



Kamay Ferry Wharves

State Significant Infrastructure Assessment SSI-10049

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Cover image: Artists impression of La Perouse wharf tie-in area sourced from the Environmental Impact Statement 2021.

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Glossary

Abbreviation	Definition
BDAR	Biodiversity Development Assessment Report
Council	City of Randwick / Sutherland Shire Council
Crown Lands	Crown Lands, Department
DAWE	Department of Agriculture, Water and the Environment
Department	Department of Planning and Environment
DPI	Department of Primary Industries
DRP	Design Review Panel
EHG	Environment and Heritage Group, Department
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FM Act	<i>Fisheries Management Act 1994</i>
Heritage (ACH)	Heritage NSW (Aboriginal Cultural Heritage), Department of Premier and Cabinet
Heritage	Heritage NSW, Department of Premier and Cabinet
LGA	Local government area
MBOS	Marine Biodiversity Offset Strategy
Minister	Minister for Planning
National Park	Kamay Botany Bay National Park
NPWS	National Parks & Wildlife Service, Department

NRAR	Natural Resources Access Regulator, Department
SEARs	Planning Secretary's Environmental Assessment Requirements
Planning Secretary	Secretary of the Department of Planning and Environment
RtS	Response to Submissions
SEPP	State Environmental Planning Policy
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSI	State Significant Infrastructure
TfNSW	Transport for NSW
Water Group	Water Group, Department

Executive Summary

Transport for NSW (the Proponent) is seeking approval for the construction of two wharves and operation of a ferry service between La Perouse and Kurnell in Botany Bay (the proposal). The proposal includes the construction of two wharves on piles, one at La Perouse and one at Kurnell, that include a berth for passenger ferries, a multi-user berth for commercial and recreational vessels, and sheltered waiting areas. The proposal also includes landscaping, reconfiguration of existing car parking areas at La Perouse, installation of bicycle racks, and installation of utilities to service the wharves.

The proposal is considered as a major initiative to provide an accessible transport connection and enable access between multiple destinations including Kurnell, La Perouse and the Kamay Botany Bay National Park.

The proposal meets the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and is consistent with the Government's key priorities and transport planning framework. The proposal is State Significant Infrastructure (SSI) under section 5.12 of the EP&A Act. The Minister for Planning is the approval authority.

The Department considers the potential environmental impacts of construction and operation are acceptable, subject to implementation of appropriate mitigation and management measures, and the enforcement of the Department's recommended conditions of approval.

Community engagement

The EIS and accompanying documents were on exhibition from 14 July 2021 until 11 August 2021 (a total of 28 days) on the Department's Major Projects website. 107 submissions and 11 pieces of advice from NSW Government agencies were received during the exhibition period on the proposal. Of the 107 submissions, three were from local councils, 12 were from special interest groups and 92 were from community members. 17 submissions were in support of the proposal, 79 submissions objected to the proposal, and 11 submissions provided comments only. Randwick City Council objected to the proposal.

The key issues raised by the community and considered in this report include biodiversity impacts during construction and operation; impacts to Aboriginal and non-Aboriginal heritage; noise and vibration impacts during construction and operation; traffic impacts; urban design and visual amenity impacts; and contamination impacts.

Key assessment issues

In its assessment of the proposal and review of the submissions and advice received, the Department identified the key issues as: biodiversity, Aboriginal and non-Aboriginal heritage, surface and underwater noise and vibration, traffic and transport, place and urban design, and soil and water contamination.

Biodiversity

The proposal would have direct and indirect impacts on threatened species and threatened ecological communities (TEC) listed under the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries*

Management Act 1994 (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). These impacts are expected to be reduced during the detailed design phase and the Proponent has committed to implementing mitigation measures to avoid and minimise impacts. These measures include the preparation and implementation of a terrestrial biodiversity management plan, pre-construction surveys for flora and fauna in the development footprint, an unexpected finds procedure for threatened species, and reduction of light spill to minimise the disturbance of habitats.

Residual impacts to biodiversity values would be offset under the NSW Biodiversity Offsets Policy. The Proponent has prepared a Marine Biodiversity Offset Strategy (MBOS) to offset impacts on threatened marine species and communities and their habitat. The Department has recommended conditions of approval which specify the ecosystem and species credits required for the proposal, require additional surveys of threatened flora and fauna species, manage biodiversity impacts during construction by implementing a Terrestrial and Marine Biodiversity CEMP Sub-plan, and the implementation of the MBOS to rehabilitate seagrass habitat and provide artificial habitat for seahorses.

Non-Aboriginal heritage

In its assessment of the controlled actions referral (EPBC 2020/8825), the then Commonwealth Department of Agriculture, Water and the Environment (DAWE) found that the proposed action is likely to have an impact on the Kurnell Peninsula Headland, Cape Solander Dr, Kurnell (NHL 105812) Matters of National Environmental Significance (MNES).

Within the National Heritage Listing (NHL), there are multiple elements which contribute to the heritage listing such as monuments, structures and vegetation, and significant views and site lines. The impact on these elements is primarily limited to land disturbance, installation of utilities, landscaping of the wharf tie-in areas, and reconfiguration of a portion of the car parking area at La Perouse. The Department is satisfied that impacts to National Heritage Places listed under the EPBC Act have been adequately assessed and can be appropriately mitigated through measures outlined in the Proponent's Aboriginal Cultural Heritage Assessment Report and Heritage Impact Statement.

In relation to local and State heritage, construction of the proposal would result in direct and indirect impacts to 22 non-Aboriginal heritage items (or groups of items or conservation areas) with the majority being indirect and having negligible-minor impacts. The proposal would have a minor direct impact to the State listed Kamay Botany Bay National Park and Towra Point Reserve listed under the State Heritage Register and the locally listed Kurnell Historic Site, listed under the Sutherland Shire Local Environmental Plan 2015 (LEP 2015). There is the potential for major archaeological impacts at the Botany Bay National Park due to the shallowness of the remains associated with the former wharf approach road.

The Proponent has committed to management measures including a Heritage Management Plan, Archaeological Research Design, site inductions and archival recording program. The Department has included further conditions to ensure heritage items are protected during the construction of the proposal, including the preparation of a Heritage Management Plan and Salvage and Excavation program. The Proponent's commitments for managing and reducing heritage impacts, in association with the Department's recommended conditions, would ensure that heritage impacts are appropriately managed and minimised to the greatest extent practicable.

Aboriginal heritage

Impacts to Aboriginal heritage are unavoidable due to the long historical connection to the area, but the design of the proposal limits significant impacts. Construction of the proposal would directly impact two Aboriginal heritage sites of low archaeological significance and the partial loss of one Aboriginal heritage site of high archaeological significance. The Proponent has committed to mitigation measures to manage residual impacts on heritage items such as protection and salvage programs and vibration monitoring to ensure that Aboriginal Heritage Information Management System (AHIMS) sites are protected. The Department has recommended conditions requiring archival recording of heritage items.

The ongoing connection of Aboriginal people to La Perouse and Kurnell is reflected in the design elements of the proposal. Aboriginal cultural heritage values would be captured and reflected in the Proponent's Place, Design and Landscape Plan (PDLP), to be developed in consultation with the La Perouse Local Aboriginal Land Council (LALC) and local Registered Aboriginal Parties (RAPs) to incorporate Aboriginal heritage into the design.

Noise and vibration

The piling activities to be undertaken during construction of the ferry wharves are expected to have unavoidable noise impacts on nearby sensitive land uses. Additionally, piling activities may be undertaken as out-of-hours works, to ensure a safe work environment during calm water periods.

The Proponent has committed to a range of accepted industry management measures to manage construction noise and vibration, including underwater noise impacts to marine species. These measures, along with a proactive and community-focused approach to managing noisy and out-of-hours works, would ensure that noise and vibration impacts are minimised and managed.

Considering the proximity of the proposed ferry wharves to sensitive land uses, operation of the ferry service would not result in discernible increases in noise levels. Notwithstanding, the Department has recommended a condition to ensure operational noise is reviewed once the ferry vessels are operating. If the vessels selected for operation demonstrate a worsening of impacts, additional mitigation measures would be required to be developed and implemented.

Traffic and transport

Traffic generation during construction is expected to be minor and able to be effectively managed. Impacts on the temporary loss of parking during construction would be mitigated through the provision of construction worker parking at construction ancillary sites.

Adverse traffic impacts during operation are not anticipated and while the Proponent would increase parking supply at La Perouse, the Department considers this should be further increased to address high existing and future demand, particularly during summer. Accordingly, the Department has recommended a condition for the Proponent to provide additional parking at La Perouse through the reconfiguration of existing parking bays.

In relation to potential marine transport conflicts at Botany Bay, the Department considers this risk can be effectively addressed through the provision of active navigation and operational management measures.

Place and urban design

The proposal would alter the visual character of the Kurnell and La Perouse headlands, which are sensitive to change due to the historic significance and visual prominence of the area. An Urban

Design and Landscape Plan (UDLP) was prepared by the Proponent to ensure that design, amenity, and a sense of place continue as key outcomes for the proposal. The UDLP incorporates design objectives with supporting principles that consider the local landscape character, with particular focus on Aboriginal heritage values.

To ensure independent advice is incorporated into the detailed design process, conditions have been recommended requiring the establishment of a Design Review Panel (DRP). The DRP would include a First Nations design expert acknowledging the site and surrounding area.

The proposal would also enhance active transport facilities and facilitate a Botany Bay circuit for pedestrians and cyclists.

The Department is satisfied that the assessment identified the landscape character of the local area and the potential visual and amenity impacts, including impacts such as amenity, landscaping and heritage values. The Department considers these impacts are acceptable and can be managed through the Proponent's proposed mitigation measures and recommended conditions.

Soil and water contamination

The investigations undertaken for the EIS indicate that low levels of contamination are present and could be attributed to a number of sources including previous industrial land uses at La Perouse, Kurnell, and within Botany Bay.

Construction activities, particularly excavation and piling, can impact groundwater and cause soil disturbance within the construction footprint. In acknowledging the community concerns regarding potentially contaminated land, the Department has recommended the appointment of an EPA accredited site auditor to review proposal documentation and oversee further testing, remediation (if required) and construction. The Department is satisfied that the recommended conditions of approval allow contamination risks to be independently reviewed and residual impacts to be managed.

Contents

1	Introduction	1
2	Proposal	4
	2.1 Construction and timing	5
	2.2 Construction Hours	10
3	Strategic context	12
	3.1 Proposal justification	12
	3.2 Proposal benefits	13
	3.3 Proposal development and alternatives	13
4	Statutory Context	15
	4.1 State significance	15
	4.2 Permissibility	15
	4.3 Other approvals	15
	4.4 Mandatory matters for consideration	15
	4.5 Biodiversity Development Assessment Report	16
5	Engagement	18
	5.1 Department's engagement	18
	5.2 Summary of submissions and agency advice	18
	5.3 Key issues raised by State government agencies	20
	5.4 Key issues raised in submissions – local council and community	22
	5.5 Response to submissions	23
	5.6 Sampling and Analysis Quality Plan and Geotechnical Investigation Methodology Engagement	25
6	Assessment	26
	6.1 Biodiversity	26
	6.2 Heritage	44
	Submissions	51
	Submissions	53
	6.3 Noise and vibration	55
	6.4 Traffic and transport	65
	6.5 Place and urban design	73
	6.6 Soil and water contamination	77
	6.7 Other issues	81
7	Evaluation	84
8	Recommendation	86
9	Determination	87

Appendices	88
Appendix A – List of referenced documents	89
Appendix B – Environmental Impact Statement	90
Appendix C – Additional Information	91
Appendix D – Submissions and agency advice	92
Appendix E – Response to Submissions Report	93
Appendix F – Community Views for Draft Notice of Decision	94
Appendix G – Assessment of EPBC Act listed Threatened Species and Communities	106
Appendix H – Assessment of Matters of National Environmental Significance	1
Appendix I – Recommended Instrument of Approval	12

1 Introduction

Transport for New South Wales (TfNSW) (the Proponent) proposes to construct wharves and operate a ferry service at La Perouse and Kurnell in Botany Bay (the proposal). The primary purpose of the proposal would be to reinstate a public ferry service that operated for 75 years between La Perouse and Kurnell, which ended due to storm damage suffered to the wharves in 1974. The wharves would also provide temporary mooring for other commercial vessels (such as whale watching vessels) and recreational boating.

The proposal is located on the northern and southern headlands of Botany Bay at La Perouse, within the Randwick City local government area (LGA), and at Kurnell, within the Sutherland Shire LGA. Both sites are located in the Kamay Botany Bay National Park (the National Park). The wharf at La Perouse is proposed to extend approximately 230 metres from the shore and the wharf at Kurnell is proposed to extend approximately 250 metres from the shore.

The proposal is shown below in **Figure 1** to **Figure 4**.

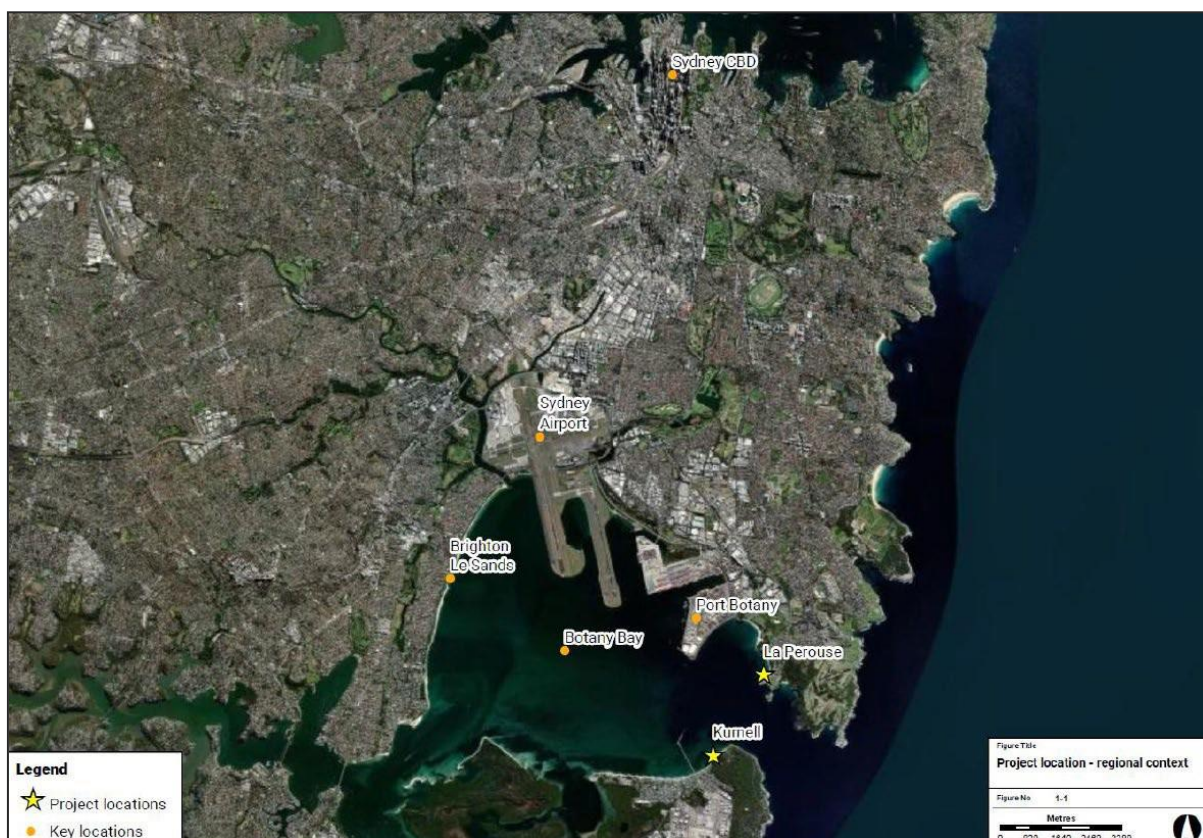


Figure 1 | Regional context map (Source: EIS)



Figure 2 | Overview of the key features of the proposal (Source: EIS)



Figure 3 | Overview of key features of the proposal at La Perouse (Source: EIS)



Figure 4 | Overview of key features of the proposal at Kurnell (Source: EIS)

2 Proposal

The Proponent is seeking approval for the construction of wharves and operation of a ferry service between La Perouse and Kurnell under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (NSW) (the EP&A Act).

