management for hydroelectric power generation up stream.

The lower reaches of the estuary experience near-complete flushing with each tidal cycle, and in combination with variable freshwater flows mean water quality parameters are highly variable.

Turbidity data collected as part of environmental sampling for the proposal indicates the average turbidity within the estuary is 2.2 Nephelometric Turbidity Units (NTU) (refer appendix F of the EIS). The water around the port generally has the lowest turbidity at high tide, reflecting a marine water influence.

The EIS states waters were most turbid at low tide due to runoff from the mudflats of the upper estuary. The highest turbidity measurements of approximately 6 NTU, occurred when the tidal range was largest, at around -3.2 m. Lower tidal ranges resulted in lower turbidity levels.

Consideration of data over a seven-year period indicates turbidity in the river is generally between 2 NTU and 20 NTU, with a median value of 5 NTU.

Dredging, materials storage, dewatering and construction of the reclamation area have the potential to impact water quality in the Mersey River. Disturbance of sediments during dredging may result in increased turbidity and the release of contaminants into the estuary. Release of contaminated or sediment laden runoff water from the materials management area or the reclamation area may also result in water quality impacts to the estuary.

Sediment plume modelling

Section 6.3.3.1 of the EIS describes sediment plume modelling undertaken to determine the likely impacts from the proposed dredging. Modelling inputs are detailed in Appendix F of the EIS and included available information on the particle size distribution of sediments in the dredge area, tidal ranges, dredging methodology, stratification, bathymetry, channel structure of the port, and background turbidity.

The modelled sediment plume varied with tidal conditions and river flow. Spring and neap tides showed similar turbidity, although spring tides showed the largest plume extent and are therefore considered a conservative scenario. Modelling indicates turbidity levels quickly decline with distance from dredging with smaller particles travelling further prior to settling.

Modelling results for an ebb (outgoing) spring tide are shown in Figure 8 and can be summarised as follows:

- Very high turbidity directly within the dredging zone (within 50 m) with values of 210 NTU.
- The eastern port zone has predicted turbidity of 20 NTU above background levels, reducing to 10 NTU as the plume moves north.
- The sediment plume would remain on the eastern side of the port until approximately 1.2 kms from the dredge zone, where it begins to disperse across the full width of the channel. Turbidity levels at this point, are modelled to be 5 NTU above background levels.
- Turbidity would be approximately 2 NTU above background levels as the water leaves the Mersey River mouth.

Modelling results for a flood (incoming) spring tide are shown in Figure 9 and can be summarised as follows:

- Very high turbidity directly within the dredging zone (within 50 m) with values of 210 NTU.
- As the plume migrates up river, a level of 20 NTU above background levels is predicted for the eastern port zone, reducing to 10 NTU above background levels near the bridge.
- 5 NTU above background levels is expected at approximately 1.8 kms up river from the dredge zone.

The EIS notes that during large flood events in the Mersey River, turbidity can reach peak levels of 530 NTU and a 99 percentile range of 67 NTU. The EIS states the modelled maximum turbidity levels generated from dredging are overall much lower than levels experienced during large flood events. The EIS notes the duration of any flood events would be shorter than the 4 to 10 length week dredging program and notes the mechanism for dredging (backhoe dredge or long reach excavator) does not affect turbidity generated.

The EIS states the port environment and lower reaches of the Mersey River is well adapted to high fluctuations in turbidity, particularly during outgoing tides when mudflats contribute to elevated turbidity levels. The EIS states modelling showed turbidity levels would be near to background at the mouth of the Mersey River and upstream at approximately 1.5km. The EIS concludes the proposed dredging is unlikely to significantly impact the estuarine ecosystem.

Contaminant mobilisation during dredging

The results of sediment characterisation are discussed under Key Issue 1: Sediment. Elutriate tests were developed to simulate contaminant release during dredging. Section 6.3.3.2 of the EIS states nickel was the focus of elutriate testing as it was the only metal consistently above NADG screening levels.

Although the concentration of nickel exceeded NAGD screening levels, elutriate testing indicated that concentrations of nickel released into the water column by the dredging should be well below ANZG default guideline values, even for the most contaminated sample collected. The EIS states elevated chromium, manganese, and mercury are also possible although the levels are low when compared to the ANZG 2018 default guideline values and also notes considerable dilution will occur within the river.

The EIS concludes contaminants are not likely to be released from sediments during dredging.

Spoil dewatering and stormwater

As described under Key Issue 2, the materials management area will be prepared with a bund constructed along the lower edge of the area and lined with geofabric to capture fine sediments. Existing hardstand will be suitably graded to direct all water within the materials management area to a drainage system and to divert any clean stormwater into the existing stormwater network.

Any water remaining in dredged rocky material is expected to drain within a day, which will allow this material to be reused in construction of the reclamation area bund. Sandy and silty material will likely take considerably longer to drain (possibly several weeks) and poses the highest risk of contamination.

The proposed dewatering process for unconsolidated material will involve evaporation with any drainage water collected as part of the proposed materials management area drainage system.

All water within the materials management area will be captured via the use of bund walls and directed to a retention area to allow settlement of entrained sediment. The water will be tested

and treated if required before being released back into the estuary by either controlled gravity release or pumping (refer Figure 10). Settlement retention will be optimised using silt screens and/or baffles.

The EIS states that the amount of water from dewatering is expected to exceed evaporation rates and therefore some release into the estuary may be required.



Figure 8: Predicted plume extent and turbidity above background levels on a spring ebb tide (figure 6-6 in the EIS)



Figure 9: Predicted plum extent and turbidity above background levels on a peak flood tide (figure 6-7 in the EIS)

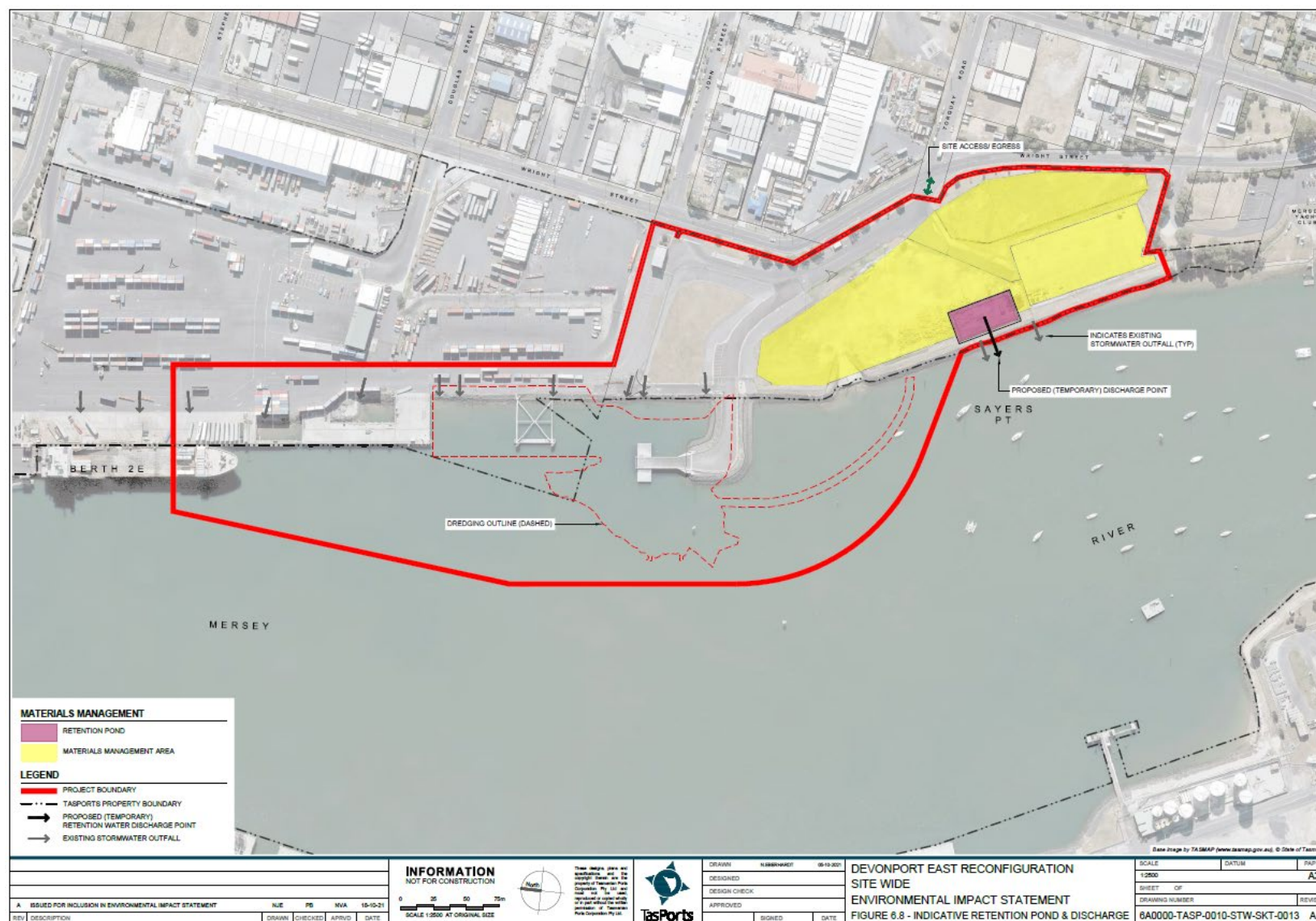


Figure 10: Proposed materials management area and drainage management

6.3.2 Management measures

Section 6.3.4.1 of the EIS discusses management measures in relation to water quality.