The proposal is located at La Perouse and Kurnell and key features include:

- demolition of the existing viewing platform at Kurnell
- construction of temporary ancillary works including access roads, compound areas, stockpiles, fencing and temporary building platforms, including a temporary causeway at Kurnell and temporary crane platform at La Perouse
- relocation of existing swing moorings at La Perouse
- construction of two wharves on piles, one at La Perouse and one at Kurnell, that include:
 - a berth for passenger ferries (to cater for ferries between 15 metres to 40 metres in length)
 - a multi-user berth for commercial and recreational vessels (to cater for small vessels between two metres and 20 metres long)
 - sheltered waiting areas and associated furniture located on the wharves
 - signage and lighting
- landside paving and landscaping at the entrance to the wharves
- new footpaths connecting the entrance of the wharves to the existing footpaths
- reconfiguration of existing car parking areas at La Perouse to include an additional 13 car parking spaces, and associated footpath changes to accommodate these additional car parking spaces
- installation of 10 bicycle racks near the La Perouse wharf
- installation of utilities to service the wharves including power and water.

Photomontages of the proposal are shown in **Figure 5** and **Figure 6**.



Figure 5 | Artist Impression of ferry wharf at La Perouse (Source: EIS)



Figure 6 | Artist Impression of ferry wharf at Kurnell (Source: EIS)

2.1 Construction and timing

Construction of the proposal would be carried out on land and from construction vessels within Botany Bay. The construction of car parking, footpaths, approach to the wharves and part of the wharves near the foreshore would be built on land. The section of the wharves over the marine areas would be constructed from construction vessels.

Construction involves site establishment and enabling works, main construction works, service and utility connections, site demobilisation and roadworks/street area upgrades.

The typical activities involved in each construction stage are detailed in **Table 1** and shown in **Figure 7** to **Figure 14**.

Table 1 | Key construction works

Activity	Typical Activities	Timing
Early works and site establishment	<ul style="list-style-type: none"> installation of temporary exclusion zone, hoarding and fencing, accessways and wayfinding signage at both sites installation of ancillary facilities, including site offices, plant laydown areas at both sites construction of temporary access road at La Perouse to provide access from Anzac Parade to the wharf construction support site construction of temporary access road at Kurnell from Cape Solander Drive to Monument Track demolition of existing viewing platform at Kurnell 	Early works are expected to be one month at La Perouse and 3 months at Kurnell.

	<ul style="list-style-type: none"> • installation of temporary 12 metre crane and rig platform at La Perouse • construction of temporary 85 metre long causeway at Kurnell (see Figure 7). 	
Main construction	<ul style="list-style-type: none"> • piling works at both sites • wharf construction at both sites • carparking reconfiguration at La Perouse and provision of additional carparking spaces (see Figure 8) • removal of two light poles and associated caballing at La Perouse • installation and extensions of utilities including electricity, telecommunications, and water services at both sites, which require trenching activities (proposed utility alignment shown in Figure 9 and Figure 10) • installation of wharf features including handrails and furniture at both sites • landscaping. <p>Ground disturbance from main construction works at La Perouse and Kurnell are illustrated in Figure 11 and Figure 12.</p>	Main construction activities is expected to take 7 months at La Perouse and 11 months at Kurnell.
Site demobilisation	<p>Site demobilisation works would occur periodically throughout construction and include:</p> <ul style="list-style-type: none"> • removal of temporary crane platform at La Perouse and the temporary causeway at Kurnell • removal of temporary access roads at both sites, site offices, compound areas and site fencing at both sites • rehabilitation of both working areas to pre-construction condition. 	The Proponent has indicated that different site demobilisation activities would be undertaken at different stages of the proposal.



Figure 7 | Scope of early works and site establishment areas at La Perouse (Source: EIS)



Figure 8 | Scope of early works and site establishment areas at Kurnell (Source: EIS)

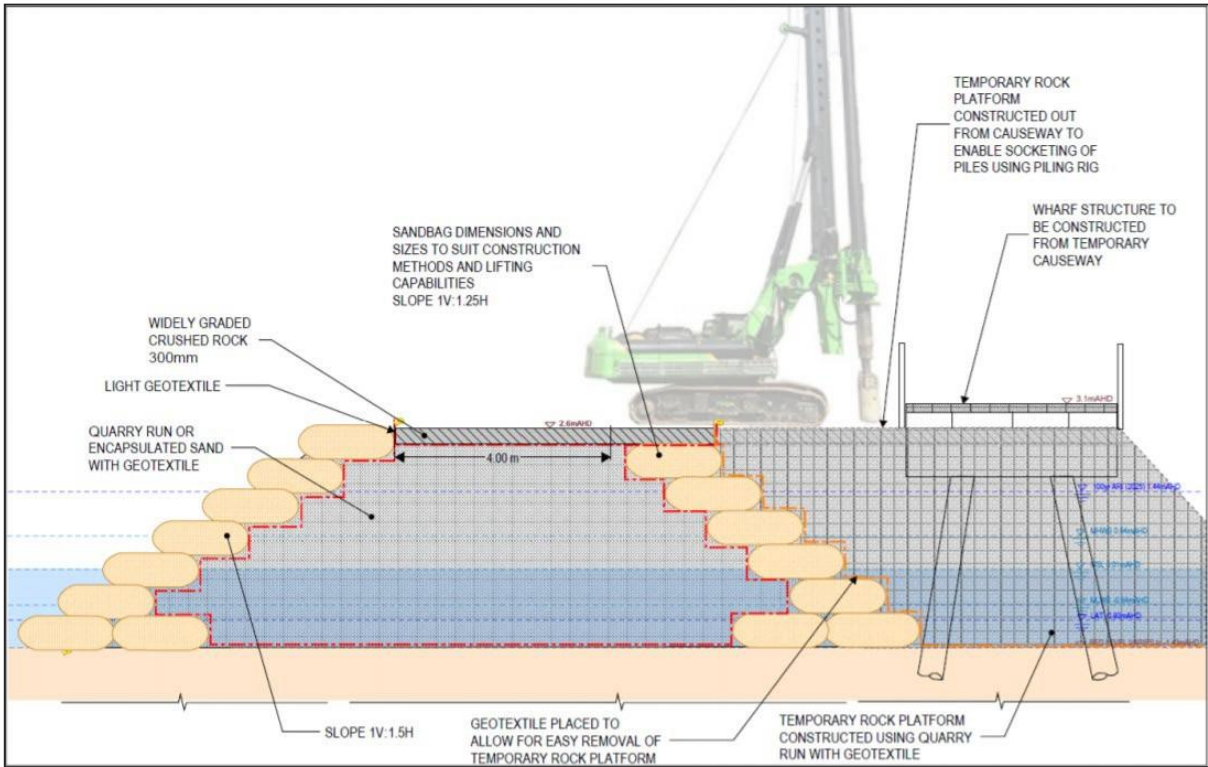


Figure 9 | Temporary causeway at Kurnell (Source: EIS)



Figure 10 | Reconfigured parking spaces at La Perouse (Source: EIS)



Figure 11 | Proposed utilities and alignment at La Perouse (Source: EIS)



Figure 12 | Proposed utilities and alignment at Kurnell (Source: EIS)



Figure 13 | Extent of ground disturbance at La Perouse during main construction (Source: EIS)



Figure 14 | Extent of ground disturbance at Kurnell during main construction (Source: EIS)

2.2 Construction Hours

The construction of the two wharves is expected to occur concurrently, over a 13 month period.

Construction would predominantly be undertaken between 7:00 am and 6:00 pm weekdays and 8:00 am to 1:00 pm on Saturdays. No works are proposed on Sundays or public holidays.

Some works would need to be undertaken outside these hours to maximise worker and community safety, such as works in the marine environment including:

- relocating the jack-up barge, depending on the tides, to maintain enough clearance distance between the vessel and the sea floor
- completing safety critical activities and movements of vessels, prior to forecast weather events
- setting up the construction pump for in-situ concrete placing works, to ensure concrete can set before warmer day time temperatures in summer
- drilling or piling activities.

Should drilling or piling be required to be undertaken outside of work hours, the night-time piling activities schedule is proposed as:

- drilling of piles:
 - setup: 11:00pm to 12:00am
 - drilling: 12:00am to 6:00am
 - pack up: 6:00am to 7:00am.
- hammering of piles:
 - setup: 4:00am to 5:00am
 - hammering: 5:00am to 7:00am.

Pile drilling or hammering would take place intermittently, which includes vibrating a pile for about five minutes and then hammering for about 10 to 60 minutes. The duration of drilling for the piles that are required to be drilled into position could be between 20 to 120 minutes.

The relocating of equipment and/or setting up of equipment at the next location would create a relatively quiet period for a few hours.

3 Strategic context

3.1 Proposal justification

The proposal has been influenced and informed by NSW Government strategic plans and policies. A ferry service between La Perouse and Kurnell is listed as a major initiative in section 1.3 of the South East Sydney Transport Strategy (Transport for NSW, August 2020). Chapter 4 of the strategy also outlines the intent to create a visitor-friendly network that connects key attractions across NSW. The proposal would provide an accessible transport connection between Kurnell and La Perouse which would enable access to multiple destinations including the National Park.

The National Park extends across 456 hectares of land through the northern and southern headlands of the entrance to Botany Bay. The Kamay Botany Bay National Park Kurnell Master Plan (Department, 2019) (the Master Plan) has been defined as “*a place where cultures met and continue to meet and where conflict and reconciliation, celebration and sorry business can be acknowledged in the one landscape*” and focuses on the Kurnell Precinct as the ‘Meeting Place’. Access between La Perouse and Kurnell is limited to road users. Improved connection between La Perouse and Kurnell via a ferry service is identified as stage one of this masterplan to provide a new type of experience for visitors traveling around the National Park.

The Kamay Botany Bay National Park Plan of Management (Department, 2019) (Plan of Management) identifies the core values of the National Park and focuses on the:

- connection between Aboriginal people and the landscape
- history of contact between Aboriginal Australians, explorers and settlers
- cultural impact and social issues such as reconciliation
- connection between Botany Bay in 1770 and today
- importance of vegetation communities of Kurnell Peninsula and La Perouse.

The objective of the Plan of Management is to provide visitor use and facilities to support cultural and nature based recreation, enjoyment and an appreciation of the National Park’s value. Water based links, such as the proposed ferry wharves, would re-establish the link between people and the National Park.

The proposal forms part of a wider Kamay 2020 proposal (Kamay 2020), which is a Commonwealth and NSW State Government proposal that secured funding from the then Prime Minister and Federal Treasurer in April 2018. Kamay 2020 is informed by the Master Plan and Plan of Management which commemorates the encounter between Aboriginal Australians and the crew of the Endeavour 250 years ago. Kamay 2020 focuses on improved visitor amenity and access, new experiences and acknowledgment of the diversity associated with the National Park. The proposal is being delivered as part of stage one of Kamay 2020.

The Proponent has committed to all NSW transport proposals working towards reconciliation with Aboriginal and Torres Strait Islander people (Transport for NSW’s Reconciliation Action Plan 2019 – 2021). The La Perouse Local Aboriginal Land Council (LALC) identifies the proposal as helping to restore and strengthen connection to culturally significant sites, enabling the continuation of cultural practices, and providing economic opportunities.

Several years of investigations and studies have led to the progression of the proposal, including:

- La Perouse – Kurnell and Botany Bay Ferry Service, Feasibility Study (Issue 2) (Patterson Britton & Partners, 1999)
- Draft feasibility study (Transport for NSW, 2015)
- Updated feasibility study against submissions (Transport for NSW, 2016)
- Strategic Business Case and Final Business Case were developed and assured in accordance and compliance with the NSW Infrastructure Investor Assurance Framework (Infrastructure NSW, 2020).

3.2 Proposal benefits

The proposal would deliver range of benefits through the operation of the wharves at La Perouse and Kurnell. The key benefits are:

- increasing visitation to the area and the creation of new commercial and recreational opportunities
- recognition and engagement with culture
- placemaking and amenity benefits
- economic participation opportunities.

3.3 Proposal development and alternatives

The EIS considers the merits of the proposal in the context of several alternative options, including:

- do nothing
- alternative infrastructure such as a tunnel or bridge
- upgrade and use of existing wharves (such as the Kurnell Port and Berthing Facility Wharf)
- increased public transport options.

Do Nothing

A 'do nothing' scenario would maintain the existing road connection as the only mode of transport to access the National Park, which involves average travel times of 40 to 90 minutes between La Perouse and Kurnell. The existing public transport trips and limited visitor access restricts communities from engaging with the National Park and areas of cultural significance. The 'do nothing' scenario would also have an impact on potential socio-economic opportunities for commercial operators, recreational boats, and fishers.

Tunnel or bridge

The Proponent considered a tunnel or bridge connecting La Perouse and Kurnell. However, this option was determined to be prohibitively expensive and significantly more physically and visually intrusive. The tunnel or bridge option would require a larger construction footprint with significantly greater impacts on a culturally important area when compared to the preferred option.

Existing wharf

The Proponent considered the use of the existing Kurnell Wharf, associated with the Kurnell Port and Berthing Facility. However, this was determined unsuitable for passenger ferries and commercial or recreational vessels due to technical factors, the infrastructure condition and safety considerations. Whilst upgrading the existing Kurnell Wharf was considered, conflict between existing shipping

vessels that use the wharf, and the proposed ferries and recreational vessels could potentially arise. As the existing Kurnell Terminal Wharf is not located within the National Park, visitors would have increased walking distances when accessing the Kurnell side of the National Park.

Increased public transport options

An increase in the frequency of bus services was considered and would not be prohibitively expensive to introduce. However, unlike the proposed option, this option would not provide access for tourism related vessels, water taxi services and recreational vessels. These alternatives also fail to achieve the objectives of the Master Plan to improve access and the visitor experience to the National Park.

4 Statutory Context

4.1 State significance

The proposal is State Significant Infrastructure (SSI) pursuant to section 5.12 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Minister for Planning is the approval authority.

4.2 Permissibility

The proposal is for the purpose of a public ferry service between La Perouse and Kurnell and is development permitted without consent in accordance with clause 2.80 State Environmental Planning Policy (Transport and Infrastructure) 2021.

4.3 Other approvals

On 12 January 2021, the then Commonwealth Department of Agriculture, Water and the Environment determined the proposal to be a 'controlled action' under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), as it was considered likely that the proposal could have a significant impact on listed threatened species, communities and National Heritage Listings (NHL).

Following notification, the Department confirmed the proposal would be assessed under Schedule 1 NSW Assessment Bilateral Agreement (12 January 2021). An approval under the EPBC Act is still required from the Commonwealth decision-maker.

Additionally, this Assessment Report makes a recommendation and proposes conditions to the Commonwealth Minister for the Environment in relation to an approval decision.

4.4 Mandatory matters for consideration

4.4.1 Environmental planning instruments

In accordance with section 5.22(2) EP&A Act, the environmental planning instruments (EPIs) that apply to the proposal are the Infrastructure SEPP (where it relates to the declaration of development that does not require consent) and State Environmental Planning Policy (State and Regional Development) 2011 (which declared the infrastructure as SSI).

4.4.1 Objects of the *Environmental Planning and Assessment Act 1979*

The determination must have regard to the objects of the EP&A Act. The Department has considered the objects of the EP&A Act including:

- ecologically sustainable development (ESD) (**Section 4.5**)
- social and economic welfare (**Section 6**)
- protection of the environment, including in relation to biodiversity, traffic, noise and vibration, air quality, surface and groundwater hydrology, urban design, amenity, socioeconomic, and contamination issues (**Section 6**)

- sustainable management of built and cultural heritage, including Aboriginal cultural heritage (**Section 6**)
- good design and amenity of the built environment (**Section 6**)
- promote the sharing of the responsibility for environmental planning and assessment between the different levels of government (**Section 5**)
- community participation in the assessment of the proposal (**Section 5**).