Turbidity

The EIS states turbidity loggers (with real time telemetering) will be installed upstream and downstream of the dredging operations, at locations consistent with the locations for the baseline assessment Figure 11. The results will be compared with reference turbidity levels based on data collected as part of environmental sampling for the proposal (refer Table 4).

The EIS proposes that if turbidity exceeds reference levels for more than 1.5 hours (six consecutive fifteen-minute measurement intervals) a reassessment of the sediment management procedures will be undertaken. Potential sources of elevated turbidity will be considered and mitigation options such as slowing the rate of dredging will be employed.



Figure 11: Proposed turbidity and water quality monitoring locations (figure 6-9 in the EIS, Marine Solutions 2020)

Table 4: Turbidity reference levels (table 6-3 of the EIS)

Monthly value	Turbidity reference level (NTU)
January	14.4
February	14.7
March	15.3
April	15.7
May	17.3
June	17.6
July	21.8
August	21.1
September	20.6
October	17.1
November	15.2
December	14.6

Water quality

Water quality monitoring at the upstream and downstream turbidity logger locations is also proposed. Monitoring will be undertaken before dredging to verify the suitability of the adopted trigger values, on the first day of dredging, and thereafter on a weekly basis. Samples will be analysed for total and dissolved metals (nickel, chromium, mercury, and manganese) with comparison to ANZG default guideline values (refer Table 5). The EIS acknowledges the likely delay in laboratory results from sampling and suggests that turbidity would be the primary trigger for adaptive management of dredging.

Table 5: Water quality monitoring trigger values (table 6-4 in the EIS)

Parameter	Trigger value	Guideline reference ^a
Nickel	7 µg/L	ANZG 99% species protection level for marine water
Chromium (Cr III)	27.4 µg/L	95% species protection for marine water
Chromium (CrVI)	1.0 µg/L	95% species protection for freshwater
Mercury (inorganic)	0.06 µg/L	99% species protection for freshwater

Any effluent proposed to be released from the materials management area back into the Mersey River will be visually inspected for signs of turbidity and tested for pH. The EIS states effluent with high turbidity or a pH below 6.5 will not be released. If high turbidity is identified the effluent will be retained for a longer period to allow suspended sediments to settle prior to discharge. Effluent with a pH lower than 6.5 would be treated by lime dosing prior to discharge.

6.3.3 Public and agency comment and responses

One representor raised concerns about the adequacy of the hydrodynamic modelling that formed the basis of the sediment plume modelling.

6.3.4 Evaluation

A peer review of sediment plume modelling was undertaken in response to queries raised during the public consultation process. The peer review report is a component of the supplement to the EIS. The report concluded that dredging is unlikely to generate significant sediment plumes in the marine environment outside the Mersey River mouth and that plumes are more likely to develop and persist within the estuary itself.

The peer review also noted that the modelling parameters were not conservative, and the report makes several recommendations for further work prior to commencement of dredging works to mitigate the potential for environmental impact. Specifically, the report recommends additional modelling and additional monitoring to that proposed in the EIS.

Recommendations include:

- 3D modelling.
- Model validation using existing Acoustic Doppler Current Profiler data, focusing on the simulation of salt wedge hydrodynamics.
- Reassessment of plume impacts and adaptive management measures based on the validated model and dredge contractor methodology.
- Near bed and surface monitoring with refined or additional monitoring sites based on model validation and refined adaptive management strategies.
- Monitoring of water level, electrical conductivity, dissolved oxygen and pH in addition to turbidity.
- Refining turbidity reference/ threshold levels including levels for both acute (hours) and chronic (days) effects.
- Vessel based plume validation.
- Vessel based plume monitoring.

While it is agreed that dredging is unlikely to significantly impact the Mersey River ecosystem based on natural turbidity fluctuations and the working nature of the port area, there remains some uncertainty about the potential dredge related impacts. The effects of the salt wedge on sediment movement within the estuary are not known and the potential impacts of longer term (chronic) turbidity have not been assessed.

The adaptive approach proposed in the EIS is supported but requires additional information for measures to be effective and practical. Adaptive measures should be refined with reference to a validated model and with consideration of the detailed dredge methodology and will be required by condition **WQ1**. Condition **WQ1** requires a Dredge Management Plan addressing the recommendations made in the peer review to be submitted to the Director for approval. The Dredge Management Plan will need to include the results of the validated sediment model and

monitoring and adaptive management practices (such as slowing or ceasing dredging) to reflect the dredge methodology detailed by the contractor.

The diversion of clean stormwater away from the materials management area using cut-off drains or bunds is supported and will be required by condition **E1**. Condition **E2** requires the retention of any sediment entrained in stormwater and condition **E3** requires a settling pond to be maintained.

Condition **CW1** (discussed in Key Issue 2) is also relevant as it requires all dredge spoil to be stored in a suitably prepared and bunded area.

The EPA water specialist agrees that contaminated sediments in dredge spoil are unlikely to have an adverse impact on water quality in the Mersey River, given the generally low contaminant levels generated by sediment elutriate testing and the high dilution rates from tidal movements and river flow. Sampling for water quality at the turbidity logger locations is supported and will be required as part of construction management (condition **CN1**).

It is noted that testing for metals in the dewatering effluent is not proposed. As discussed in Key Issue 2 the release of metal contaminants is unlikely unless acidic conditions develop in dredge spoil. Monitoring of effluent pH within the dewatering area is supported to inform any mitigation measures such as liming that may be required. Condition **E4** requires all stormwater to be treated as necessary prior to discharge and condition **E5** requires that any effluent released to the Mersey River have a pH of 6.5 or above. Condition **CN2** (Key Issue 2) is also relevant as CN2, 4.1 requires adequate provision for the storage and treatment of effluent from dredge spoil dewatering.

Vehicle wash facilities will be required to prevent dredge spoil or mud deposited on public roads by trucks leaving the site (condition **CN3**).

6.3.5 Conclusions

The proponent will be required to comply with the following conditions:

WQ1 Dredge Management Plan

- E1** Perimeter drains or bunds
- E2** Retention of sediment
- E3** Maintenance of settling ponds
- E4** Stormwater
- E5** Effluent release to the Mersey River
- CN3** Vehicle wash facilities

6.4 Key Issue 4: Biodiversity

6.4.1 Description

Impacts to biodiversity are discussed in Section 6.4 of the EIS, and an aquatic impact assessment report is provided in Appendix F of the EIS.

Terrestrial biodiversity

Section 6.4.1.1 of the EIS describes the site as a working port, entirely modified from its natural state, with a lack of any identifiable terrestrial ecological values. Bird species may overfly or forage nearby, however the site provides no nesting or natural habitats and therefore use of the site by

birds would be limited. The EIS states that, as there are no known ecological values associated with the site, impacts to terrestrial ecology are not expected.

Aquatic biodiversity

An aquatic biodiversity assessment was undertaken in June 2020 (appendix F of the EIS) and is summarised in section 6.4.1.2 of the EIS.

Although a desktop search identified several threatened aquatic communities and species that have some likelihood of occurrence (refer Table 6-5 of the EIS), only two were considered likely to occur.

Juvenile Australian grayling (*Prototroctes maraena*) are highly likely to pass through the port between mid-September and mid-November.

Giant kelp (*Macrosystis pyrifera*) has previously been recorded at the mouth of the Mersey River. The ecological community is listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. To qualify as a community, the plants must form a closed or semi-closed canopy at or below the surface in water eight meters or deeper. The EIS states that the 2015 record was in approximately 2m of water and therefore isn't representative of the endangered ecological community. The community was absent in a follow-up survey in 2016 and the decline of the kelp forest between the two surveys is believed to be associated with a broad scale decline in giant kelp communities throughout Tasmania.

Seagrass beds and scallop beds have been recorded previously at distances of 2.75km to the east and 10km to the northeast respectively. Whales, dolphins and turtles may occur near the mouth of the river.