4.4.2 Ecologically sustainable development

The EP&A adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing and incentive mechanisms.

Objectives which guide the delivery and operation of the proposal would contribute to the sustainability of the proposal and the meeting of ESD principles. In addition to the objectives, the Proponent has addressed the above principles directly in both the EIS and Response to Submissions report and has identified a broad range of mitigation measures to manage impacts associated with these issues.

In conclusion, the Department considers that the proposal is consistent with the principles of ESD.

4.5 Biodiversity Development Assessment Report

Under section 1.7 of the EP&A Act, the *Biodiversity Conservation Act 2016* (BC Act) applies to the assessment of SSI applications. The Biodiversity Conservation (Savings and Transitional) Regulation 2017 sets out provisions relating to biodiversity assessment and approvals under the EP&A Act. In accordance with the Regulation, and the requirements of the BC Act, a Biodiversity Development Assessment Report (BDAR) was prepared in accordance with the Biodiversity Assessment Method.

A revised BDAR was submitted with the Proponent's Response to Submissions Report. The revised BDAR, dated 1 October 2021, was forwarded to the Environment and Heritage Group (EHG). EHG provided some comments in relation to the revised BDAR. These have been addressed in **Section 6.1**. The updated BDAR considered construction and operational impacts on native vegetation, including terrestrial, aquatic threatened species and communities and seabirds. No threatened flora was identified in the development footprint at either site; however, six threatened fauna species were identified in the vicinity of the construction footprint, including five at Kurnell and one at La Perouse. These species were identified as Matters of National Environmental Significance pursuant to the EPBC Act and included the Magenta Lilly Pilly, Leafless Tongue Orchid, Grey-headed Flying-fox and Large-eared Pied Bat.

While the assessment identified that the proposal would not directly impact most threatened fauna species, 0.04 hectares of potential foraging habitat for the Large-eared Pied Bat, 0.02 hectares of potential habitat for the Eastern Cave Bat and 0.02 hectares of potential habitat for the Pied

Oystercatcher may be impacted. However, these impacts would not result in significant or irreversible effects to the threatened species.

The proposal has been designed to avoid biodiversity impacts where possible. The Proponent has prepared mitigation measures to avoid further impact through the provision of a Biodiversity Management Plan, exploring opportunities to minimise disturbance during detailed design as a result of light spill, and pre-construction checks for flora and fauna within the development footprint. Four ecosystem credits and eight species credits are required under the Biodiversity Offset Scheme to offset the impacts to threatened fauna and ecological communities.

5 Engagement

5.1 Department's engagement

The Planning Secretary is required to make the EIS publicly available in accordance with section 5.28(1)(c) of the EP&A Act. The EIS (**Appendix B**) was made publicly available from 14 July 2021 to 11 August 2021 (28 days) on the Department's website. The Department advertised the public exhibition in The Daily Telegraph, The Sydney Morning Herald, Bankstown Torch and Southern Courier on Tuesday 13 July 2021 and in The Australian on Friday 16 July 2021. The Department notified State and relevant local government authorities of the exhibition.

The Proponent ran four virtual Community Information Sessions on Saturday 24 July 2021, Wednesday 28 July 2021, Saturday 31 July 2021 and Tuesday 3 August 2021 to address the COVID-19 restrictions. The Department participated in the community information sessions, responding to questions regarding the planning assessment and approvals process.

The Department undertook a site inspection in November 2021 to obtain an understanding of the surrounding environment, its sensitivities (particularly the constraints) and issues raised in submissions.

5.2 Summary of submissions and agency advice

The Department received a total of 107 submissions on the Environmental Impact Statement (the EIS). Of the 107 submissions, three were from local councils, 92 were from the community and 12 were from special interest groups and organisations. A link to the submissions is at **Appendix C** and a list of the special interest groups/organisations is at **Table 2**. The submission from Randwick City Council was received outside of the exhibition period but was formally counted as a submission.

Of the 107 submissions received, 17 were in support of the proposal, 79 objected to the proposal and 11 submissions provided comments only.

In addition to the above, seven submissions were received outside of the exhibition period. Six of these were public submissions, including one from a special interest group. These submissions were forwarded to the Proponent, and although they are not formally counted as submissions, their contents have been addressed in the Proponent's Response to Submissions (RtS) (**Appendix E**).

Following acceptance and publication of the RtS, the Department received further correspondence from community representatives raising concerns regarding proposal justification, proposal detail, environmental impacts, and the assessment process. The Department considered these issues in its assessment.

Table 2 | Summary of submissions

Submitter	Number	Position
Local councils	3	
Bayside Council	1	Comment
Randwick City Council	1	Object
Sutherland Shire Council	1	Comment
Special Interest Groups	12	
Australian National Sportfishing Association NSW Branch	1	Object
BIKEast	1	Support
Captain Cook Society (Aust) Inc	1	Support
La Perouse Against Commercialisation	1	Object
La Perouse Local Aboriginal Land Council	1	Support
La Perouse United Mens Aboriginal Corporation	1	Support
NSW Ports	1	Comment
Recreational Fishing Alliance of NSW	1	Object
Scubaholics Social Club	1	Object
South Sydney Amateur Fishing Association	1	Object
St George Scuba Club	1	Object
Sutherland Shire Historical Society	1	Support
Community Members	92	
	72	Object
	12	Support
	8	Comment
TOTAL	107	

In addition, the Department received advice from 11 State government agencies (**Table 3**).

Table 3 | Summary of agency advice

Government Agency	Number	Position
Crown Lands	1	Advice
DPI Fisheries	1	Advice
Environment and Heritage Group, Department (EHG)	1	Advice
Environment Protection Authority (EPA)	1	Advice
Heritage NSW – Aboriginal cultural heritage (ACH)	1	Advice
Heritage NSW – Heritage Council of NSW	1	Advice
National Parks and Wildlife Service	1	Advice
NSW Rural Fire Service	1	Advice
Water Group, Department (Water Group)	1	Advice
Water NSW	1	Advice
Port Authority NSW	1	Advice
Total agency submissions	11	

5.3 Key issues raised by State government agencies

Crown Lands indicated that no Crown land is contained within the proposal footprint.

DPI Fisheries required further information to support the proposal, and requested further information relating to:

- the frequency of ferry services and vessels that are to be used
- how the offset requirements of the *Fisheries Management Act 1994* (FM Act) or the EPBC Act would be met
- supplementary mooring or dredging activities that would be required
- vessel pathways
- how the assessment undertaken for threatened aquatic species was in accordance with Part 7A of the FM Act.

It also commented that the proposal would impact on Inscription Point, which is a popular fishing destination, and recommended that recreational fishing be permitted on the ferry wharves and managed in accordance with the *Clean, Safe Wharves Program 2010*.

Environment and Heritage Group (EHG) provided comments in relation to the BDAR and the amendments that would be required.

EPA indicated that the proposal would not require an Environmental Protection Licence, however, the EPA is the appropriate regulatory authority for the construction of the proposal. It requested additional information regarding noise and vibration impacts, surface water quality, and contamination. EPA also recommended mitigation measures to be implemented to reduce impacts from any contaminated materials, including a detailed site contamination investigation and site remediation plan if required. It suggested that a NSW EPA-accredited site auditor should be engaged for the duration of works and an unexpected finds protocol should be implemented.

Heritage NSW (ACH) noted two Aboriginal sites would be impacted by excavation works at Kurnell. Potential impacts to an unknown heritage item and archaeology within the Foreshore Midden Potential Archaeological Deposit (PAD) at Kurnell and Low Potential PAD and rock engravings at La Perouse were also noted. It indicated its support of the proposed management and mitigation measures and recommendations outlined in the Aboriginal Cultural Heritage Assessment Report (ACHAR) and recommended a condition of approval to ensure that an unexpected find procedure for Aboriginal objects be included in the Construction Environmental Management Plan (CEMP).

Heritage NSW noted that there are several significant historical and maritime heritage sites and archaeological sites within the proposal impact area. It acknowledged that there was minor archaeological potential within the proposal area and recommended further archaeological investigations be undertaken at La Perouse and Kurnell to support the proposal. Heritage NSW recommended conditions of approval relating to design, vibration impacts, preparation of a heritage interpretation strategy, consultation requirements, retention of significant trees and the preparation of a Heritage Management Plan.

National Parks and Wildlife Service (NPWS) did not object to the proposal, subject to the implementation of appropriate management measures. It requested the Proponent consider alternative locations for the installation of the Kurnell services cabinet to reduce impacts to the heritage landscape, and recommended conditions of approval relating to vegetation protection, management of machinery and stockpiles, excavation and fill materials, and preparation of an Environmental Management Plan.

NSW Rural Fire Service did not object to the proposal and provided no further comments.

Port Authority NSW did not object to the proposal and recommended conditions of approval requiring the preparation of a Maritime Risk Management Plan, Harbour Master approval, and consideration of lighting and Aids to Navigation, in the design of the wharf and jetty.

Water Group recommended requirements regarding groundwater take and impacts, and recommended conditions to require that a Water Access Licence be obtained prior to any water take, and implementation of soil and water quality monitoring and Acid Sulfate Soils Management Plan.

Water NSW advised that the proposal is not in proximity to any Water NSW land or assets and that the risk to water quality is considered low.

5.4 Key issues raised in submissions – local council and community

5.4.1 Council key issues

Table 4 | Summary of issues raised in local government council submissions

Submitter	Comments
Bayside Council	Council did not object to the proposal; however, requested that the scope of the proposal be revised to include wharves at Brighton-Le-Sands and Sans Souci.
Randwick City Council	Council objected to the proposal and expressed concerns relating to the proposal's impact on traffic and parking, heritage values, Aboriginal and non-Aboriginal archaeology, Aboriginal cultural heritage, and marine biodiversity, particularly seagrass at Kurnell.
Sutherland Shire Council	<p>Council did not object to the proposal; however, identified further matters that should be considered in relation to endangered ecological seagrass community, traffic and parking, pedestrian and cycling paths, heritage considerations and proposal design.</p> <p>Council recommended that:</p> <ul style="list-style-type: none">• a proposed Marine Biodiversity Offset Strategy (MBOS) be prepared, reviewed and endorsed by DPI Fisheries prior to any approval being granted and a condition be included requiring the document to be implemented• a condition be imposed requiring ongoing monitoring of park visitation, ferry patronage and land-based transport to inform ongoing review of ferry and park usage• the Kamay Botany Bay Kurnell Masterplan be expanded to accommodate a pathway connection between the Kurnell ferry wharf and Captain Cook Drive.

5.4.1 Community submissions

The Department received submissions from 92 community members and 13 from special interest groups. The submissions covered a range of issues and the main issues are summarised below:

- proposal justification
 - concern that there is not enough demand for the proposal
- proposal design
 - concern that the selected ferry wharves design option is not the most appropriate for the area
 - loss of visual sightlines across Botany Bay
 - concern that the proposal would lead to overdevelopment and threaten the natural and relaxing ambience of La Perouse

- traffic, access and parking
 - concern over increased vehicle traffic that would result from the development, particularly around La Perouse
 - potential increased demand for carparking and exacerbated on-street parking impacts on local streets
 - traffic surveys have not been undertaken appropriately and there is a proposed carparking shortfall
- heritage
 - the design of the proposal is not sympathetic to the heritage values and Aboriginal significance of the area
 - concerns relating to the impact of the proposal on adjacent heritage items
- impact on marine biodiversity and water users
 - the proposal would prevent the enjoyment of Botany Bay, Little Bay, Yarra Bay and Fisherman's Island
 - the proposal would create safety risks for water users due to the functioning of ferry vessels
 - concerns for litter and water pollution impacts that would result from oil spills
 - concerns relating to the impact of construction and ferry turbulence on marine biodiversity and aquatic life. Particular concerns were raised in relation to endangered community seagrass, White Seahorses, Black Rockcod, Posidonia Australis, Weedy Seadragon, squid populations and turtles
- community and stakeholder consultation
 - inadequate consultation has been undertaken
 - consultation to date inaccurately represents community concerns
- future development
 - concerns that the proposal would form part of a future Cruise Ship Terminal.

5.5 Response to submissions

Following completion of the public exhibition period, the Department directed the Proponent to prepare a response to the submissions received. Submissions received outside of the exhibition period were also forwarded to the Proponent for consideration.

The Department received the RtS on 21 October 2021 and forwarded it to agencies and council for comment. The RtS was made publicly available on the Department's website on 22 October 2021.

The RtS was accompanied by updated technical reports including:

- revised environmental mitigation measures
- addendum marine biodiversity assessment report
- updated biodiversity assessment report
- updated noise and vibration impact assessment.

The RtS also included additional technical reports:

- sampling and analysis quality plan

- urban design and landscape plan
- marine biodiversity offset strategy.

The Department received five responses, including from DPI Fisheries, EHG, EPA, Heritage Council NSW (HCNSW) and a response from Randwick City Council.

5.5.1 Key issues – Government agencies

DPI Fisheries reiterated its previous comments on the EIS relating to the need for the Proponent to provide further information relating to outstanding biodiversity matters. It requested that a condition require the Proponent to review the impacts of the proposal to aquatic biodiversity after 12 months of the operation and that the Marine Biodiversity Offset Strategy (MBOS) be finalised before the proposal is determined. Further consideration relating to fishing access arrangements and the relocation of moorings was also requested.

EHG reiterated its previous comments on the EIS in relation to the missing documentation and the lack of mapping provided to locate the Sooty Oystercatcher and Pied Oystercatcher that were observed in the proposal's catchment.

EPA recommended conditions of approval that require the Proponent to:

- restrict wharf operation activities to between 7:00am to 6:00pm
- ensure ferry operations meet the noise performance assumptions detailed in the Noise and Vibration Assessment
- restrict the use of any public announcement system
- limit construction activity to standard construction hours
- prepare a Construction Soil and Water Management Plan to address soil contamination concerns
- identify management measures to effectively store, test and appropriately dispose of encountered groundwater and soils during construction
- prepare an unexpected contamination finds protocol.

HCNSW raised concerns relating to limited assessment undertaken to consider the impact the proposal would have on the heritage values of Bare Island and recommends further assessment. The submission noted the cumulative impact of increasing the land use of the Anzac Parade loop has not been considered in terms of further construction impacts on the historic landscape character of the region. To address these concerns, HCNSW recommended that a suitably qualified and experienced maritime archaeologist undertake the maritime heritage assessment component of the heritage management plan, and the landscape plans be amended to add the landscaping provided along the additional 13 carparking spaces at La Perouse.

5.5.2 Key issues – Randwick City Council

Randwick City Council reiterated its concerns relating to the proposal's impact on traffic and parking, heritage values, Aboriginal and non-Aboriginal archaeology, Aboriginal cultural heritage, and marine biodiversity. Council considered the proposed car parking to be insufficient to service the proposal. Council requested that further parking and traffic surveying be undertaken to inform the proposal. Council also noted that the preparation of a Heritage Interpretation Strategy is still supported and should be included as a condition of approval on the application.

5.6 Sampling and Analysis Quality Plan and Geotechnical Investigation Methodology Engagement

In responding to concerns raised in relation to contamination, a Sampling and Analysis Quality Plan (SAQP) was included as part of the Response to Submissions. Due to an administrative error, the Arup Geotechnical Investigation Methodology (Appendix B of the SAQP) was not included. As a result, the Department undertook targeted consultation with the submitters including community, interest groups and Councils on the SAQP. This targeted consultation included an invitation to comment on the methodology between Wednesday 15 June 2022 until Friday 24 June 2022.