Turbidity

Any increase in turbidity from dredging has the potential to affect aquatic organisms. Appendix F of the EIS states suspended sediments may impair the functioning of marine fauna by clogging or irritation to gills and clog the feeding apparatus of filter feeding organisms. Elevated sediment levels may also inhibit interactions such as predation, migration and feeding.

The hydrodynamic modelling presented in Section 6.3.3 of the EIS predicts a localised increase in turbidity during the period of dredging works (refer to Key Issue 3 water quality). Section 6.2.3 of the EIS states the reclamation work is not expected to increase turbidity in the estuary as the reclamation area will be inside as a rock berm, lined with geofabric to trap fine material.

Dredge spoil dewatering is proposed to be captured and retained on site to settle any fine material before discharge. Small amounts of dredging sediment may report back to the marine environment at the unloading facility (adjacent the dredge site), but the EIS states this is expected to be minor.

Elevated turbidity may affect the behaviour of Australian Grayling during the migratory season and may result in juveniles avoiding the estuary.

Sediment plume modelling suggests a passage of lower turbidity water on the western shore may remain during dredging works and the EIS states fish may also delay migration or utilise nearby river systems instead. Given the relatively short duration of dredging works (four to ten weeks), the corridor of clearer water on the western shore and the availability of nearby alternative river systems, the EIS states the likelihood of significant impact to the Australian Grayling is very low.

The EIS states the minor increase in turbidity at the mouth of the estuary during dredging is unlikely to affect the kelp community, particularly as flushing with clean water will occur during the incoming tide.

Given the low likelihood of whales, dolphins, and turtles occurring within the port short term, localised, elevated turbidity is not expected to impact on these species.

The EIS states dredging operations would not have any measurable effect on the scallop beds due to the distance from dredging works and the modelled dispersal of sediments.

Marine pests

Marine pests may be introduced to the Port of Devonport through vessels brought in from mainland Australia or overseas for the dredge works. The EIS states standard port biosecurity protocols will apply and the risk is not considered significant, particularly in the context of the area being an operational port, which already receives many vessel movements every year as part of normal operations.

An Invasive Marine Species Assessment of the vessels used for dredging will be undertaken prior to mobilisation including reviewing previous ports of call, records of maintenance slipping, removal of biological growth and application of antifoul to hulls.

Other potential impacts

Impacts to marine species from underwater noise is addressed under Key Issue 1: Noise.

The potential for impacts from water contamination are addressed under Key Issue 2 and Key Issue 3. The results of sediment characterisation suggests the potential for contamination is low providing appropriate management is in place.

6.4.2 Management measures

The following measures are included in Section 6.4.4 of the EIS:

- Where possible dredging will avoid the period of Australian Grayling migration (mid-September to mid-November) to limit the potential for impact to this species. The proposed turbidity monitoring and adaptive management (Section 6.3.4 of the EIS) will assist in managing turbidity at acceptable levels should the migratory period not be avoidable due to equipment availability and other logistical constraints.
- Turbidity and water quality monitoring will be undertaken as set out in Section 6.3.4 of the EIS and additional mitigation measures applied if results are above those predicted.
- All vessels used as part of the project will be required to undergo standard biosecurity measures to limit the potential for introduction of marine pests.

The following commitments are included in Table 8-1 of the EIS.

- Commitment 13: Where possible dredging will not be undertaken during the annual Australian Grayling migration (mid-September to mid-November).
- Commitment 14: All vessels will be required to undergo standard biosecurity measures to limit the potential for introduction of marine pests.
- Commitment 15: An Invasive Marine Species Assessment of the vessels to be utilised for dredging will be undertaken prior to mobilisation including reviewing previous ports of call and records of maintenance slipping, removal of biological growth and application of antifouling to hulls.

Turbidity and water quality monitoring are discussed under Key Issue 3: water quality.

Section 6.1.4.2 of the EIS discusses mitigation measures associated with underwater noise and includes using a marine mammal observer and soft starts of dredging equipment to reduce the risk

of direct encounters between dredge equipment and marine species, particularly seals. The EIS states these measures will be included in the CEMP for the proposal.

6.4.3 Public and agency comment and responses

The Conservation Assessment Section of Natural Resources and Environment Tasmania (CAS) provided the following comments:

- The recommendation to avoid dredging mid-September to mid-November to prevent impacts to the Australian Grayling is supported. Juvenile Grayling are likely to be passing through the port as part of their lifecycle during this period and there is potential for impact to this migration due to elevated turbidity.
- The use of soft starts, observation and stop-work zones for mitigating risk to marine mammals is supported.
- The use of silt curtains/screens or slowing the rate of dredging where possible to contain sediment will reduce marine environment impacts and any potential increased turbidity.

6.4.4 Evaluation

The commitment to avoid dredging between mid-September and mid-November is supported to limit the potential for impact to the Australian Grayling. This is in accordance with recommendations by CAS. Condition **FFI** prevents dredging during this period unless otherwise approved in writing by the Director.

The inclusion of monitoring and management of turbidity in the CEMP is supported and will be required by condition **CNI** (required under Key Issue 1: Noise). The inclusion of mammal management measures such as soft starts and the use of a mammal observer in the CEMP is also required by condition **CNI**. A number of conditions relating to water quality management outlined in Key Issue 3: Water quality are also relevant to management of biodiversity impacts. These include conditions **E1**, **E2**, **E3** and **E4** which specify appropriate stormwater management infrastructure for sediment and pollutant retention for land based site works.

6.4.5 Conclusions

The proponent will be required to comply with the following conditions:

FFI Protection of Australian Grayling (*Prototroctes maraena*)

7 Other Issues assessed by the Board

In addition to the key issues, the following environmental issues are considered relevant to the proposal and have been evaluated in this section:

1. Air quality
2. Groundwater
3. Waste (excluding dredge spoil)
4. Marine and coastal
5. Dangerous goods and environmentally hazardous materials
6. Greenhouse gas emissions and climate change
7. Social and economic issues

Issue 1: Air quality
Description of potential impacts
<p>During construction, dust emissions may result from heavy vehicles on site, materials handling, and airborne sediments from stockpiles. Odour emissions may be associated with sulphides and organic matter in the stockpiled dredge material</p> <p>Sensitive receivers are identified under Key Issue 1: Noise The closest residential property is on Wright Street, approximately 60 m from the proposed access route for trucks travelling from the unloading facility to the materials management area.</p> <p>Residential properties are also located along Tarleton Street, approximately 100m from the proposed materials management area. The Mersey Yacht club lies immediately south of the proposed materials management area, with the club house itself approximately 127 m from the site boundary.</p> <p>The EIS states the majority of the work involves the movement and handling of material with very high moisture levels and therefore low potential for dust generation. As the excavated material dewatered there is some potential for dust generation from exposed stockpiles and handling, however this will be limited by the works program which involves stockpiling of material for only a short period of time prior to reuse or offsite disposal.</p> <p>The EIS states sampled sediments had relatively low sulphide and are therefore not expected to be a significant source of odour during stockpiling and dewatering. It is noted that some odour was detected during sampling which indicates at least some degree of odour generation from fresh sediments. The EIS states that although residences are located close to the site boundary, any odours are expected to dissipate quickly.</p>
Management measures proposed in EIS
<p>Section 6.5.4 of the EIS includes the following mitigation and management measures for air emissions:</p> <ul style="list-style-type: none"> • Road sweepers and vehicle wash down to limit the build-up of potentially dusty material from roads and hardstand areas. • Trucks entering or leaving the site will use sealed roads. • Loads will be covered if there is a risk of dust generation. • Inspections of the sediment storage areas conducted daily to monitor for potential dust and odour. • Consultation with affected stakeholders and additional measures (covering, mixing or removal of offending stockpiles from site) if nuisance odours are detected. • In the case of nuisance dust, water sprays for stockpiles, additional washdown, and/or lining of the materials management area boundary fence with geofabric, or similar, to limit dust movement. • An Incidents and Complaints Register will be established. <p>The following commitments are included in table 8-1 of the EIS:</p> <ul style="list-style-type: none"> • Commitment 16: Trucks carrying loads to and from the site will be assessed for the potential to generate dust and will be covered if dust generation is expected. • Commitment 17: Daily site inspections will be undertaken to monitor for potential dust and odour from the site and if offsite impacts are detected additional mitigation measures will be employed.

Public and agency comment
No public or agency comments received.
Evaluation
<p>The proposed measures to manage dust on site are standard ways to limit nuisance dust from construction activities and are considered appropriate. Although dredge spoil generally contains high levels of moisture, levels will reduce during dewatering and there is the potential for nuisance dust generation, particularly as sensitive receivers are located in close proximity to the construction area. Condition A1 is necessary to ensure appropriate management is undertaken to manage dust emissions.</p> <p>Internal roads used for carting of materials are also in close proximity to sensitive receivers and condition A2 requires measures such as road dampening to be used where truck movement are likely to generate dust.</p> <p>Condition A3 is included to ensure any materials transported offsite are covered as these materials will be dewatered before transport.</p> <p>Sediment characterisation (Key Issue 2) did detect sulphide in samples, and it is noted some odour was detected during sampling. Management of any odour will be required by condition A4 which requires measures to be implemented as necessary to prevent odours causing environmental nuisance beyond the site boundary.</p> <p>The control of dust and odour is also specified in the CEMP required by condition CNI (Key Issue 1).</p>
Conclusion
<p>The proponent will be required to comply with the following conditions:</p> <ul style="list-style-type: none"> A1 Control of dust emissions during construction A2 Dust emissions from traffic areas A3 Covering of vehicles A4 Odour management

Issue 2: Groundwater
Description of potential impacts
<p>The EIS states groundwater is likely to flow from east to west into the Mersey River, and predominantly perpendicular to the riverbank. There are no known groundwater bores located within 500 m of the site. The nearest bore is located approximately 1 km to the east and upgradient.</p> <p>No land based excavations are proposed as part of the proposal and therefore ground water interception is unlikely. The EIS states the risk of contamination of ground water is considered to be low as:</p> <ul style="list-style-type: none"> • Laydown and storage areas will be on suitably graded hardstand to allow drainage, collection, retention and treatment of runoff limiting the potential for infiltration to groundwater. • The likelihood of contaminants being produced within stockpiles is low.
Management measures proposed in EIS
<p>No specific groundwater management measures are proposed in the EIS. Measures to manage impacts to surface water and impacts from fuel and chemical spills relevant and are discussed under Key Issue 3: Water quality and Issue 5: Dangerous goods and environmentally hazardous materials.</p>
Public and agency comment
<p>No public or agency comments received.</p>
Evaluation
<p>Given the absence of identified groundwater users in the area and management of surface water as discussed under Key Issue 3 and Issue 5, it is agreed the risk of groundwater impact is low.</p>
Conclusion
<p>No specific conditions are required.</p>

Issue 3: Waste (excluding dredge spoil)
Description of potential impacts
<p>Inappropriate management and disposal of solid waste may result in public health or amenity impacts, or environmental nuisance or harm.</p> <p>During dredging and construction of the reclamation area, site personnel may produce general solid wastes such as papers, plastics, food materials and empty bottles. Construction wastes will also be produced.</p> <p>Dredge spoil waste is discussed in Key Issue 2: Sediment quality.</p>
Management measures proposed in EIS
<p>Section 6.7 of the EIS states construction wastes will be segregated into recyclables and landfill and stored in sealed containers within or adjacent to the site office and regularly removed from site to a suitable waste facility. Waste management is proposed to be included in the CEMP. No waste management commitments are included in Table 8-1 of the EIS.</p>
Public and agency comment
<p>No public or agency comments received.</p>
Evaluation
<p>The construction waste management measures outlined in the EIS (Section 6.7) are supported, and if implemented will reduce the potential for environmental impacts from wastes. The inclusion of waste management in the CEMP is supported and will be required by condition CNI (required under Key Issue 1: Noise).</p> <p>Other Information OII, Waste management hierarchy, provides details about appropriate management of general solid and liquid waste.</p>
Conclusion
<p>No specific conditions are required.</p> <p>The proponent is made aware of the following:</p> <p>OII Waste management hierarchy</p>

Issue 4: Marine and coastal

Description of potential impacts

Hydrodynamic modelling was undertaken to determine any likely changes and potential impacts to the marine and coastal environment as a result of the dredging and land reclamation. Modelling is presented in Appendix F and summarised in section 6.8 of the EIS.

The EIS states that the area proposed for dredging (Eastern Berth 3) is not typically subjected to direct ocean swell. Swell entering the estuary generally refracts to either side, not reaching the berth. Wind generated swell is generally very small as the fetch distance is not sufficient to allow for build-up of waves within the port zone. Currents within the port are generally influenced by tides and flood events within the catchment.

The EIS states, given the location of the berth and nature of wave patterns in the estuary, the proposed dredging and reclaim would have negligible effect on swell waves or wind waves in the port. No changes in current direction are expected as the reclamation area is an extension to an existing rock wall and the shape of the shoreline will not be substantially altered. Tidal conditions and flood flows in the Mersey River will also not be altered by the works.

The hydrodynamic assessment found that any small changes to current directions and velocities in the port area caused by the works are very unlikely to have any appreciable effect on sediment movement or accumulation once the dredging work is complete. The EIS states that, based on the results of the hydrodynamic modelling, the proposal is expected to have a negligible effect on estuarine processes.

The hydrodynamic modelling was also used to inform the assessment of potential impacts from turbidity (sediment plume). Modelling indicates a turbidity plume of 2 NTU above background levels may extend approximately 900m from the river mouth (further discussed under Key Issue 3: Water quality).

The location of commercial fishing areas is shown in Figure 11 and indicates the nearest extent of the scallop bed is located approximately 10km from the river mouth.

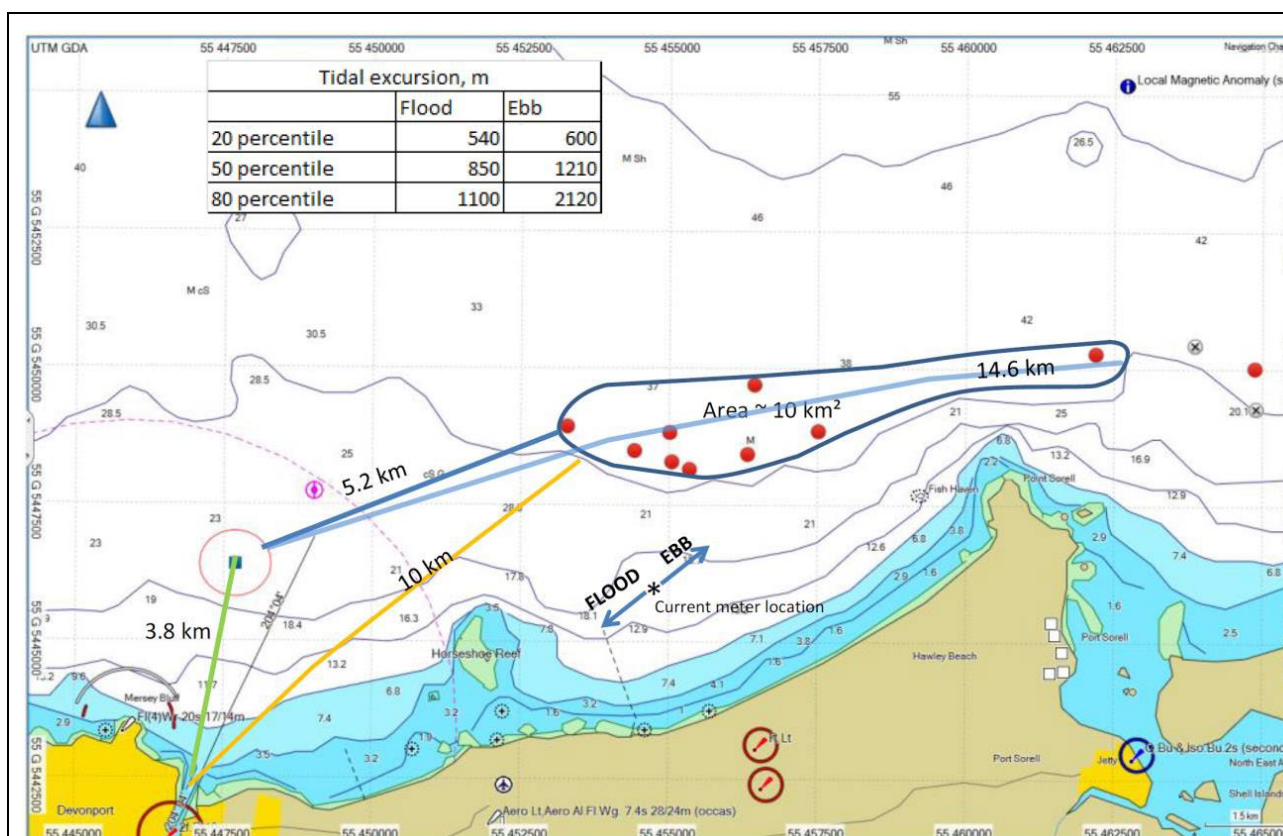


Figure 12: Approximate extent of commercial scallop bed northeast of Devonport. Red dots are where scallops were present in 2015 trial catch tows (figure 14 in Appendix F of the EIS).

Management measures proposed in EIS

No management measures for impacts to estuarine processes are included in the EIS. The management of other aspects of marine and coastal impacts (e.g. water quality, turbidity and biodiversity) are discussed in Key Issue 3: Water quality and Key Issue 4: Biodiversity.