The Department received five submissions from the community, raising the following concerns:

- locations of boreholes in the SAQP is confusing
- the specific contaminant that was targeted in the marine sediment testing is unknown
- testing depths are inappropriate
- testing undertaken has not considered impacts to nearby beaches and beach users during construction and operation of the project
- further contamination analysis and testing should be undertaken prior to determination
- the exclusion of the methodology from the SAQP was deliberate in order to conceal information from the public.

One of the five submissions received raised concerns regarding the project's suitability and environmental impacts as a result of noise, vibration, traffic and access to the wharves. The Department has considered the issues raised, which are addressed throughout **Section 6** of this report.

The Department acknowledges the concerns raised by the community regarding the absence of the methodology in the Response to Submissions. However, the Department notes that the methodology had been summarised in the assessment documentation, and that the absence of the methodology has been rectified by the targeted consultation with the community, interest groups and council. The issues raised have been considered and addressed in the assessment of soil and water contamination (**Section 6.6**).

6 Assessment

The Department, in its assessment of the proposal including submissions received, identified the key issues as biodiversity, Aboriginal and non-Aboriginal heritage, surface and underwater noise and vibration, traffic and transport, place and urban design, and soil, water and contamination (**Section 6.1 to 6.6**). Other issues are discussed in **Section 6.7**.

6.1 Biodiversity

The proposal would have direct and indirect impacts on threatened species and threatened ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). Potential exists for these impacts to be reduced during the detailed design phase. The Proponent has also committed to implementing mitigation measures to avoid and minimise impacts associated with construction and operation including preparation and implementation of a marine biodiversity offset strategy, terrestrial biodiversity management plan, pre-construction surveys for flora and fauna in the development footprint, an unexpected finds procedure for threatened species and reduction of light spill to minimise the disturbance of foreshore and forest habitats.

Impacts to biodiversity values would be offset under the NSW Biodiversity Offsets Policy for Major Proposals which includes the acquisition and retirement of biodiversity credits. The Proponent has prepared a Marine Biodiversity Offset Strategy (MBOS) to offset impacts on threatened marine species and communities and their habitat. The Department has recommended conditions of approval which specify the ecosystem and species credits required for the proposal, require additional surveys of threatened flora and fauna species, manage biodiversity impacts during construction using a Marine and Terrestrial Biodiversity CEMP Sub-plan, and implement the MBOS to rehabilitate seagrass habitat and provide artificial habitat for seahorses.

Issue

The proposal is located within the Pittwater sub-region of the Sydney Basin Interim Biogeographic Regionalisation for Australia (IBRA) bioregion. The Pittwater sub-region features sandstone plateaux, ridges and steep cliffs, shale-capped slopes, coastal valleys and estuaries. It extends from the Hawkesbury River in the north to the Royal National Park in the south and borders the Cumberland IBRA sub-region to the west. Three NSW landscape regions occur within the study area – Sydney-Newcastle barriers and beaches, Port Jackson Basin and Woronora Plateau. About 40 per cent of the study area includes marine habitats within Botany Bay into which Georges River and Cooks River flow. Remnant native vegetation has been substantially cleared for urban development in the study area except for Kamay Botany Bay National Park at Kurnell. The study area occurs about 1 kilometre from Towra Point Nature Reserve, a RAMSAR-listed wetland.

The terrestrial biodiversity values of the study area (21.88 hectares of land in the development footprint and its 1.5-kilometre buffer) were assessed in accordance with the BC Act and the EPBC Act. The Proponent prepared a Biodiversity Assessment Report (BDAR) to address impacts on terrestrial biodiversity values from the proposal.

The marine biodiversity values of the study area have been assessed in accordance with the FM Act and EPBC Act. The Proponent has prepared a Marine Biodiversity Assessment Report (MBAR) to address impacts on marine biodiversity. The predicted residual impacts on threatened marine species and key fish habitat required the Proponent to prepare a MBOS. The proposal is a controlled action under section 45 of the EPBC Act.

Bilateral Agreement

The Bilateral Agreement between the Commonwealth and the State of NSW for the assessment of environmental approvals under the EPBC Act endorsed the Framework for Biodiversity Assessment and NSW Biodiversity Offsets Policy for Major Proposals to assess biodiversity values under the EPBC Act. The BDAR and MBAR assessed the impacts of the proposal on Matters of National Environmental Significance (MNES).

The Proponent has addressed the Commonwealth requirements and assessed the impacts on MNES. Sections of the EIS relevant to MNES include:

- Chapter 4 – Proposal development and alternatives
- Chapter 6 – Consultation
- Chapter 10 – Marine biodiversity
- Chapter 11 – Terrestrial biodiversity
- Chapter 25 – Cumulative impacts
- Chapter 27 – Proposal justification and conclusion
- Appendix A – Proposal synthesis and summary of environmental management measures
- Appendix C – Environmental Planning and Assessment Regulation 2000 checklist
- Appendix D – Marine Biodiversity Offset Strategy (September 2021)
- Appendix H – Marine biodiversity assessment report
- Appendix I - Biodiversity development assessment report (final – 1 October 2021).

Species and communities listed under EPBC Act would be impacted

The then Department of Agriculture, Water and the Environment (DAWE) found in its assessment of the controlled action referral (EPBC 2018/8286) that the proposed action is likely to have a significant impact on the following controlling provisions of the EPBC Act:

- listed threatened species and communities (section 18 and section 18A)
- heritage values of a National Heritage place (section 15B and section 15C).

The Commonwealth considered the proposed action is likely to have a significant impact on the following MNES:

- *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion Threatened Ecological Community (TEC) – endangered
- White's Seahorse *Hippocampus whitei* – endangered
- Black Rockcod *Epinephelus daemeli* – vulnerable
- Cauliflower Soft Coral *Dendronephthya australis* – endangered.

There is potential for direct or indirect impacts to two EPBC Act-listed plant species - Leafless Tongue Orchid *Cryptostylis hunteriana* (not surveyed during its flowering period) and Magenta Lilly Pilly *Syzygium paniculatum* (individuals were detected adjacent to the Kurnell site). Migratory bird species subject to protection agreements between Australia, Japan, China and/or Republic of Korea also use the proposal area. In addition, Towra Point Nature Reserve is a MNES site supporting 60 per cent of coastal saltmarsh TEC and 40 per cent of all mangrove communities in Greater Sydney. It is one of four most important sites for migratory shorebirds in NSW and a key breeding site for the endangered Little Tern.

Clearing of native vegetation would impact threatened ecological communities

The proposed construction footprint at Kurnell and La Perouse comprises mostly cleared land – mown exotic grassed areas at La Perouse and disturbed areas with small patches of planted and regrowth native vegetation at Kurnell. There would be no loss of hollow-bearing trees at Kurnell.

However, the proposal would directly impact approximately 0.06 hectares (600 m²) of a total of 9.71 hectares of terrestrial native vegetation occurring in the proposal area. Seven Plant Community Types (PCT) and 17 vegetation zones were recorded in the proposal area. At the Kurnell site, 0.02 hectares (200 m²) of BC Act-listed Kurnell Dune Forest TEC would be cleared for a construction access road. The PCT best fit for this TEC is 661 - Bangalay-Smooth-barked Apple-Swamp Mahogany low open forest (also termed coastal sand littoral forest) which is in low condition (**Table 1**). Both sites would be revegetated following construction. Two other BC Act-listed TECs – Littoral Rainforest and Swamp Oak Floodplain Forest (**Table 5**) - occur near the development footprint at Kurnell but would not be impacted. Construction of La Perouse wharf would require the clearing of 0.009 hectares (90 m²) of PCT 1823 (Bracelet Honey-myrtle-Heath-leaved Banksia-Scrub She-oak coastal cliffline scrub) which is not part of the Eastern Suburbs Banksia Scrub TEC.

Table 5 | PCTs and TECs in and near the proposal area

Plant Community Type (PCT) and TEC	Condition	TEC under the BC Act?	TEC under the EPBC Act?	Estimated extent remaining in region (ha)	Estimated % cleared in region
661 – Bangalay -Smooth-barked Apple – Swamp Mahogany low open forest of Southern Sydney and Sydney Basin Bioregion	Low	Yes, component of Kurnell Dune Forest in the Sutherland Shire and City of Rockdale (Endangered)	No	273	68
1832 – Littoral Rainforest in the NSW North Coast, Sydney	Low	Yes	No	185	80

Basin and South East Corner Bioregion						
1232 – Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregion	Low	Yes	No	2400	95	
1823 – Bracelet Honey Myrtle – Heath-leaved Banksia – Scrub She-oak coastal cliffline scrub in the Sydney Basin	Low	No	No	0.62 (in proposal area)	-	
1778 – Smooth-barked Apple – Coast Banksia/ Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney	Moderate	No	No	2.48 (in proposal area)	-	
1204 - Spinifex beach strand grassland, Sydney Basin Bioregion and South East Corner Bioregion	Moderate	No	No	0.12 (in proposal area)	-	
772 Coast Banksia - Coastal Wattle dune scrub of the Sydney	Low	No	No	0.45 (in proposal area)	-	

Source: Kamay Ferry Wharves BDAR 2021

Threatened flora species may be impacted by construction

No threatened terrestrial flora species were detected by surveys undertaken within the proposed construction footprint. One threatened plant species – Magenta Lilly Pilly (about 70 individuals; endangered - BC Act and vulnerable - EPBC Act) – was detected immediately adjacent to proposed works at Kurnell. Suitable habitat for a second threatened plant species – Leafless Tongue Orchid (vulnerable – BC Act and EPBC Act) – was identified at the Kurnell site. However, surveys failed to detect individuals of the Leafless Tongue Orchid in or adjacent to the construction footprint, most likely because they were conducted outside of its flowering period.

The BDAR states that impacts to threatened flora species would be offset in accordance with the NSW Biodiversity Offsets Policy for Major Proposals. Impacts to both Magenta Lilly Pilly and Leafless Tongue Orchid (if present) would be managed under the Terrestrial and Marine Biodiversity CEMP Sub-plan.

Vegetation clearing will impact a limited number of threatened fauna species

Targeted field surveys recorded six of the 34 threatened terrestrial fauna species considered in the BDAR to have potential to occur in the study area:

- Pied Oystercatcher (endangered – BC Act)
- Sooty Oystercatcher (vulnerable – BC Act) – recorded opportunistically at La Perouse
- Little Bent-winged Bat (vulnerable – BC Act)
- Large Bent-winged Bat (vulnerable – BC Act)
- Eastern Coastal Free-tailed Bat (vulnerable – BC Act)
- Grey-headed Flying-fox (vulnerable – BC Act and EPBC Act). The assessment concluded that the study area provided potential foraging habitat for this species but not breeding habitat because the nearest camp is about 2.5 km south-west of the Kurnell site.

An additional two threatened fauna species were assumed to be present based on the presence of suitable foraging or breeding habitat in the proposal area:

- Eastern Cave Bat (vulnerable – BC Act)
- Large-eared Pied Bat (vulnerable – BC Act and EPBC Act).

The Proponent considered six migratory bird species listed under the EPBC Act and subject to protection agreements between Australia, China, Japan and / or Republic of Korea were likely to incidentally occur in or near the proposal area. These were Red Knot, Great Knot, Curlew Sandpiper, Lesser Sand Plover, Bar-tailed Godwit and White-throated Needletail.

The Proponent calculated ten species credits and seven ecosystem credits are required to offset the impact of the proposal on threatened species, their habitat and TECs. This assessment was based on the application of Biodiversity Assessment Method (BAM) 2017 to threatened entities listed in **Table 6**.

This credit obligation would be provided in accordance with the NSW Biodiversity Offsets Policy for Major Proposals.

Table 6 | Ecosystem credits and species credits calculated for the proposal

Credit class	PCT	Associated TEC	Species	Habitat impacted	Direct impacts (ha)	Number of credits
Ecosystem	1823 Coastal headland cliffline scrub	-	-	n/a	0.009	1
	661 Coastal sand littoral forest	Kurnell Dune Forest in the Sutherland Shire and City of Rockdale	-	-	0.02	5
	772 Coastal foredune wattle scrub	-	-	-	0.024	1
Species	-	-	Large-eared Pied Bat	Potential foraging	0.07	6
	-	-	Eastern Cave Bat	Potential foraging	0.02	1
	-	-	Pied Oystercatcher	Potential foraging/ breeding	0.024	2
	-	-	Sooty Oystercatcher	Potential foraging/ breeding	n/a	1

Source: Kamay Ferry Wharves BDAR 2021

Construction would impact on marine threatened species and habitat

The proposal would have direct and potentially indirect impacts on one marine TEC and two marine threatened fauna species. These are *Posidonia australis* seagrass meadows TEC, White's Seahorse *Hippocampus whitei* and Black Rockcod *Epinephelus daemeli*. A third threatened species, Cauliflower Soft Coral *Dendronephthya australis*, was assessed by the Proponent as not occurring within the construction footprint and ferry swept paths at La Perouse and Kurnell.

Proposed construction of the Kurnell wharf would result in the loss of 683 m² of *Posidonia australis* **Seagrass Meadows of the Manning-Hawkesbury Ecoregion TEC** (endangered – EPBC Act and FM Act) due to shading effects and physical disturbance. Two small (about 0.05 hectares) patches of *P. australis* occur in the La Perouse proposal area, but would not be directly impacted by the proposal. The Proponent prepared a MBOS with plans to rehabilitate / relocate, enhance and monitor (pre- and post-construction) 2,000 m² of *P. australis* meadows in Botany Bay. This would be in partnership with DPI Fisheries, DAWE, University of NSW, and the Gamay Rangers representing La Perouse Local Aboriginal Land Council (LALC). This will promote *P. australis* TEC recovery and manage residual impacts of wharf construction and ferry operation on seagrass communities across the proposal area.

White's Seahorse generally occurs in association with *P. australis* seagrass meadows. White's Seahorse is endangered under both the EPBC Act and the FM Act. The Proponent considered that the loss of 683 m² of seagrass habitat of this species due to construction was not significant in terms of EPBC Act significance criteria. However, quality habitat exists for this species in the Kurnell referral area (**Figure 15**), individuals are known from Botany Bay, the species has strong site fidelity and *P. australis* is essential habitat for White's Seahorse.

The MBOS proposes the creation of 59.45 m² of artificial reef habitat at Kurnell and La Perouse wharves for White's Seahorse, seadragons, pipefish and other syngnathids. Pre-construction salvage surveys are proposed to remove any individuals of White's Seahorse present from the wharf construction zones and relocate them to seagrass beds and other habitat outside of the proposal area.

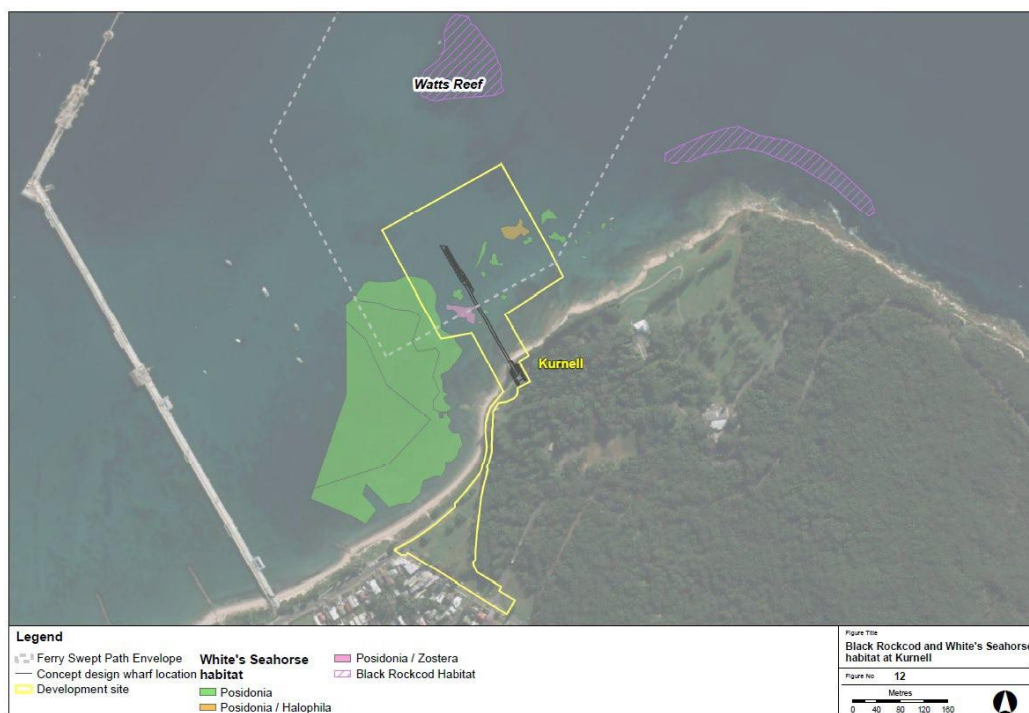


Figure 15 | Location of *Posidonia australis* seagrass beds and White's Seahorse habitat at the proposed Kurnell development site. Source MBAR 2021

Black Rockcod is vulnerable under both the EPBC Act and FM Act. Diver surveys conducted found sub-tidal habitat suitable for use by Black Rockcod adjacent to the proposed La Perouse and Kurnell wharf footprints but did not record any individuals within La Perouse or Kurnell wharf construction

boundaries. Rock ledges, caves and gutters used by this species are uncommon within the La Perouse and Kurnell construction boundaries. However, juvenile Black Rockcod are known to forage around artificial structures such as piers, wharves and rock emplacements in estuaries including Botany Bay. Adult Black Rockcod are highly territorial and can occupy the same underwater cave for many years.

Potential rocky reef habitat occurs for both adults and juveniles within 25 metres of the proposed La Perouse development site and 120 metres of Kurnell site. The MBOS states that an EPBC Act significance criteria assessment was not required for Black Rockcod based on its unlikely occurrence in the proposed construction footprints at La Perouse and Kurnell. The MBOS also states that there is no Black Rockcod habitat in the study area.



Figure 16 | Location of Black Rockcod habitat and White's Seahorse habitat at the proposed La Perouse development site (Source: Kamay Ferry Wharves MBAR 2021)

Cauliflower Soft Coral is endangered under the EPBC Act and FM Act and has been detected in Botany Bay (Kurnell and Bare Island) and Sydney Harbour. DAWE considered that a single threatening event such as lowered water quality due to increased turbidity and sedimentation would pose significant harm to this species. Diver surveys conducted for the proposal did not detect this species in or adjacent to the proposed La Perouse and Kurnell wharf construction footprints. On this basis, the MBOS concluded that the proposal would be unlikely to impact on this species and an assessment against the EPBC Act significance criteria was not required.

The EIS and MBOS identified Types 1 and 2 **Key Fish Habitat (KFH)** occurring within the proposal area. KFH is defined under the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013). Type 1 KFH has high sensitivity to habitat loss and / or disturbance and includes five genera of seagrass – *Posidonia*, *Halophila*, *Zostera*, *Heterozostera* and *Ruppia*, all of which occur at the proposed La Perouse and Kurnell development sites (pure *Posidonia* beds are absent from the La

Perouse site). Type 2 KFH has moderate sensitivity to habitat loss and / or disturbance and includes fringing sub-tidal reefs along shorelines and offshore rocky rises with macroalgae at La Perouse and Kurnell sites. Broken reef and rock amongst sandy sediments occur at Kurnell but not at La Perouse.

The MBOS considered residual impacts to KFH and threatened species under the FM Act are likely, and therefore require offsets. The Proponent would compensate the loss based on a 2:1 offset ratio. The MBOS includes actions to help reduce the proposed ecological impacts on KFH, *Posidonia* and other seagrasses and White's Seahorse. The MBOS includes provision for a monetary bond of \$2.881 million to help implement these offsets in the proposal area.

Impacts to groundwater dependent ecosystems would be minimal

One moderate to high potential Groundwater Dependent Ecosystem (GDE) has been mapped in the Bureau of Meteorology's *Groundwater Dependent Ecosystem Atlas* within and adjacent to the Kurnell proposal boundary. This occurs across two PCTs – 661 Bangalay-Smooth-barked Apple-Swamp Mahogany low open forest (Kurnell Dune Forest TEC) and 1232 Swamp Oak Floodplain Forest TEC. In addition, there is potential for GDE occurrence in association with Hawkesbury Sandstone outcropping in the central and southern sectors of the La Perouse site.

Impacts to Kurnell Dune Forest TEC were assessed and five biodiversity credits required to offset these impacts. The GDE at Kurnell falls mostly outside the construction footprint so there is minimal potential for adverse impacts on this resource. The proposed wharf construction at La Perouse would occur in the northern sector of the site, away from the GDE that occurs in the southern part of this area.

Biosecurity risks from weeds, pests and pathogens can be managed

The native vegetation of the proposal area has been subjected to moderate to high levels of incursion by invasive exotic plant species. 25 species are declared as Priority Weeds for the Greater Sydney Region under the *Biosecurity Act 2015*. Of these, 18 species are listed as Weeds of National Significance. An additional 12 exotic species recorded in the proposal area are listed as high threat weeds.

The introduction of pathogens such as *Phytophthora cinnamomi* and Myrtle Rust *Austropuccinia psidii* is a significant risk to native vegetation through earthworks and the movement of construction vehicles and plant across the proposal area. Appropriate hygiene protocols implemented during construction should mitigate against this risk.

Vegetation clearing of small patches of native vegetation are unlikely to result in the establishment of predator pest species such as the European Red Fox and Cat.

Submissions

Community and interest groups

Community submissions on marine biodiversity included concerns over negative impacts of the proposed construction on threatened seagrass beds, White's Seahorse and other marine biodiversity, lack of assessment of all marine species and ferry swept path impacts on squid breeding, and lack of adequate offsetting to protect threatened species.

Terrestrial biodiversity concerns raised in community submissions included the loss of biodiversity and lack of impact mitigation measures, lack of inclusion of all bird species likely to be impacted, and potential impacts on Towra Point Nature Reserve. One submission requested that consultation with Birding NSW occur prior to construction.

Council

Randwick City Council was concerned that the proposal did not align with the vision, values, and objectives of the Frenchman's Bay Plan of Management. Council recommended that seagrass removed from the construction footprint at La Perouse be relocated to the northern side of Botany Bay or in Penrhyn Estuary off Foreshore Beach. Council was concerned that sediment disturbed from the floor of the bay during wharf construction would damage nearby seagrass beds and other marine habitats. The use of silt curtains was recommended during wharf construction to mitigate this impact. Council was also concerned about potential impacts on the abundance and habitat of fish species in Botany Bay resulting from seagrass removal. Council suggested that Crayweed *Phyllospora comosa* (a large native seaweed) beds could be re-established along an existing rocky reef near the La Perouse site to provide alternative habitat in areas that are unsuitable for seagrass transplantation. Council also suggested that seagrass-friendly moorings could be installed to replace existing moorings in Frenchman's Bay, to help offset the impact of increased recreational boating use of the La Perouse area during summer.

Council noted increased use of the La Perouse foreshore associated with completion of the proposed wharf and additional safety lighting may increase European Red Fox presence in the area. This may lead to fox-mediated predation of the threatened Pied Oystercatcher and Sooty Oystercatcher. To help manage this, Council recommended the use of National Light Pollution Guidelines for Wildlife (January 2020) to minimise light spill.

Sutherland Shire Council broadly supports the proposal, but raised concerns about the potential impact on *Posidonia australis* Seagrass Meadows TEC and White's Seahorse. Council was particularly concerned about the lack of adequate mitigation and offset plans to minimise impacts on these threatened entities. Council expressed concern about transplanting *P. australis* and requested viewing the draft MBOS prior to its approval. Council recommended that the MBOS be included as a condition of approval.

Council raised concern that modelling of potential scour from vessels likely to use Kurnell wharf was limited to the proposed ferry service and did not include recreational vessels.

Agency advice

EHG advised that the BDAR assessed the proposal in accordance with State and Commonwealth legislation/requirements.

EHG also assessed potential impacts on MNES. EHG concluded that no relevant terrestrial EPBC Act listed entities will be significantly impacted and offsets have been adequately determined for all entities to be impacted. Biodiversity credits were calculated and are to be retired in accordance with BAM 2017.

DPI Fisheries advised that the proposal would significantly impact on *Posidonia australis* Seagrass Meadows TEC, threatened species including White's Seahorse and Black Rockcod, and other marine species in and adjacent to the proposal area. Issues raised included:

- impact of propeller, dredging or substrate resuspension which can smother nearby sensitive seagrass beds
- damage to seagrass beds from traversing and anchoring vessels
- detailed design of artificial habitats for seahorses
- development of environmental offsets and the MBOS.

EPA raised concerns over the potential for historically contaminated soils to be disturbed during piling and other construction works, leading to reduced water quality and increased threat to marine life. EPA recommended use of appropriate management and mitigation measures such as silt curtains and sheet piling to minimise disturbance and dispersion of potentially contaminated sediments. A construction surface water and groundwater monitoring program was also recommended. The Proponent committed to preparing and implementing a Soil and Water Management Plan, which EPA recommended be a condition of approval.

NPWS support the proposal, provided that appropriate impact mitigation measures are implemented to protect the flora and fauna of the National Park such as preventing the introduction of pest plants and animals. Other key recommendations were:

- preparation of an Environmental Management Plan including measures to protect environmentally sensitive areas, water pollution controls, management of pest plant and animals, site rehabilitation and site monitoring and reporting
- a Vegetation Management Plan is required where vegetation clearing is proposed.
- on-site identification of threatened species by a trained person and flagging and protection of identified plant specimens
- stop work and reporting requirement if the proponent becomes aware of any TECs, threatened species or populations or their habitats that were not identified and assessed in the EIS and are likely to be affected by the proposed activity.

Consideration

The assessment adequately considers Matters of National Environmental Significance

The BDAR and MBAR considered all potential MNES under section 18 and 18A of the EPBC Act that were known or potentially occurred in the proposal area. A summary of MNES assessed as potentially occurring in the study area is shown in **Table 7**.

Table 7 | Summary of MNES potentially occurring in the study area

MNES under the EPBC Act	Number recorded or likely to occur within 3 km of the study area	Number requiring detailed assessment	Number impacted or potentially impacted by the construction footprint
TECs	Five listed TECs	Three EPBC Act listed TECs were assessed against condition, composition and area of coverage criteria in the BAR	One – <i>Posidonia australis</i> seagrass meadows of Manning-Hawkesbury Ecoregion.
Threatened Flora	11 species	Two EPBC Act listed species	Two EPBC Act listed flora species – Magenta Lilly Pilly <i>Syzygium paniculatum</i> was detected adjacent to the construction footprint at Kurnell and Leafless Tongue-orchid <i>Cryptostylis hunteriana</i> which was not detected but could potentially occur adjacent to the Kurnell construction footprint.
Threatened fauna	19 species	Eight EPBC Act listed species	Four – Potential habitat of White’s Seahorse in <i>Posidonia australis</i> seagrass beds and Black Rockcod around artificial structures including piers, pylons and rock emplacements as well as Watts Reef near the proposed Kurnell construction footprint. Also, foraging habitat of Grey-headed Flying-fox and, potentially, Large-eared Pied Bat.
Wetland of international importance	One – Towra Point Nature Reserve RAMSAR site	NA	The wetland occurs 1 km southwest of the proposed Kurnell wharf construction boundary. The proposal is unlikely to impact on the ecological character of the wetland.

The Commonwealth Protected Matters Search Tool identified three EPBC Act listed TECs as potentially occurring in the study area – Coastal Swamp Oak Forest of NSW and Southeast Queensland, Littoral Rainforest and Vine Thickets of Eastern Australia and *Posidonia australis* seagrass meadows of the Manning-Hawkesbury Ecoregion. However, only the latter community met the minimum patch size (> 0.5 hectares), species diversity and canopy cover (both terrestrial TECs) and condition threshold criteria required for TEC listing under the EPBC Act. No remnants of the EPBC Act listed Eastern Suburbs Banksia Scrub of the Sydney Region TEC were recorded within the construction footprint at La Perouse or Kurnell.

Targeted surveys detected small patches totalling 70 plants of the threatened Magenta Lilly Pilly *Szyzgium paniculatum* to the immediate northeast and about 120 metres further east of the construction footprint at Kurnell. Although no individuals of the threatened Leafless Tongue-orchid *Cryptostylis hunteriana* were detected during surveys, potential habitat was found 60-120 metres east and southeast of the construction footprint at Kurnell. The non-threatened Tartan Tongue-orchid *C. erecta* was found in this area and can co-occur with *C. hunteriana*.

The assessment of threatened flora species listed under the EPBC Act is summarised in **Table 8**.

Table 8 | Summary of MNES flora species predicted to occur in or adjacent to the study area

Threatened flora species listed under the EPBC Act	BDAR assessment
<i>Szyzgium paniculatum</i>	70 plants were detected during targeted surveys in the study area at distances of about 60-120 metres from the northeast and eastern edges of the Kurnell construction footprint. However, there is poor quality habitat within PCTs 661 (Kurnell Dune Forest TEC – BC Act) and 1832 (Littoral Rainforest TEC – BC Act) where this species can occur. Considered as having a high likelihood of occurrence elsewhere within three km of the study area at Kurnell.
<i>Cryptostylis hunteriana</i>	Potential habitat for this species occurs in the eastern part of PCT 1778 (Smooth-barked Apple-Coast Banksia / Cheese Tree open forest) adjacent to the Kurnell construction footprint. This species is considered to have a moderate likelihood of occurrence in the Kurnell study area.
<i>Melaleuca biconvexa</i>	Not recorded during targeted surveys in the study area. Has a low likelihood of occurrence in the study area due to the lack of suitable habitat – damp riparian areas.
<i>Leptospermum deanei</i>	This species is considered to have a low likelihood of occurrence in the study area because of lack of suitable riparian and woodland habitat.

Of the 19 threatened fauna species identified in the Protected Matters Search Tool report, only one species, the Grey-headed Flying-fox, was recorded during surveys undertaken in the proposal area. The species was recorded foraging during nocturnal surveys. No Grey-headed Flying-fox camps were recorded in the proposal area. The nearest camp is located approximately 2.5 kilometres southwest of the Kurnell site. The BDAR considered the proposal would not have a significant impact on this species.

In declaring the proposal to be a controlled action, DAWE considered that there were likely to be significant impacts to the:

- *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion – endangered
- White’s Seahorse (*Hippocampus whitei*) – endangered
- Black Rock-cod (*Epinephelus daemeli*) – vulnerable
- Cauliflower Soft Coral (*Dendronephthya australis*) – endangered. Diver surveys did not detect this species in or near the construction footprint. The MBAR concluded that suitable reef habitat of this species does not occur in or near the study area.

The assessment of these and other EPBC Act-listed fauna species is summarised in **Table 9**.

Table 9 | Summary of MNES fauna species predicted to occur in the study area

Threatened fauna species listed under the EPBC Act	Number recorded within 3 km of the study area	MBAR / BDAR assessment
White’s Seahorse	Not known	No individuals of this species were detected during diving surveys undertaken in the study area. However, this species is known to occur in association with <i>Posidonia australis</i> and other seagrass beds of which patches occur in La Perouse and Kurnell construction footprints. Pre-construction surveys would be conducted for this species at Kurnell and La Perouse sites.
Black Rockcod	Not known	No individuals were recorded during diving surveys in the study area. However, potential habitat occurs near both construction footprints and juveniles of this species are known to forage around artificial habitats such as pylons and piers. Pre-clearing surveys would be conducted for this species.
Green and Golden Bell Frog	Eight	BioNet records exist for this species on the Kurnell Peninsula, including the National Park, from 1995-2011. The BDAR concluded that suitable breeding habitat does not occur within or near the construction footprint and surveys did not detect this species. However, individual bell frogs can move over distances of up to 5 kilometres in a single night. An unexpected threatened species finds condition has been prepared for this species if detected during construction at the Kurnell site.
Grey-headed Flying-fox	13	This species was recorded during surveys for the proposal at Kurnell where suitable foraging but not breeding habitat exists. Recent records are held for Kurnell Peninsula including Kamay Botany Bay National Park. The nearest camp is about 2.5 kilometres southwest of the Kurnell site.
Large-eared Pied Bat	Not known	This species was not recorded in the study area. The BDAR concluded that suitable roost sites in caves occur for this species within 2 kilometres of the construction

footprint and that suitable foraging habitat also exists. This species was assessed as a species credit species.