Public and agency comment

One representor questioned the validity of the hydrodynamic modelling stating that modelling undertaken in 2015 failed to predict sediment impact from dredging to offshore scallop beds.

The representor noted a post dredging survey of the scallop bed to the east of the mouth of the Mersey River was undertaken in October 2015 and the survey suggested the scallop bed was impacted as a result of dredging and the dumping of dredge spoil. The representor noted the survey was not referenced in the EIS.

Evaluation

Supplementary information provided confirmed the hydrodynamic assessment for the EIS was independent and not based on the 2015 model. The proponent has confirmed site specific Mersey River data was collected for the 2020 modelling. Based on the hydrodynamic modelling it is agreed there is unlikely to be any measurable change to marine and estuarine processes, from the proposed dredging and land reclamation.

Supplementary information provided by TasPorts discussed the 2015 survey raised by the representor and notes the survey addressed significantly different dredge activities, location, sediment types and disposal methodologies. The survey report assessed a project associated

with maintenance dredging and offshore disposal of 340,000 m³ of spoil. The scallop beds considered in 2015, were located approximately 5 km from the 2015 offshore dredge disposal site, and approximately 10 km northeast of the Mersey River mouth.

The 45,900 m³ of material removed as part of the proposal is proposed to be disposed of on land with no offshore disposal. Based on the results of turbidity modelling presented in Key Issue 3: Water quality, the scallop beds are well outside of the possible area of impact of the current proposal.

The evaluation of other marine and coastal impacts (water quality, turbidity and biodiversity) is discussed in Key Issue 3: Water quality and Key Issue 4: Biodiversity.

Conclusion

No specific permit conditions are required.

Issue 5: Dangerous goods and environmentally hazardous materials

Description of potential impacts

Inappropriate storage and handling of chemical wastes and other environmentally hazardous materials has the potential to contaminate land and water.

Section 2.3.6 of the EIS states fuel and oils will be required for plant and vehicles. The EIS states if the marine based option is selected, the backhoe dredge and barges will arrive to site with little to no fuel on board, and will be towed into position by a tug. It is expected that the backhoe dredge will require one delivery of fuel and will store all its fuel on board the vessel. A backhoe dredge of the type required typically has a carrying capacity of 50,000 litres. No fuel will be required for the barges as these are unpowered. Waste oils may be stored on the backhoe dredge if this option is used for dredging.

All landside plant will be refuelled with commercial road tankers on site at a designated refuelling location.

Additional materials that may be used during dewatering of the dredge spoil and construction of the reclamation area include lime, blast furnace slag and Portland cement. None of these are classed as dangerous or hazardous goods however, however the EIS states there is some residual environmental risk associated with their storage and use. The EIS states activated carbon will also be used during spoil dewatering but is not considered to pose an environmental risk.

Management measures proposed in EIS

Section 6.9.4 of the EIS states the Port of Devonport's liquid cargo and refuelling procedures would apply to the management of fuels and oils on board the backhoe dredge and these will be documented in the CEMP for the project. Management measures include having appropriate fuel containment mechanisms (spill kits, bunding etc) and notification processes in place.

Materials brought to site (lime, blast furnace slag and Portland cement), will be stored at a designated facility at the materials management area with appropriate storage and handling protocols set out in the CEMP.

The contractor will be required, to have compliant fuel storages, containment and refuelling procedures, adequate spill response for all vehicles and vessels and a fuel bunkering safe operating procedure. The EIS states management measures to be included in the CEMP include refuelling of equipment over water during daylight hours only, the use of biodegradable oils where possible, the appropriate bunding and storage of hazardous materials, and the use of spill response kits. Compliance will be audited against the CEMP.

The following commitments are included in Section 8, table 8-1 of the EIS:

- The contractor will be required to develop a fuel bunkering safe operating procedure and ensure adequate spill response is provided for all vehicles and vessels (Commitment 18).
- All fuel, lubricant and chemical storage and handling will be compliant with dangerous goods storage and handling standards and regulations and AS 1940:2017 (Commitment 19).

Public and agency comment

No public or agency comments received.

Evaluation

The appropriate storage and management of environmentally hazardous materials (commitments 18 and 19) is supported and will be required by conditions **H1** and **H2**. Conditions **H1** and **H2** require that all environmentally hazardous materials held on the Land be kept within containment systems such as impervious bunded areas or spill trays, appropriate for the volume of material. The provision of onsite spill kits will be required by condition **H3**. The inclusion of measures to manage dangerous goods and environmentally hazardous materials in the CEMP is supported and required by condition **CNI** (required under Key Issue 1: Noise) **LO4** is included to provide information on the proponent's responsibilities relating to hazardous materials including the work *Health and Safety Act 2012* and subordinate legislation.

Conclusion

The proponent will be required to comply with the following conditions:

- H1** Storage and handling of hazardous materials
- H2** Handling of hazardous materials – mobile
- H3** Spill kits

The following is included for information:

- LO4** Storage and handling of dangerous goods, explosives and dangerous substances

Issue 6: Greenhouse gas emissions and climate change
Description of potential impacts
Greenhouse gases will be generated during construction activities, from vehicle emissions on site and from transport of materials to and from the site.
Management measures proposed in EIS
The EIS states all machinery and equipment will be well maintained to ensure no unnecessary emissions occur.
Public and agency comment
No public or agency comments received.
Evaluation
There is currently no requirement under Federal or State legislation for industry to demonstrate offsetting of emissions generated.
Conclusion
No specific conditions are required.

Issue 7: Social and economic issues
Description of potential impacts
<p>The EIS states the provision of new port infrastructure is essential to the ongoing passenger and freight capability of Devonport and will have positive implications for the local and regional economy.</p> <p>Dredging will be scheduled to minimise impacts to other port users and ensure continued operation of the working port and passage for commercial and recreational vessels. The nearest recreational swimming areas are at the mouth of the estuary, and well outside of the predicted area of impact.</p> <p>The EIS states the project is expected to generate some local employment opportunities, with preference given to local contractors where possible.</p>
Management measures proposed in EIS
No management measures are proposed in the EIS.
Public and agency comment
One representor requested a socio economic study on the financial impact to recreational fishing, commercial fishing and tourism as a result of environmental damage such as sedimentation, discolouration and loss of amenity.
Evaluation
<p>The objectives of Tasmania's Resource Management and Planning System encompass the social and economic aspects of resource use and development as well as the environmental aspects. It is therefore appropriate for the Board to consider the social and economic aspects of a proposal in its assessment process.</p> <p>Commercial fisheries that operate within the central Bass Strait include rock lobster, abalone, scalefish, and octopus fisheries. The EIS supplement states the utilisation of commercial fishing blocks near the Mersey River mouth is generally very low.</p> <p>Sedimentation and impacts to water quality is discussed in Key Issue 3: Water quality, with hydrodynamic modelling indicating impacts to commercial fishing are not expected.</p> <p>The EIS supplement states that while recreational fishing occurs upstream of the port area and outside the river mouth, relatively little fishing occurs within the Port of Devonport. Recreational activities such as rowing, yachting and life saving, may experience impacts during the 4 to 10 week construction period. The supplement states tourism activity within the port area is limited to transport associated with the Spirit of Tasmania ferry.</p> <p>Based on the information presented in the EIS and the supplement to the EIS, it is considered unlikely that significant impacts to social and economic values would occur. The Board notes the likely economic and employment benefits of the proposal.</p>
Conclusion
No specific conditions are required.

8 Issues not assessed by the Board

Traffic was raised as an issue during the assessment process but is not the Board's responsibility under the EMPC Act, and is more appropriately addressed by Devonport City Council as the appropriate regulatory agency.

Issue 1: Traffic
Description of potential impacts
<p>Vehicle movements to and from the site will include delivery and removal of plant and equipment, staff vehicles, trucks removing excess dredge material from the site and trucks bringing additional reclamation material to the site if required.</p> <p>The EIS states mobilisation and demobilisation will potentially involve oversized trucks but will be undertaken during daylight hours, over a short period, and would represent a very small increase in traffic. The EIS also states any additional reclamation material required would only result in a small number of additional truck movements, all during daylight hours.</p> <p>Staff vehicle movements related to the proposal would represent a very small number of light vehicle movements in an already busy industrial area.</p> <p>The Bass Highway is located 500m south of the site and is an arterial transport route for the state. Access to and from the Bass Highway is via Tarleton Street and Wright Street. The EIS states all roads to be used for site access are well established transport routes providing existing access to the port and the proposed traffic volume and composition is well within the available limits for these routes.</p>
Management measures proposed in EIS
<p>Excess dredge material not being used in the land reclamation will be removed from the site. This will occur only during daylight hours and at an approximate rate of up to four trucks per hour for a duration of up to eight weeks.</p> <p>Other traffic management measures relate to dust and noise emissions and are discussed in Sections 6 and 7 of this report.</p>
Conclusion
No conditions are required.

9 Report Conclusions

This assessment has been based on the information provided by the proponent - Tasmanian Ports Corporation, in the case for assessment (the EIS), and Additional Information provided in the form of a Supplement.

This report incorporates specialist advice provided by EPA scientific specialists and regulatory staff, Divisions of NRE, and other government agencies, and has considered issues raised in public submissions.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal;
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles; and
3. the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Environment Protection Notice no. 102221/I appended to this report is issued and served and its requirements are duly complied with.

10 Report Approval

Environmental Assessment Report and conclusions, including environmental conditions, adopted:



Andrew Paul

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

Meeting date: 3 May 2022

II References

ERA Planning and Environment (2021); *Devonport East Terminal 3 (T3) Dredging and Reclaim Project* (dated 15 December 2021); ERA Planning and Environment, Hobart, Tasmania.

TasPorts (2022); *Devonport East Terminal 3 Dredging and Reclaim Project Port of Devonport Response to Request for Additional Information* (dated 10 March 2022); Tasmanian Ports Corporation Pty Ltd, Launceston, Tasmania.

12 Appendices

- Appendix 1 Summary of public and agency submissions
- Appendix 2 Table of proponent commitments
- Appendix 3 Environment protection notice

Appendix I - Summary of public representations and agency submissions

Representation No. / Agency	EIS Section/ page no.	Comments and Issues	Further info	EPA comments
1	6.8 and Appendix F	Representor noted a post dredging survey of the scallop bed to the east of the mouth of the Mersey River was undertaken in October 2015 with the results reported to TasPorts. The representor states the survey suggested the scallop bed was impacted by dredging and the dumping of dredge spoil in 2015. The representor notes the survey was not referenced in the EIS.	Yes	The survey results provided to TasPorts in 2015 should be reviewed and referenced in the EIS with any relevant information included.
1	Section 6.2, 6.3, 6.8, App F page 37	Representor states the flood events that are believed to have caused the change in scallop numbers (Marine Solutions/ Aquanel 2016) occurred in June 2016, seven months after the October 2015 survey and report which suggested the scallop bed had been impacted.	Yes	The statement on page 37, Appendix F of the EIS requires clarification with reference to the survey results provided to TasPorts in 2015.
1	Section 6.2, 6.3, 6.8, App F	Representor states the CEE 2015 sediment modelling report did not predict the likelihood of silt impacts to the scallop bed. The representor suggests the 2015 sediment modelling was flawed and questions the validity of the 2020 modelling in Appendix F of the EIS which was based on the 2015 modelling.	Yes	Justify the basis of the 2020 CEE modelling taking into account any factors that may have resulted silt impacts to the scallop bed in 2015. Confirm the dredging area of impact considering any changes to sediment plume modelling based on the above.
1	6.10	Representor requests a socio-economic study on the financial impact on recreational fishing, commercial fishing and tourism caused by environmental damage, sedimentation, discolouration and loss of amenity.	Yes	Describe the recreational and commercial marine values of the coast around the Mersey River mouth. Describe and assess the likelihood of any financial impacts to recreational and commercial marine values as a result of the dredging and land reclamation activity.
1	App F page 37	Representor notes a number of comments on the Gwyther report (<i>Gwyther, D. 2014, Review of risks to scallops and scallop fisheries from sedimentation</i>) were provided to TasPorts at the time of preparing the	No	The contents of the Gwyther report do not require further consideration for the current proposal.

		<p>Adaptative Dredging Management Plan for dredging in 2015. In particular the representor notes the following:</p> <ul style="list-style-type: none"> The research cited in 5.2.1 of the ADMP was conducted in Port Phillip Bay and is not relevant as PPB is an entirely different ecosystem, was conducted over a short period and as a snapshot of what occurs when a bed is being harvested, not when a bed is being left undisturbed to reach maturity. 5.2.2 is in New Zealand on a different species conducted over 14 days and again is not relevant to long term impacts <p>5.2.3 is a UK study and again is not relevant, is a different species, is conducted over 18 days and does not look at long term impacts</p>		
1.	Section 6.2, 6.3, 6.8	Representor requests the development of an environmental offset in the marine environment to contribute to the conservation of natural values outside the dredge plume footprint and area of impact.	No	<p>Confirmation of the dredging footprint of impact is considered above.</p> <p>The development of an environmental offset is not required.</p>
1.	Section 6.2, 6.3, 6.8	Representor requests an acknowledgement that all dredging will have some impact on the marine environment and a demonstration that the impact will be As Low as Reasonably Possible (ALARP).	No	The impact to the marine environment from the dredging activity is being assessed as part of the proposal before the Board.

Appendix 2 – Table of proponent commitments

No.	Commitment	Phase	EIS Section
1	Transportation of excess dredge spoil off site to a licenced (or otherwise permitted) facility will occur only on weekdays during daylight hours (7am to 6pm Monday to Friday).	Construction	Noise (6.1)
2	In the event dredging is to be undertaken outside the adopted standard operating hours of 7am to 6pm weekdays and 9am to 5pm Saturdays, a Noise Management Plan in accordance with the NSW EPA Draft Construction Noise Guidelines will be prepared and submitted to the EPA prior to the commencement of works.	Construction	Noise (6.1)
3	A Construction Environmental Management Plan (CEMP) reflecting the commitments in this EIS will be prepared prior to the commencement of construction.	Pre-construction	Noise (6.1)
4	An Incident and Complaints Register will be established, and all complaints recorded, actioned and the outcomes communicated back to the complainant.	Pre-construction	Noise (6.1)
5	To mitigate the risk of underwater noise impact on aquatic species, soft starts will be employed, and a stop work zone of 300m will be applied around the dredge in the event marine mammals or reptiles are sighted in this zone.	Construction	Noise (6.1)
6	A Waste Material Management Plan will be prepared and submitted to the EPA prior to the commencement of dredging.	Pre-construction	Sediment (6.2)
7	Unconsolidated material extracted from the dredge area will be subject to characterisation sampling in accordance with Information Bulletin 105 prior to reuse in the reclamation area or offsite reuse or disposal.	Construction	Sediment (6.2)
8	Turbidity loggers will be deployed, in the Mersey, prior to and during dredging, and if turbidity levels exceed the adopted turbidity reference levels then further investigations will be carried out to confirm the source of the increased levels, AND if elevated turbidity is attributable to the dredging, then sediment management measures will be reassessed and mitigation measures put in place.	Construction	Water (6.3)
9	Weekly water quality monitoring for dissolved nickel, chromium, manganese and mercury will be undertaken in the Mersey during dredging and if results are found to exceed the adopted guideline values, sediment management measures will be reassessed and mitigation measures put in place, if elevated water quality results are attributable to dredging.	Pre-construction and construction	Water (6.3)

No.	Commitment	Phase	EIS Section
10	Weekly pH checks will be undertaken in the drainage system at the materials management area and if pH is below 6.5, discharge will be halted, and water treated in accordance with the Tasmanian Acid Sulfate Soils Guidelines prior to discharge.	Construction	Water (6.3)
11	Prior to the release of water from the retention system back into the Mersey River, water will be visually inspected for signs of turbidity and tested for pH. In the event water in the retention area has visible signs of high turbidity or a pH result below 6.5, the water will not be released, and treatment applied in accordance with the Tasmanian Acid Sulfate Soils Guidelines prior to discharge.	Construction	Water (6.3)
12	Daily visual monitoring will be undertaken in the drainage system at the materials management area to monitor for signs of turbidity and any visual or olfactory signs of acidification.	Construction	Water (6.3)
13	Where possible dredging will not be undertaken during the annual Australian grayling whitebait migration (mid-September to mid-November).	Construction	Biodiversity (6.4)
14	All vessels used as part of the project will be required to undergo standard biosecurity measures to limit the potential for introduction of marine pests.	Construction	Biodiversity (6.4)
15	An Invasive Marine Species Assessment of the vessels to be utilised for dredging will be undertaken prior to mobilisation including reviewing previous ports of call and records of maintenance slipping, removal of biological growth and application of antifoul to hulls.	Construction	Biodiversity (6.4)
16	Trucks carrying loads to and from the site will be assessed for the potential to generate dust and will be covered if dust generation is expected.	Construction	Air (6.5)
17	Daily site inspections will be undertaken to monitor for potential dust and odour from the site and if offsite impacts are detected additional mitigation measures will be employed as set out in this EIS.	Construction	Air (6.5)
18	The contractor will be required to develop a fuel bunkering safe operating procedure and ensure adequate spill response is provided for all vehicles and vessels.	Pre-construction	Dangerous goods and environmentally hazardous materials (6.9)
19	All fuel, lubricant and chemical storage and handling will be compliant with dangerous goods storage and handling standards and regulations and AS 1940:2017.	Construction	Dangerous goods and environmentally hazardous materials (6.9)