The Department is satisfied with the updated BDAR conclusions on impacts to MNES and recommends the Minister for the Environment:

- note the Department's assessment of MNES in this report
- considers the Bilateral assessment in **Appendix G**
- considers the additional EPBC Act considerations, including the Commonwealth's international obligations and the consideration of relevant approved conservation advice, recovery plans, and threat abatement plans in **Appendix H**
- adopts conditions E1 to E22 (terrestrial and marine biodiversity) in **Appendix I**.

Impacts to two TECs are unavoidable, and measures would be implemented to minimise the impact

Through detailed planning and design the Proponent has sought to avoid, minimise and offset potential impacts on TECs and threatened habitats in the study area. However, there would be a need to remove 683 m² of *Posidonia australis* and *Zostera* seagrass meadows from the proposed wharf construction sites. This will reduce the amount of seahorse habitat and KFH present, particularly at Kurnell. Also, proposed construction of an access road at Kurnell would require the clearance of 0.034 hectares of Kurnell Dune Forest TEC (endangered under the BC Act). This would cause a small-scale loss of understorey and ground cover vegetation, small logs, rocks and leaf litter from the site.

The Department acknowledges there are unavoidable indirect impacts to biodiversity outside the construction footprint. These include scouring of seagrass and macroalgal communities due to ferry wash, weed incursion, increased light penetration of aquatic plant communities and construction noise associated with piling work and heavy vehicles.

The Department notes the Proponent has committed to addressing potential construction and operation impacts on TECs and threatened species through mitigation measures including implementing a MBOS, preparing and implementing a Biodiversity Management Plan, undertaking general pre-clearing surveys, implementing unexpected finds procedures, and identifying and protecting sensitive areas including Leafless Tongue-orchid habitat.

The Department accepts the proposal's impacts on *Posidonia australis* seagrass meadows TEC and Kurnell Dune Forest TEC are unavoidable, but can be mitigated by implementing and monitoring the performance of a range of measures including the MBOS.

Impacts on threatened flora and fauna species cannot be avoided and would be offset

The Department understands the proposal would directly impact 683 m² of *Posidonia australis* and *Zostera* seagrass meadows which provide habitat for the threatened White's Seahorse and is identified as KFH under the FM Act. Potential foraging habitat for the threatened Black Rockcod occur at Watts Reef near the Kurnell construction footprint.

Additionally, the construction of an access road at Kurnell may impact on Leafless Tongue-orchid habitat and non-breeding habitat for Green and Golden Bell Frog. Construction noise at Kurnell and La Perouse sites may temporarily impact on Sooty Oystercatcher and Pied Oystercatcher, and species credits have been assigned to offset this impact. The proposal may potentially impact the foraging habitat of three bat species – Grey-headed Flying-fox, Large-eared Pied Bat and Eastern Cave Bat. No Grey-headed Flying-fox camps occur within the study area. Potential impacts of the proposal on the Large-eared Pied Bat and Eastern Cave Bat would be offset by acquiring and retiring species credits. Given that the proposal would not impact Grey-headed Flying-fox camps, no species credits are required for this species.

The MBAR identified 16 migratory species that may use the study area for foraging purposes. Only one of these species – Crested Tern *Thalasseus bergii* (listed as a migratory species under the EPBC Act) – was recorded during surveys. Given the amount of suitable foraging habitat available to this species across the broader Botany Bay and along the coastal margins of the National Park, the Department considers that this species would not be impacted by the proposal.

The Department has reinforced the Proponent’s commitment to manage construction impacts on TECs and threatened communities by requiring, as conditions of approval, the:

- establishment of a MBOS Implementation Reference Panel comprising government agency and community stakeholders
- implementation and review of a MBOS based on the recommendations of the MBOS Implementation Reference Panel
- assignment of species credits to offset the proposal’s potential impacts on the foraging habitats of Pied Oystercatcher, Sooty Oystercatcher, Large-eared Pied Bat and Eastern Cave Bat
- development and implementation of a Biodiversity Management Plan containing a Terrestrial and Marine Biodiversity CEMP Sub-plan to manage construction impacts on the biodiversity values
- minimisation of impacts on threatened species, including during early and low impact works.

Biodiversity offsets are required

The direct impacts to threatened species and TECs require offsetting through securing ecosystem credits to address impacts to PCTs and species credits for impacts to threatened species.

The Proponent has determined the following biodiversity credits are required (**Table 10** and **Table 11**):

Table 10 | Ecosystem credits for direct impacts to PCTs

Credit class	PCT	Associated TEC	Direct impacts (ha)	Number of credits
Ecosystem	1823 Coastal headland	-	0.009	1

	cliffline scrub			
661 Coastal sand littoral forest	Kurnell Dune Forest in the Sutherland Shire and City of Rockdale	0.02		5
772 Coastal foredune wattle scrub	-	0.024		1

Total Ecosystem Credits: 7

Table 11 | Species credits for direct impacts to threatened species

Credit class	Threatened species	Habitat impacted	Direct impacts (ha)	Number of credits
Species	Large-eared Pied Bat	Potential foraging	0.07	6
	Eastern Cave Bat	Potential foraging	0.02	1
	Pied Oystercatcher	Potential foraging/ breeding	0.024	2
	Sooty Oystercatcher	Potential foraging/ breeding	n/a	1

Total Species Credits: 10

Total biodiversity credits required (ecosystem and species): 17

Impacts on groundwater dependent ecosystems are minimal and can be managed

The Proponent identified two Groundwater Dependent Ecosystems (GDEs) within and adjacent to the study area – one of moderate to high potential at Kurnell (Coastal Sand Forest) and the second in Hawkesbury Sandstone at the central and southern parts of the La Perouse site. Both GDEs are unlikely to be significantly impacted by the proposal – most of the Kurnell GDE occurs outside of the construction footprint, and proposed wharf construction work will occur away from the GDE in the northern section of the La Perouse site.

The Department considers potential impacts of the proposal on GDEs will be minor and able to be managed at the La Perouse and Kurnell construction sites.

Biosecurity risks need to be managed

The Proponent identified risks to biodiversity from 25 species of Priority Weeds for the Greater Sydney Region under the *Biosecurity Act 2015* and an additional 12 exotic plant species, diseases, and pathogens during the construction of the proposal. The Proponent has committed to developing protocols and implementing measures to manage weeds and associated risks in accordance with the *Biosecurity Act 2015* and Biodiversity Guidelines: Protecting and managing biodiversity on RTA proposals (RTA, 2011).

The Department has recommended the Proponent implement weed management measures and hygiene protocols as part of the Terrestrial and Marine Biodiversity CEMP Sub-plan to minimise risks of transmitting weeds, disease and pathogens during construction. This would ensure that the transfer of weeds, disease and pathogens, in particular, *Phytophthora cinnamomi* and Myrtle Rust *Austropuccinia psidii* is minimised, by appropriately managing the movement of construction personnel, machinery and vehicles.

The Department acknowledges that fragmentation of habitat can increase activities from exotic (European Red Fox and Cat) and native (Noisy Miner) pest species. However, pest species are established in the study area because of existing and historical disturbance to native vegetation from urban land uses. The Department considers that the proposal would not result in worsening of impacts associated with fragmentation of habitat.

6.2 Heritage

La Perouse and Kurnell are areas of national, state and local heritage significance. The proposal would introduce new structures within the heritage settings, resulting in temporary and permanent impacts on the heritage significance of La Perouse and Kurnell. Within the national heritage listings (NHL) are multiple elements that contribute to these heritage listings such as monuments, structures and vegetation, and significant views and site lines.

Impacts to Aboriginal and non-Aboriginal heritage items, including national heritage places listed under the EPBC Act have been assessed in accordance with the Bilateral Agreement; State and local items were assessed in accordance with relevant NSW policy frameworks.

The Proponent's assessment of heritage impacts guided the design of the proposal to reduce direct and indirect impacts to the heritage settings of both wharf locations. The Department considered community submissions and agency advice to assess the impacts of the proposal on these elements and considers that impacts on the heritage significance of La Perouse and Kurnell can be managed. The Department is satisfied that the recommended conditions of approval, which include the preparation of a Heritage Management Plan and Salvage and Excavation program, along with the Proponent's proposed heritage management and mitigation measures, would manage heritage impacts.

Matters of National Environmental Significance (Bilateral Assessment)¹

Issue

The proposal is located at Botany Bay which is significant as the first meeting place between Aboriginal Australians and the expedition of Captain James Cook. The area also represents the dispossession of Aboriginal Australians. The area includes National Heritage places listed under the EPBC Act. The proposal is a controlled action under the EPBC Act.

Bilateral Agreement

The Bilateral Agreement (dated 2015 and amended in 2020) between the Commonwealth and the State of NSW for the assessment of environmental approvals under the EPBC Act, endorsed the assessment process under the EP&A Act for assessing heritage values under the EPBC Act. The EIS, Statement of Heritage Impact (SoHI) and Aboriginal Cultural Heritage Assessment Report (ACHAR) includes an assessment of proposal impacts on MNES.

The Proponent has addressed the Commonwealth requirements and assessed the impacts on MNES. Sections of the EIS relevant to MNES include:

- Chapter 3 – Strategic justification and proposal need
- Chapter 4 – Proposal development and alternatives
- Chapter 6 – Consultation
- Chapter 7 – Aboriginal Heritage
- Chapter 8 – Non-Aboriginal Heritage
- Chapter 9 – Underwater Heritage
- Chapter 26 – Environmental risk analysis
- Chapter 27 – Proposal justification and conclusion
- Appendix A – Proposal synthesis and summary of environmental management measures
- Appendix E – Aboriginal Cultural Heritage Assessment Report
- Appendix F – Statement of Heritage Impact
- Appendix G – Underwater Cultural Heritage Assessment Report.

National Heritage places would be impacted

The then DAWE found in its assessment of the controlled action referral (EPBC 2020/8825) that the proposed action is likely to have a significant impact on the National Heritage places controlling provisions of the EPBC Act (section 15B and 15C).

The then DAWE considered the proposed action is likely to have a significant impact on the following MNES:

- Kurnell Peninsula Headland, Cape Solander Dr, Kurnell (NHL 105812).

The Kurnell Peninsula Headland (KPH) was included on the NHL for the following heritage values:

- Criterion A Events, Process

¹ References to sections of the EIS and Submissions Report and the recommended conditions of approval have been included in this section to satisfy the Commonwealth's assessment requirements.

- Criterion B Rarity
- Criterion G Social Value
- Criterion H Significant People.

There are impacts to the National Heritage Listing

Direct impacts

The proposal occurs within the NHL curtilage for the peninsular and north of the area identified as Captain Cook's Landing Place. While heritage items are not explicitly identified in the NHL gazettal, they are listed in the values that contribute to the NHL listing.

The main risk of direct impact is to the stone sea wall due to the excavation of a utility trench. While a locally listed heritage item, the sea wall is a contributing heritage element to the NHL listing. This comprises removal of a 2m wide section, with potential to destabilise adjacent sections of the wall.

The proposal may also have minimal impacts to the Aboriginal heritage values, particularly those that display Aboriginal occupation. The proposal would impact Foreshore Midden-Captain Cook's Landing Place (AHIMS ID 42-3-0219) which is identified as a burial, shell and artefact site. The Proponent carried out archaeological testing in the location of the midden, however, did not identify any archaeological material. Construction may uncover Aboriginal middens during excavation which could provide additional information relating to Aboriginal occupation.

Indirect impacts

The proposal would result in permanent indirect impacts to the views from Kurnell monuments in Kamay Botany Bay National Park, particularly the Captain Cook monument located approximately 50m from the wharf. The proposed wharf would be visible in the foreground looking towards Botany Bay and La Perouse. This view is currently largely uninterrupted, except for the existing smaller wharf to be replaced. Views towards the monument from the south-west would be altered with the introduction of the larger wharf. However, although the new wharf would introduce an additional structure within sight of the monument, it has been designed to be consistent with the historic setting of the foreshore and the monument.

Archaeological impacts

Evidence of archaeological remains have been identified during the test excavations and confirmed to be within the footprint of the ground disturbing works. Due to the limited nature of the test excavations, the full extent of the archaeological remains of the former sandstone sea wall is unknown. However, if further archaeological remains of the former sea wall are present, then the area where potential impacts could occur would be a 15m long section of the utility trench along Monument Track as it transitions from Monument Track to the new wharf.

Submissions

Community and interest groups

Concerns were raised regarding the change in visual character at La Perouse and Kurnell resulting from the introduction of wharf structures and subsequent impacts to views of the La Perouse headland and across Botany Bay. It is noted that these submissions relate to visual impacts and have been considered in section 6.5 of the report however, these impacts would be to and/or from an NHL and are therefore also considered in the heritage assessment.

Agency Advice

NPWS requested the Proponent consider alternative locations for the installation of the Kurnell services cabinet to reduce impacts to the heritage landscape, and recommended conditions to mitigate potential impacts to Aboriginal heritage, historic heritage and measures to protect the national park. NPWS also noted that if the African olive tree is proposed to be impacted, it should be removed and not re-planted.

Heritage NSW noted the EIS adequately assesses impacts of the proposal on both NHL items, Kamay Botany Bay: Botanical Collection Site (NHL ID 106162) and Kurnell Peninsula Headland (NHL ID 105812), and is satisfied that there would be no impacts to the NHL significance criteria.

Heritage NSW (ACH) noted that there would be no impact to Aboriginal Heritage values of the Kamay Botany Bay: Botanical Collection Site (NHL ID 106162) and agreed with the findings made in the ACHAR. Heritage NSW is satisfied with the Proponent's measures to mitigate impacts to Aboriginal Heritage relating to Kurnell Peninsula Headland (NHL ID 105812), which include:

- supervision where excavation exceeds 400mm
- the implementation of a salvage program to ensure that any significant finds are maintained
- information on measures to maintain significant finds.

Consideration

The assessment adequately considers Matters of National Environmental Significance and its criteria

The EIS and accompanying technical papers considered potential MNES under section 15B and 15C EPBC Act near the proposal. Impacts on Kurnell Peninsula Headland have been assessed in accordance with the Significant Impact Criteria outlined in the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (Australian Government, Department of Environment, 2013). A summary of the MNES assessed as occurring in the area is shown in **Table 12**.

Table 12 | Summary of MNES within the study area

Possible outcome	Impact to Kurnell Peninsula Headland
<u>National heritage places with cultural heritage values</u>	

Permanently remove, destroy, damage or substantially alter the fabric of a World Heritage property or National Heritage Place in a manner that is inconsistent with relevant values

Historic heritage

The proposal has the potential to impact the sandstone sea wall, however the proposal would not directly impact the commemorative monuments which form part of the heritage values of the NHL.

Aboriginal heritage

Impact to Foreshore Midden – Captain Cook’s Landing Place (AHIMS ID 52-3-0219) which reflects evidence of Aboriginal occupation.

Extend, renovate, refurbish or substantially alter a World Heritage property or National Heritage Place in a manner which is inconsistent with relevant values

Historic heritage

The proposal is consistent with the heritage values of the NHL as the design is sympathetic with the historical landscape. The proposal would also include design features that provide direct connection to the historical significance and maintain openings to maintain views and vistas.

Aboriginal heritage

The design of the proposal would not impact the Heritage values of Aboriginal items at La Perouse and Kurnell.

Permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a World Heritage property or National Heritage Place

Historic heritage

The proposal would not remove, destroy or substantially disturb archaeological deposits.

Aboriginal heritage

The proposal has the potential to disturb remains of Aboriginal occupation within the NHL curtilage through excavation works, however suitable mitigation measures have been proposed.

Involve activities in a World Heritage property or National Heritage Place with substantial and/or long-term impacts on its values

N/A.

Involve construction of buildings or other structures within, adjacent to, or within important sight lines of a World Heritage property or National Heritage Place which are inconsistent with relevant values

Historic heritage

The ferry wharves would be visible within some sight lines however the design is sympathetic to its surroundings and historical background. The ferry wharves have been designed to be open and transparent to maintain important sight lines.

Aboriginal heritage

The visibility of the ferry wharves would not adversely impact Aboriginal Heritage at La Perouse and Kurnell.

Impacts to National heritage are unavoidable and mitigation measures would be implemented to manage impacts

Through the design process, the Proponent has generally avoided and minimised impacts to the National Heritage values to Kurnell Peninsular Headland (ID 105812). To ensure the proposal does not have an unacceptable impact on MNES, the Proponent included mitigation measures in the ACHAR and the HIS.

The Department notes that a section of the Course Stone Sea Wall is proposed to be impacted as part of the utility excavations alongside the proposed wharf. The Department acknowledges the Proponent's commitment to excavate the utility trench at Kurnell underneath the buried portion of the course stone sea wall near the wharf tie-in, instead of removing a section of the sea wall.

While the Department supports the proposed mitigation measures, conditions have been recommended to ensure any potential impacts resulting from the construction and operation of the proposal are minimised to the greatest extent possible.

The proposal may result in impacts on Foreshore Midden-Captain Cook's Landing Place, which provides evidence of Aboriginal occupation. The location of midden material that has the potential to be disturbed during construction activities is predicted to be located approximately 600mm-900mm below surface level. The Proponent has committed to requiring archaeological supervision during excavation greater than 400mm in depth, to ensure any objects found during excavation are recorded and salvaged. The Department supports this, as it ensures items of high significance are preserved.

To address potential visual impacts to the NHL, the Department has recommended the design of the ferry wharves considers the inclusion of neutral external colour schemes and finishes that avoid reflection to reduce visual impacts. The Proponent has committed to maintaining an open design with transparent materials, thereby not impeding the significant sightlines within Botany Bay. Further, the Department recognises the heritage significance of both wharf sites and has also recommended a condition requiring the establishment of a State Design Review Panel including First Nations membership, to provide independent design advice and guidance during detailed design.

Other Non-Aboriginal heritage

Issue

The construction of the proposal would potentially impact local and state listed heritage items within the construction boundary at both La Perouse and Kurnell. The Proponent has assessed the potential impacts to local and state listed heritage items and committed to mitigating impacts on heritage items. The Proponent assessed impacts to elements listed in The Meeting Place Precinct Conservation Management Plan (CMP) and the La Perouse Headland CMP.

The Proponent has committed to managing impacts to local and state listed heritage items, including elements and components associated with these items. Measures include a heritage management plan, archaeological research design, site inductions and archival recording program. The Department has included conditions to ensure heritage items are protected during construction of the proposal.

Construction activities may impact local and State-listed heritage items in the construction boundaries

The Proponent has assessed the direct, potential direct, indirect, cumulative, and archaeological impacts to heritage items as a result of the construction of the proposal. Construction activities which could potentially impact heritage items include land disturbance, installation of utilities, landscaping of the wharf tie-in areas, and reconfiguration of a portion of the car parking area at La Perouse.

The Kamay Bay National Park (North and South) and Towra Point Reserve (State Heritage Register (SHR) 01918) at La Perouse and Kurnell and the Botany Bay National Park (Botany Bay National Park, La Perouse Headland, Yarra Bay and Frenchmans Bay), are locally listed heritage items (RLEP C5), within the construction boundary at La Perouse. Other heritage items of local significance listed in the Sutherland Local Environmental Plan (SLEP) in the construction boundary at Kurnell include:

- Kurnell monuments (in Kamay Botany Bay National Park) *A series of monuments in the Kamay Botany Bay National Park* – (SLEP 2503)
- Kurnell Historic Site (in Kamay Botany Bay National Park; *Covers the majority of the Kurnell Headland*) – (SLEP 2504)
- Silver Beach and roadway – (SLEP 2506)
- Captain Cook monument – (SLEP A2514)
- Captain Cook watering well – (SLEP 2519)
- Landing place wharf abutment – (SLEP 2516).

Within each heritage listing, there are multiple elements and individual components such as monuments, vegetation, significant views and site lines, that make up and contribute to the heritage listing. The Proponent has assessed the impacts to elements listed in The Meeting Place Precinct Conservation Management Plan (CMP) and the La Perouse Headland CMP.

Landscape elements of the Headland CMP are within the construction boundary and therefore likely to be impacted by construction and excavation activities. Five juvenile trees at Kurnell, a small area of remnant Coast Banksia community vegetation at La Perouse and Kurnell, and an African Olive tree at Kurnell are proposed to be removed.

There is archaeological potential within the construction boundaries at La Perouse and Kurnell

The Proponent has undertaken desktop reviews of historical records, past investigations, current ground conditions, and field surveys to assess the archaeological potential within the La Perouse and Kurnell construction boundaries. The assessment identified the potential archaeological remains, likelihood of impact and its significance (national/state/local).

At La Perouse, construction of the proposal could potentially impact on the remains of the former wharf approach road, including bitumen and sandstone road construction and kerbing as well as minor artefact deposits. The former wharf approach is classified as of local significance and the minor artefact deposits would not reach the threshold of local significance.

The remains of Cottage Number 2, located at Kurnell, have high archaeological potential and significance. Archaeological potential at Cottage Number 2 includes structural remains (brick and concrete footings), timber posts, post holes, yard surfaces, refuse deposits and minor artefact scatters. Remains of sandstone sea walls and the concrete slab remains of Foreshore Track and minor artefact deposits could potentially be impacted by construction at Kurnell. The remains of Cottage Number 2 are classified as being of local significance and the concrete slab would not reach the threshold of local significance.

Submissions

Community and interest groups

Community submissions raised concerns regarding potential damage to non-Aboriginal archaeological sites and heritage values, and noted that impacts to values of Bare Island's heritage listing had not been considered. Other submissions requested for the historic ferry shelter at Kurnell to remain and all existing exotic plantings at Kurnell to be removed.

Councils

Sutherland Shire Council recommended a Heritage Management Plan to manage impacts of the proposal on heritage values. Council requested that the African Olive tree be retained or relocated if retention was not possible.

Randwick City Council recommended that the Proponent's mitigation measures listed in the Heritage Interpretation Strategy (HIS) be included as conditions of consent and an additional condition requiring the HIS to guide interpretative installations and landscapes be included.

Agency advice

Heritage NSW (Heritage Council of NSW) recommended conditions including:

- a specific maritime heritage management plan to address impacts to maritime heritage
- maritime heritage assessment be undertaken by a suitably qualified maritime archaeologist
- further review of impacts to Bare Island's heritage values

- low shrubs to be planted to screen the additional car parking spaces to be constructed at La Perouse.

NSW National Parks and Wildlife Service (NPWS) supported the removal of the African Olive tree and suggested an alternative location for the proposed utilities cabinet.

Consideration

Impacts to heritage items are minor and can be managed

The Department notes all elements in the Kamay Botany Bay National Park and the Kurnell Historic Site, except for the landscape elements, are located outside the construction boundary and would not be directly impacted. The removal of vegetation at La Perouse and Kurnell is limited to five juvenile trees at Kurnell, a small area of remnant Coast Banksia community vegetation at La Perouse and Kurnell, and removal of an African Olive tree at Kurnell. The Department considers these impacts to be negligible as these trees are not historic or cultural plantings under the Meeting Place Precinct CMP and have little to no contribution to the significance of the overall Meeting Place Precinct.

The Department acknowledges there are impacts to Monument Track, Captain Cook Watering Well and the Landing Place Memorial at Kurnell. However, these impacts are considered negligible as they are temporary and only occur during construction. The relocation of the Captain Cook Watering Well and Landing Place Memorial would also be temporary and necessary to avoid impacts during construction.

The Proponent has committed to implementing environmental management measures to ensure correct construction measures and procedures are followed to mitigate the impacts to heritage items. In addition, the Department has recommended conditions to ensure heritage items are further protected. Therefore, the Department is satisfied that the impacts have been assessed and can be managed.

The proposal would have minor impacts on archaeology

The Department notes that loss, damage, or destruction of the archaeological evidence of the former wharf approach could occur as a result of construction at La Perouse, which is unavoidable. The Proponent's assessment indicates that parts of this area have previously been impacted and have been highly disturbed and would only result in an archaeological impact to the Botany Bay National Park (Botany Bay National Park, La Perouse Headland, Yarra Bay and Frenchmans Bay) local heritage conservation area. Although Cottage Number 2 is within the construction boundary, it is located outside the footprint of ground disturbing works. As a result, it is not expected that archaeological remains associated with Cottage Number 2 would be impacted.

The Proponent has committed to undertaking archaeological investigation, management and any salvage requirements within the construction boundaries once detailed design has been completed. This would ensure archaeological assessment is guided and measures are placed to ensure archaeological impacts are minimised. To ensure adequate archaeological investigations are undertaken, the Department has included a condition requiring an Excavation Director to direct the

archaeological program. The Department is satisfied that the Proponent's environmental management measures and conditions can manage any archaeological impacts as a result of the proposal.

Other Aboriginal heritage

Impacts on Aboriginal cultural heritage are unavoidable due to the long and complex connection to the area. The Department recognises the close association the Aboriginal community has with both La Perouse and Kurnell. The Department acknowledges the significant effort made by the Proponent during the design development process, including comprehensive consultation with the local Aboriginal community, to ensure that impacts on Aboriginal cultural heritage are limited to the greatest extent possible. The Proponent has committed to mitigation measures to manage residual impacts on heritage items such as protection and salvage programs and vibration monitoring to ensure that AHIMS sites are protected. The Department has recommended conditions requiring archival recording of heritage items.

Issue

Aboriginal cultural heritage has been appropriately identified within the proposal area

One AHIMS registered site (Foreshore Midden Captain's Cook's Landing Place (AHIMS ID 52-3-0219) and two Potential Archaeological Deposit (PAD) identified as Foreshore Midden PAD and K PAD 1 are located within the Kurnell construction boundary. Archaeological testing was carried out on both PADs which did not identify any significant archaeological resources. Two isolated artefacts were uncovered being one silcrete proximal flake fragment and one complete chert flake. Both items were considered to have low scientific and cultural heritage significance.

No AHIMS registered sites were identified within the La Perouse construction boundary, however eight listed AHIMS sites are located near the construction boundary. As part of the testing program, only two listed items were uncovered, which were identified as Site 1, La Perouse (AHIMS ID 45-6-0648) and Site 4, La Perouse (AHIMS ID 45-6-0651). Site 6 La Perouse (AHIMS ID 45-6-0653) is identified as being within close distance to the construction boundary, however was unable to be verified as part of the testing program due to excavation of contaminated material. The three AHIMS sites at La Perouse are rock engravings/ paintings that have moderate-high significance.

Submissions

Community and interest groups

Community submissions raised concerns over potential impacts to the cultural heritage of the area and suggested further engagement was required with Aboriginal groups.

The La Perouse Local Aboriginal Land Council and La Perouse United Mens Aboriginal Co-operation support the proposal, particularly for opportunities for the local Aboriginal community to be involved in construction and operation of the proposal.

Council

Randwick City Council support the recommendations provided in the ACHAR.

Sutherland Shire Council recommended a Heritage Management Plan be prepared and implemented to manage impacts of the proposal on heritage values of the area, requested Aboriginal cultural heritage values be integrated into the design, and art works be included which reflect the significant stories of the place.

Agency advice

Heritage NSW (Aboriginal Cultural Heritage) noted the proposed mitigation measures are proportionate to the degree of cultural harm that may result from the proposal on Aboriginal cultural heritage values. However, they recommended strengthening the Proponent's commitments to minimise risk of harm to items.

Consideration

The design of the proposal avoids significant impact to Aboriginal cultural heritage values

The proposal does not contain any listed heritage items in the La Perouse construction boundary, however, three AHIMS listed sites are near the construction boundary that may be impacted through construction works. These sites are rock engravings with moderate to high significance. The Proponent has committed to carrying out a visual inspection of the site prior to construction and establishing an exclusion zone.

During test excavations, Site 6 (AHIMS ID 45-6-0651) could not be identified due to potential soil contamination. The site may be impacted as its exact location has not been identified, therefore the Department has recommended a condition that supervision by an appropriately qualified and experienced archaeologist be undertaken during ground penetrating works in the area. If the site is discovered, work must cease and an appropriate methodology developed to protect the site.

The Department considers that the Proponent had adequately assessed those impacts that cannot be avoided, and noted that Heritage NSW considered that the proposed mitigation measures are proportionate to the degree of predicted impact.

Aboriginal cultural heritage values would be captured through heritage interpretation which is reflected in design elements including fabrics and finishes

Both La Perouse and Kurnell are closely associated to the Aboriginal community, and it is important that this be reflected in the design elements of the proposal. To recognise the historical importance and sensitivities of the wharf sites, the Department has recommended a condition requiring a State Design Review Panel be established, with First Nations membership. This process would ensure the detailed design process is appropriately and independently scrutinised, to ensure the best design outcome for the community. Further, the Department has recommended a condition that the Proponent prepare an Urban Design and Landscape Plan (UDLP) in consultation with the La Perouse LALC and local Registered Aboriginal Parties (RAPs) to incorporate Aboriginal heritage into the

design. As discussed in **Section 6.5**, Aboriginal cultural heritage values would be captured and reflected in design elements to be outlined in the UDLP. The framework provided in the UDLP would look for opportunities for Aboriginal interpretation through elements such as public art, inlays in pavers, signage, façade treatment and the use of Aboriginal patterns and motifs in finishes and interpretation displays. The Proponent has committed to consulting with the RAPs and La Perouse LALC to integrate traditional stories important to the area into the overall design of the ferry wharves.

6.3 Noise and vibration

The construction of the ferry wharves would have noise impacts on nearby sensitive land uses. However, these impacts are unavoidable due to the proximity of residents and sensitive land uses. The out-of-hours works are necessary for some construction activities to ensure a safe work environment during calm water periods.

The Proponent has committed to a range of accepted industry best-practice management measures to manage construction noise and vibration. These measures, along with a proactive approach to managing noisy and out-of-hours works, should ensure that noise and vibration impacts are minimised. Operation of the ferry service is not expected to result in any discernible increases in noise levels at nearby sensitive land uses.

Issue

Construction activities would primarily be undertaken during standard daytime hours

Noise and vibration impacts would vary during construction, depending on the activities being carried out and their proximity to residences and other sensitive land uses. The construction of the wharves including landscaping and footpath works, the installation of utilities, car park reconfiguration and piling activities are expected to be the noisiest, both at La Perouse and Kurnell.

Standard construction hours of Monday to Friday, 7.00am to 6.00pm and 8.00am to 1.00pm on Saturdays, are proposed. No construction would occur on Sundays or Public Holidays. Out of hours construction works are proposed from 10.00pm to 7.00am, for activities including drilling and piling. Piling activities may be undertaken at night when the water is calm and the harbour is less busy, to avoid potential safety impacts to construction vessels and workers. While drilling or piling would mostly be undertaken during standard work hours, the schedule in **Table 13** would be followed should these activities need to be undertaken outside of standard hours.