Appendix 3 – Environment protection notice



ENVIRONMENT PROTECTION AUTHORITY



ENVIRONMENT PROTECTION NOTICE No. 10222/1

Issued under the *Environmental Management and Pollution Control Act 1994*

Issued to: **TASMANIAN PORTS CORPORATION PTY LTD trading as TasPorts**
ACN 114 161 938
48 FORMBY ROAD
DEVONPORT TAS 7310

Environmentally Relevant Activity: **The operation of dumping of dredge spoils within waters within limits of the state (ACTIVITY TYPE: Dumping or sinking of boats, aircraft, platforms or other man-made structures in waters within the limits of the State or placement of artificial reefs in waters within the limits of the State)**
PORT OF DEVONPORT, PORT OF DEVONPORT
DEVONPORT EAST TAS 7310

GROUND

I, Wes Ford, Delegate for the Board of the Environment Protection Authority, being satisfied in accordance with section 44(1A) of the *Environmental Management and Pollution Control Act 1994* (EMPCA) that in relation to the above-mentioned environmentally relevant activity that serious or material environmental harm or environmental nuisance is being, or is likely to be, caused hereby issue this environment protection notice to the above-mentioned person as the person responsible for the activity.

PARTICULARS

The particulars of the grounds upon which this notice is issued are:

- 1 The above activity, being an environmentally relevant activity which does not require a land use permit, was required to be referred to the EPA under Section 27 of the EMPCA for environmental impact assessment. Having completed its assessment, the Board of the EPA has caused the Director to issue this environment protection notice containing conditions and restrictions which the Board requires to apply to the activity.

DEFINITIONS

Unless the contrary appears, words and expressions used in this Notice have the meaning given to them in Schedule 1 of this Notice and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Notice, the EMPCA prevails to the extent of the inconsistency.

REQUIREMENTS

The person responsible for the activity must comply with the conditions as set out in Schedule 2 of this Notice.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

PENALTIES

If a person bound by an environment protection notice contravenes a requirement of the notice, that person is guilty of an offence and is liable on summary conviction to a penalty not exceeding 1000 penalty units in the case of a body corporate or 500 penalty units in any other case (at the time of issuance of this Notice one penalty unit is equal to \$173.00).

NOTICE TAKES EFFECT

This notice takes effect on the date on which it is served upon you.

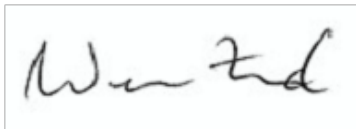
APPEAL RIGHTS

You may appeal to the Appeal Tribunal against this notice, or against any requirement contained in this notice, within fourteen days from the date on which the notice is served. The Appeal Tribunal contact details are:

Registry
Tasmanian Civil & Administrative Tribunal
GPO Box 1311
Hobart TAS 7001

Phone: 1800 657 500
Email: resourceplanning@tascat.tas.gov.au

Signed:



DELEGATE FOR THE BOARD OF THE ENVIRONMENT PROTECTION
AUTHORITY

Date: 6 May 2022

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Schedule 1: Definitions

Aboriginal Relic has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Construction means activities associated with the construction phase of the activity, including but not limited to, activities associated with the clearance of vegetation, site works to create a level site, rock breaking, installation of fences and other infrastructure whether on land or in water.

Controlled Waste has the meaning described in Section 3(1) of EMPCA.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

EIS means the *Devonport East Terminal 3 (T3) Dredging and Reclaim Project Environmental Impact Statement* prepared for TasPorts in December 2021 by ERA Planning and Environment.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Information Bulletin 105 Classification and Management of Contaminated Soil for Disposal, Version 3 2018

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Rating background level has the meaning described in the NSW EPA Noise Policy for Industry 2017.

Sediment Plume Modelling Review Report means *TasPorts Quaylink EIS - Review of Sediment Plume Modelling* prepared for TasPorts on 14 April 2022 by BMT Commercial Australia Pty Ltd.

Stormwater means water traversing the surface of The Land as a result of rainfall.

Tasmanian Noise Measurement Procedures Manual means the document titled *Noise Measurement Procedures Manual*, by the Department of Environment, Parks, Heritage and the Arts, dated July 2008, and any amendment to or substitution of this document.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

- 1** Title references: 144260/1 and 134138/1; and
- 2** as further delineated at Attachment 1.

Schedule 2: Conditions

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G3 No changes without approval

- 1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:
 - 1.1 a change to a process used in the course of carrying out the activity; or
 - 1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
 - 1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G4 Change of responsibility

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person succeeding him or her as the person responsible for the activity, before such cessation.

G5 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G6 Complaints register

- 1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
 - 1.1 the date and time at which the complaint was received;
 - 1.2 contact details for the complainant (where provided);
 - 1.3 the subject matter of the complaint;
 - 1.4 any investigations undertaken with regard to the complaint; and
 - 1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.

- 2 Complaint records must be maintained for a period of at least 3 years.

G7 Notification prior to commencement

The Director must be notified in writing of the commencement of operations at least 14 days before that occurs.

Atmospheric

A1 Control of dust emissions during construction

- 1 Construction activities must be managed using such measures as are necessary to prevent dust emissions causing environmental nuisance. Such measures may include but are not limited to:
 - 1.1 using a dust suppression method such as watering dust generating surfaces; and
 - 1.2 ceasing construction activities in windy weather when dust may be blown in the direction of residences.

A2 Dust emissions from traffic areas

Dust emissions from areas of The Land used by vehicles must be limited or controlled by dampening or by other effective measures.

A3 Covering of vehicles

Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land or travel on public roads. Effective control measures may include tarpaulins or load dampening.

A4 Odour management

The person responsible must institute such odour management measures as are necessary to prevent odours causing environmental nuisance beyond the boundary of The Land.

Construction

CN1 Construction Environmental Management Plan

- 1 At least 1 month prior to the commencement of construction activities, or by a date otherwise specified in writing by the Director, a Construction Environmental Management Plan ('Construction EMP') must be submitted to the Director for approval.
- 2 The Construction EMP must contain a detailed description of the proposed timing and sequence of the major construction activities and of the proposed management measures to be implemented to avoid or minimise the environmental impacts during the construction phase. The Construction EMP must include, but not necessarily be limited to, management measures in relation to the following:
 - 2.1 prevention of impacts upon surface water and waterways;
 - 2.2 erosion and sediment control;
 - 2.3 water quality monitoring based on a validated 3D sediment plume model consistent with recommendations made in the Sediment Plume Modelling Review Report;
 - 2.4 adaptive management for turbidity and water quality within the Mersey River;
 - 2.5 noise control, including mitigation of aquatic noise impacts;
 - 2.6 dust and odour control;
 - 2.7 management of environmentally hazardous materials;
 - 2.8 cultural (Aboriginal and non-aboriginal) heritage considerations;

- 2.9 flora and fauna management including the use of a mammal observer during dredging;
- 2.10 weed, pest and disease management;
- 2.11 general waste
- 2.12 visual inspection of materials in the materials management area for signs of acidity and monitoring of water within the materials management area for pH;
- 2.13 quality control arrangements including supervision by appropriately qualified and experienced persons, detailed construction specifications for key items of environmental management infrastructure, documented site procedures, quality control testing and the keeping of appropriate records.
- 3 Construction must not commence until the Construction EMP has been approved by the Director.
- 4 Unless otherwise specified in writing by the Director, construction activities must be carried out in accordance with an approved Construction EMP.

CN2 Waste Materials Management Plan

- 1 At least 1 month prior to the commencement of construction activities, or by a date otherwise specified in writing by the Director, a waste materials management plan must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to the Director's satisfaction.
- 2 The plan must be consistent with Sections 6.2 and 6.3 of the EIS.
- 3 The plan must be prepared in accordance with any reasonable guidelines provided by the Director.
- 4 Without limitation, the plan must include details of the following:
 - 4.1 adequate provision for storage and treatment of effluent from dredge spoil dewatering;
 - 4.2 visual inspections and sampling for pH;
 - 4.3 contingency measures to be implemented if acidic conditions develop in stockpiled material;
 - 4.4 specifications for material suitable for use in the reclamation area including arsenic, chromium, manganese, mercury, nickel tributyl tin and pH levels;
 - 4.5 quality control measures for materials to be used for land reclamation including sampling and reporting;
 - 4.6 procedures for removal of excess dredge spoil from the site;
 - 4.7 a table containing all of the major commitments made in the plan;
 - 4.8 an implementation timetable for key aspects of the plan; and
 - 4.9 a reporting program to regularly advise the Director of the results of the plan.
- 5 The person responsible must not implement the Plan until the Director has approved the Plan. Once approved the person responsible must act in accordance with the approved plan.
- 6 In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved plan or approves a new plan in substitution for the plan originally approved, the person responsible must implement and act in accordance with the varied plan or the new plan, as the case may be. The varied plan must not be implemented until it is approved.

CN3 Vehicle wash facilities

Facilities must be provided for cleaning vehicles to remove waste and mud.

Controlled Waste

CW1 Management of spoil material

- 1** Unless otherwise approved in writing by the Director, spoil material recovered from dredging operations must be:
 - 1.1** stored in a suitably prepared and bunded area; and
 - 1.2** sampled for what is reasonably expected to be present consistent with the sampling requirements of Information Bulletin 105.

Effluent Disposal

E1 Perimeter drains or bunds

- 1** Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.
- 2** Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

E2 Retention of sediment

During construction activities all reasonable measures must be implemented to ensure that solids entrained in stormwater traversing the construction site are retained on The Land. Such measures may include provision of strategically located sediment fences, and appropriately sized and maintained sediment settling ponds.

E3 Maintenance of settling ponds

Sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off The Land by surface run-off.

E4 Stormwater

- 1** Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
- 2** Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside The Land.
- 3** All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

E5 Effluent release to the Mersey River

Unless otherwise approved in writing by the Director effluent from the materials management area must have a pH of 6.5 or above prior of such effluent being released to the Mersey River.

Flora And Fauna

FF1 Protection of Australian grayling (*Prototroctes maraena*)

Unless otherwise approved in writing by the Director, dredging works must not be undertaken between mid September and mid November.

Hazardous Substances

H1 Storage and handling of hazardous materials

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:

- 1.1 stored within impervious bunded areas, spill trays or other containment systems; and
- 1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:
 - 1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
 - 1.2.2 to groundwater;
 - 1.2.3 to waterways; or
 - 1.2.4 beyond the boundary of The Land.

H2 Handling of hazardous materials - mobile

1 Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant on The Land, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:

- 1.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
- 1.2 to groundwater;
- 1.3 to waterways; or
- 1.4 beyond the boundary of The Land.

2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

H3 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

Monitoring

M1 Samples and measurements for monitoring purposes

1 Any sample or measurement required under these conditions must be taken and processed in accordance with the following:

- 1.1 sampling and measuring must be undertaken by a person with training, experience, and knowledge of the appropriate procedure;
- 1.2 the integrity of samples must be maintained prior to delivery to a testing facility;
- 1.3 sample analysis must be conducted by a testing facility accredited by the National Association of Testing Authorities (NATA), or a testing facility approved in writing by the Director, for the specified test;

- 1.4 details of methods employed in taking samples and measurements and results of sample analysis, and measurements must be retained for at least three (3) years after the date of collection; and
- 1.5 sampling and measurement equipment must be maintained and operated in accordance with manufacturer's specifications and records of maintenance must be retained for at least three (3) years.

M2 Monitoring Reports

- 1 Unless otherwise approved in writing by the Director, weekly monitoring reports including results from noise logger/s installed to measure noise at all identified noise sensitive receptors must be submitted to the Director for review.
- 2 Weekly monitoring reports must identify any recorded exceedances of noise management levels, the source of any recorded exceedance and discuss corrective measures to attenuate noise emissions.

Noise Control

N1 Hours of construction

- 1 Unless otherwise approved in writing by the Director, standard and non-standard hours are defined as follows:
 - 1.1 Standard hours - 0700 hours to 1800 hours on weekdays and 0900 to 1700 hours on Saturdays.
 - 1.2 Non-standard hours - all other hours outside of standard hours, and public holidays observed Statewide (Easter Tuesday excepted).

N2 Noise emission management levels

- 1 Within 60 days of commencement of works the person responsible must submit for approval a methodology to determine rating background levels during standard hours and non-standard hours for sensitive receptors using continuous noise loggers.
- 2 Unless otherwise approved in writing by the Director, the person responsible must implement management actions to ensure that noise, when measured at any noise sensitive receptor and expressed as the equivalent continuous A-weighted sound pressure level, do not exceed the noise management levels calculated based on the following formula:
 - 2.1 Rating background level + 10 dB for standard hours
 - 2.2 Rating background level + 5 dB for non-standard hours
- 3 Measured noise levels must be adjusted for impulsiveness, modulation and low frequency in accordance with the *Tasmanian Noise Measurement Procedures Manual*.
- 4 Unless otherwise approved in writing by the Director impulsive noise sources such as the use of power saws, grinding, rock drilling, jack hammering, impact piling or any other similar activities that have potential to cause sleep disturbance must be not used during the hours 1900 - 0700.

N3 Noise Management Plan

- 1 A Noise Management Plan must be submitted to the Director for approval within 30 days of any works proposed to be carried out during non-standard hours.
- 2 Unless otherwise approved in writing by the Director, construction noise during non-standard hours must be managed in accordance with the Noise Management Plan.
- 3 The Noise Management Plan must include the following:
 - 3.1 A list of equipment and activities associated with carrying out the activity.

- 3.2 Identification of noise sensitive receptors.
- 3.3 Sound power levels, duration and hours of operation for each activity that is likely to cause noise impacts at sensitive receptors.
- 3.4 Appropriate noise management levels for noise sensitive receptors.
- 3.5 Management actions to ensure that noise emissions during non-standard hours when measured outside a habitable room of any noise sensitive receptor do not exceed LA_{max} 60 dB(A).
- 3.6 Prediction of noise levels at sensitive receptors during works.
- 3.7 Where there is insufficient knowledge available to predict noise impact on noise sensitive receptors, monitoring and assessment must be undertaken to determine this.
- 3.8 Identification of activities likely to cause noise nuisance at sensitive receptors.
- 3.9 Identification of appropriate noise monitoring locations.
- 3.10 Mitigation measures planned to be deployed and able to be deployed where noise levels are expected to exceed noise management levels.
- 3.11 A detailed community engagement plan including procedures for notification of noise generating activities, and for receiving and responding to complaints regarding noise disturbance.

N4 Continuous noise logger(s)

- 1 Prior to commencing the activity, the responsible person must submit to the Director details of continuous noise logger(s) for measurement of noise at sensitive receptors including, but not limited to:
 - 1.1 Location(s);
 - 1.2 Type of logger;
 - 1.3 Measurement parameters;
 - 1.4 Calibration records
 - 1.5 Methods for obtaining and storing data and reporting data to the Director; and
 - 1.6 Timeframe for establishment and commencement of reporting.

Water Quality

WQ1 Dredge Management Plan

- 1 At least 1 month prior to the commencement of dredging works, or by a date otherwise specified in writing by the Director, a Dredge Management Plan must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to the Director's satisfaction.
- 2 Without limitation, the plan must include details of the following:
 - 2.1 a detailed description of dredge methodology;
 - 2.2 adaptive management measures and a monitoring program based on a validated 3D sediment plume model consistent with recommendations made in the Sediment Plume Modelling Review Report;
 - 2.3 assessment of plume impacts and adaptive management measures based on the validated model and dredge methodology;
 - 2.4 turbidity reference/ threshold levels including levels for both acute and chronic effects;
 - 2.5 upstream and downstream realtime turbidity monitors;

- 2.6** adaptive methods to manage impacts from dredging works linked to monitoring triggers;
 - 2.7** a table containing all of the major commitments made in the plan;
 - 2.8** an implementation timetable for key aspects of the plan; and
 - 2.9** a reporting program to regularly advise the Director of the results of the plan.
- 3** The person responsible must not implement the Plan until the Director has approved the Plan. Once approved the person responsible must act in accordance with the approved plan.
- 4** In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved plan or approves a new plan in substitution for the plan originally approved, the person responsible must implement and act in accordance with the varied plan or the new plan, as the case may be. The varied plan must not be implemented until it is approved.

Schedule 3: Information

Legal Obligations

LO1 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2 Controlled waste transport

Transport of controlled wastes to and from The Land must be undertaken only by persons authorised to do so under EMPCA or subordinate legislation.

LO3 Waste management regulations

Disposal of any dredge spoil including clean fill must be managed in accordance with an approved management method or otherwise under a relevant authority as defined in the *Environmental Management and Pollution Control (Waste Management) Regulations 2020*.

LO4 Storage and handling of dangerous goods, explosives and dangerous substances

- 1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

- 1.1 *Work Health and Safety Act 2012* and subordinate regulations;

- 1.2 *Explosives Act 2012* and subordinate regulations; and

- 1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO5 Aboriginal relics requirements

- 1 Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.
- 2 Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

Other Information

OI1 Waste management hierarchy

- 1 Wastes should be managed in accordance with the following hierarchy of waste management:
 - 1.1 waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;
 - 1.2 waste should be re-used or recycled to the maximum extent that is practicable; and
 - 1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

Attachment 1: EPN 10222 Attachment 1 The Land