Table 13 | Out of hours work schedule

Activity	Timing
Drilling of piles	Setup: 11.00pm to 12.00am
	Drilling: 12.00am to 6.00am
	Pack up: 6.00am to 7.00am

Hammering of piles	Setup: 4.00am to 5.00am
	Hammering: 5.00am to 7.00am

Noise impacts would exceed relevant noise management levels during demolition and construction

The Proponent’s noise assessment is based on a ‘worst-case’ impact scenario, based on 15-minute construction works. The most impacted residential and non-residential land uses near the proposed wharves at La Perouse and Kurnell are shown in **Figure 17** and **Figure 18**. The noise assessment identified impacts to nearby residents, businesses and other land uses associated with:

- piling at La Perouse and Kurnell
- wharf construction at La Perouse and Kurnell
- carpark reconfiguration, earthworks for footpaths and landscaping at La Perouse and Kurnell
- installation of utilities at La Perouse and Kurnell
- landscaping and removal of compounds at La Perouse and Kurnell.



Figure 17 | Location of noise sensitive land uses at La Perouse (source: RtS 2021)



Figure 18 | Location of noise sensitive land uses at Kurnell (source: RtS 2021)

The predicted NMLs at La Perouse and Kurnell are summarised below in **Table 14**.

Table 14 | Residential and non-residential predicted results at La Perouse and Kurnell (source: RtS 2021)

			Stage 1			Stage 2						Stage 3	
ID	Period		NML	Security and Fencing	Setting up site offices and access	Piling	Wharf Construction	Carpark configuration	Earthworks for footpaths & landscape	Installation of wharf furniture	Installation of utilities	Landscaping	Removal of site compound
La Perouse residential and non-residential predicted results													
RES1 51-53 Endeavour Ave	Standard	Day	53	48	54	63	57	55	61	49	61	54	57
	OOHW	Night	43	-	-	63	-	-	-	-	-	-	-
RES2 28 Goorawahl Ave	Standard	Day	53	37	44	59	55	44	50	47	50	43	54
	OOHW	Night	43	-	-	59	-	-	-	-	-	-	-
RES3 3/1599 Anzac Pde	Standard	Day	53	49	54	61	54	56	62	49	62	55	56
	OOHW	Night	43	-	-	61	-	-	-	-	-	-	-
RES4 31 Endeavour Ave	Standard	Day	53	45	53	60	56	52	58	49	58	51	55
	OOHW	Night	43	-	-	60	-	-	-	-	-	-	-
RES5 1605 Anzac Pde	Standard	Day	53	51	56	67	57	58	64	53	64	57	59
	OOHW	Night	43	-	-	67	-	-	-	-	-	-	-
ARC1			65	51	53	63	56	58	64	47	64	57	58
ARC2			65	39	43	45	44	46	52	41	52	45	46

PRC1			60	43	51	58	53	50	56	47	56	49	53	
CHC1			55	38	45	54	50	45	51	42	51	44	48	
COM1			70	53	61	65	61	60	66	59	66	59	64	
CUL1			55	55	62	63	57	62	68	55	68	61	61	
CUL2			55	48	54	52	42	55	61	41	61	54	53	
CMU1			55	36	45	53	50	43	49	42	49	42	48	
			Stage 1				Stage 2						Stage 3	
ID	Period		NML	Security Fencing	Setting up site offices and access	Demolition of existing viewing platform	Establishing temporary causeway	Piling	Wharf Construction	Earthworks for footpaths & landscape	Installation of wharf furniture	Installation of utilities	Landscaping	Removal of site compound
Kurnell residential and non-residential predicted results														
RES1	Standard	Day	53	62	67	62	58	56	60	75	53	75	68	66
3/1 Captain Cook Dr	OOHW	Night	43	-	-	-	-	56	-	-	-	-	-	-
RES2	Standard	Day	53	43	48	59	62	58	59	56	47	56	49	53
Rangers House	OOHW	Night	43	-	-	-	-	58	-	-	-	-	-	-
RES3	Standard	Day	53	46	44	56	57	55	56	59	44	59	52	52
33 Captain Cook Dr	OOHW	Night	43	-	-	-	-	55	-	-	-	-	-	-
RES4	Standard	Day	53	58	60	58	47	53	57	71	45	71	64	62
10 Prince Charles Pde	OOHW	Night	43	-	-	-	-	53	-	-	-	-	-	-

EDU1		55	41	43	52	40	54	53	54	39	54	47	49
POW1		55	43	49	54	52	51	53	56	42	56	49	48
ARC1		65	30	30	38	36	41	39	43	26	43	36	36
ARC2		65	30	36	46	37	38	45	43	29	43	36	39
PRC1		60	41	46	44	39	51	48	54	37	54	47	46
CHC1		55	33	37	49	47	47	48	46	36	46	39	42
COM1		70	62	66	61	58	58	60	75	62	75	68	66
IND1		75	39	47	49	41	48	49	52	32	52	45	45
<p>Standard = standard construction hours</p> <p>Clearly audible = above NML</p> <p>Highly intrusive = >75dB</p>													

The noise assessment indicates that two land uses at Kurnell are expected to experience highly noise affected (HNA) noise levels (75dBA and greater as defined in the *Interim Construction Noise Guideline* (EPA 2009) (ICNG)). Earthworks for footpaths and landscaping and the installation of utilities would trigger the 'highly intrusive' criteria, under the 75dBA HNA criteria.

Some construction activities would also exceed noise management levels (NMLs). The degree of impact would vary, depending on the location of the affected land use and the stage of the construction period. Piling is expected to exceed NMLs for most sensitive land uses during standard construction hours and out of hours works.

Heritage items near construction may be impacted by vibration and require management measures

The Proponent's assessment indicates that surrounding residential land uses would not be impacted by vibration in terms of cosmetic damage or human comfort as they are not near the proposed works. However, four local listed heritage items at La Perouse and three local listed heritage items at Kurnell are located within 50 metres of the proposed piling works.

The proximity of works to the affected land uses require management to avoid cosmetic damage from vibration impacts. A range of techniques such as equipment selection, avoiding dropping heavy items and real time vibration monitoring and reporting would be implemented to avoid vibration impacts.

Operation of the ferry service and use of the wharves is not expected to cause significant noise impacts

There is currently no policy to manage noise impacts associated with maritime vessels. While the proposed ferry type has not yet been confirmed, the Proponent has adopted sound power levels from '*Barangaroo Ferry Hub Construction and Operation al Noise and Vibration Impact Assessment*' (SLR, 2014) to inform its assessment. Sound power levels have been derived from four different vessel classes, taking into consideration their length and average service speeds. The operation sound power levels adopted for the assessment of the proposal are outlined in **Table 16**.

Table 15 | Operational marine vessel activity sound power levels (source: RtS 2021)

Activity	Type of noise source	Sound Power Level dBL LAeq(period) 1	Time operating in a 15-minute period	Sound Power Level, Lw dBLAeq (15min)
Ferry / commercial vessel accelerating	Moving point source (30 km/h) ²	98	135 seconds (2.25 minutes)	90
Ferry / commercial vessel reverse thrust	Point source	93	60 seconds	81
Ferry / commercial vessel idling	Point source	92	450 seconds (7.5 minutes)	89

Ferry horn	Point source	118	3 seconds	93
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The Proponent's assessment considered each berth capable of accommodating up to three vessels per hour, enabling a turnaround time of 15 minutes from berthing to departing, which results in approximately 33 ferry movements a day. The assessment has considered a worst-case scenario including the arrival, berthing, sounding of horn, reverse thrust to berth, idling, and departing.

Predicted operational noise impacts show a minor exceedance of 2dBA at the Gujaga MACS Childcare Centre in La Perouse. Other land uses and visitors to the Kamay Botany Bay National Park are not expected to be impacted by the noise generated during operation of the ferry service as they would be below noise management levels.

Construction and operation of the proposal may cause noise and vibration impacts to marine species

The Proponent undertook an underwater noise and vibration impact assessment to determine the potential impacts to marine fauna during construction. The assessment considered the maximum noise levels (dBA) expected to be generated during piling activities and from construction vessels. The results were categorised into three separate scenarios being potential behavioural impacts, temporary hearing loss and permanent hearing loss as a result of the activities, without mitigation. The Proponent's assessment indicates that there is a potential for behavioural impacts, temporary and permanent hearing loss within 50 metres to one kilometre of piling activities and potential behavioural impacts within 50 metres to one kilometre of construction vessels.

The existing underwater noise impacts from the operation of Botany Bay were considered when determining the potential noise impacts resulting from the proposal. Three construction work zones are proposed for the piling works to manage potential impacts. These zones are based on predicted areas of impact from a single pile strike and include zone 1 where work should stop; zone 2 where work-restrictions (exclusions) should be introduced; and zone 3 where spotters would observe noise-sensitive species that enter the area and would be impacted by the works.

The Proponent has considered noise and vibration impacts from vessel types to marine species based on the equivalent scale of wharves and vessels used in the '*Barangaroo Ferry Hub Construction and Operation al Noise and Vibration Impact Assessment*' (SLR, 2014). Operational ferry activities at Cockatoo Island and Circular Quay were measured and their sound power levels influenced the Proponent's assessment. Impacts on marine species during operation can be managed and would be further considered during the final vessel selection process.

Submissions

Community and interest groups

The following comments were raised:

- noise and vibration would impact people working from home
- operational noise from ferries and commercial vehicles including revving engines, loudspeakers and vessel horns
- potential increased noise from cars at La Perouse
- methods to control noise from vessels is unclear

- inconsistencies with the noise and vibration impact assessment
- underwater noise mitigation of the three zones are vague
- divers and marine species would experience underwater noise impacts.

Agency advice

EPA requested:

- clarification on the hours of operation sought for approval
- consideration of the operation of a PA address system on the wharves as part of the operational noise modelling
- further detail on the construction equipment sound power levels
- the Proponent develop best practice noise performance requirements for the procurement, construction and operation of ferry vessels.

Consideration

Noise impacts from standard and out of hours construction activities would be minimised using mitigation measures

The Department notes some works may need to be completed outside of standard hours due to safety constraints associated with weather and marine conditions. The Proponent would implement measures to manage construction noise and vibration impacts which the Department supports, including:

- consultation with affected residential land uses, through notification and complaint handling procedures
- restrictions on the number of nights per week and calendar month for out of hours works
- staging of construction activities
- placement and operation of work compounds
- temporary noise barriers.

The Department acknowledges noise and vibration impacts from the construction of the proposal are unavoidable, and some nearby residential and other land uses may experience noise exceedances during construction of the proposal. The Department has recommended conditions to manage noise impacts including requirements to justify any out-of-hours works before commencement and implementation of procedures to notify the community of proposed out-of-hours works.

The construction of the proposal would result in one residence and one commercial business being subject to noise above the HNA levels during standard daytime construction hours at Kurnell. These noise levels are primarily associated with the earthworks for footpaths and landscaping, and installation of utilities. The noise exceedances would occur during two discreet construction activities and are short-term and localised; impacts are unavoidable due to the proximity of works. Accordingly, community engagement during these work periods is essential and the Department has recommended conditions that strengthen the Proponent's commitments to community engagement and other noise management measures.

Vibration impacts on heritage items can be avoided through management and monitoring

A number of local and State-listed heritage items are located within the construction boundary at La Perouse and Kurnell. The Proponent has committed to selecting appropriate equipment during construction to avoid vibration impacts on heritage items. The Department has also recommended a condition to ensure vibration testing is conducted before and during vibration work near heritage

items. This would ensure minimum safe working distances and appropriate equipment is identified to prevent cosmetic and structural damage. The Department considers that these measures are appropriate.

Noise and vibration impacts to marine species would be managed pre and during construction

The Proponent has committed to undertaking onsite monitoring to verify noise propagation and manage potential impacts on marine fauna based on their proximity to the piling activities. These include:

- monitoring of the area prior to the commencement of works to verify noise levels and modify the construction zones if needed
- use of bubble curtains to contain energy of the sounds
- carrying out 30-minute observation prior to the commencement of work and 10-minute slow start process for piling
- implementing a compliance and siting report including a standby and shut down process while piling takes place.

The Department is satisfied that the proposed underwater noise and vibration mitigation measures, biodiversity mitigation measures, and conditions discussed in section 6.1 Biodiversity would reduce the impacts to marine fauna during construction and operation.

In relation to recreational user groups, piling will be avoided on weekends and recreational users would be notified of ongoing piling activities.

Operational noise impacts would be reviewed and managed by conditions

The Proponent has assessed the operational noise impacts based on sound power levels adopted for similar scale wharf and ferry services. While the final ferry vessels have not been selected, the Proponent has taken a conservative approach to assessing the likely operational sound power levels. The exceedance of 2dBA at the Gujaga MACS Childcare Centre in La Perouse during enhanced metrological (worst case) conditions is considered minor as it is unlikely be perceptible to the human ear.

The Proponent has requested to operate a ferry service during daylight hours; however, has assessed noise and vibration impacts from the wharves operating between 7.00am and 6.00pm. The Department notes that an assessment of potential early morning (before 7.00am) and evening operations (after 6.00pm) has not been undertaken by the Proponent, as the timetable for operation of the ferry service would be up to the operator, once selected. The Department recognises the concerns raised by the EPA and considers approval of operation before 7.00am and after 6.00pm cannot be supported as the assessment of impacts is limited to the operation of the ferry service between 7.00am and 6.00pm. As such, the Department has included a condition to ensure the approved hours of operation of any commercial ferry service is between 7.00am to 6.00pm.

The Department has included a noise validation condition to ensure operational noise is monitored and validated once ferry vessels have been selected and are operating. The Proponent would then be required to assess the noise impacts of the vessels compared to noise performance assumptions in the noise and vibration assessment. Additional mitigation measures would be required if the noise levels of the selected vessels worsens noise impacts.

Public address systems could be used from time to time during the operation of ferry services. The Department acknowledges public address systems provide a means of communication to ferry

service users, however to ensure that public address systems do not cause noise disturbances, the Department has recommended a condition requiring that public address system not exceed 5 dB(A) above the background noise level, except in an emergency. The Department is satisfied that these measures would manage noise impacts during operation of the ferry service.

6.4 Traffic and transport

Traffic generation during construction is expected to be minor and able to be effectively managed. The temporary loss of parking during construction would be mitigated through the provision of construction worker parking at construction ancillary sites.

Adverse traffic impacts during operation are not anticipated and while the Proponent would increase parking supply at La Perouse, the Department considers that this could be increased at La Perouse to address high existing and future parking demand, particularly during summer. Accordingly, the Department has recommended a condition to provide additional parking at La Perouse through reconfiguration of additional parking bays.

In relation to potential marine transport conflicts at Botany Bay, the Department considers that this risk can be addressed through active navigation and operational management measures.

Issue

Construction impacts

Impacts on parking, local roads and access would be minor during construction and managed through standard traffic management measures

Temporary traffic impacts

Construction works associated with the proposal will have minimal impact on the surrounding road network. Impacts on intersection and midblock performance is relatively limited, with the base case of free flowing traffic flow (being Level of Service A) being maintained.

Construction traffic to and from the construction sites would use the existing entry points off the Anzac Parade loop for La Perouse and Captain Cook Drive for Kurnell. The haulage routes for construction vehicles are shown in **Figure 19** and **Figure 20**. These roads are suitable for use by construction vehicles as they would provide direct access to the sites and not create additional traffic delays or congestion. Haulage from construction ancillary facilities to work sites would occur in the construction footprint, reducing the use of public roads by construction vehicles.



Figure 19 | Haulage route at La Perouse (Source: EIS)



Figure 20 | Haulage route at Kurnell (Source: EIS)

The Proponent has indicated that a total of 20 construction vehicles would enter and exit the construction ancillary facilities at both locations during morning and afternoon peak periods, during the construction stage. The number of movements will increase to 50 vehicle movements during the site establishment stage and is predicted to have a negligible impact on the performance of the surrounding road network.

Construction works are anticipated from Monday to Saturday (until 1.00pm) and would not coincide with busy peak weekend periods at Kurnell or La Perouse, which were recorded on Sundays.

Temporary parking and road closures

Utilities installation and car parking reconfiguration may require the temporary and localised closure of Anzac Parade, La Perouse, and Captain Cook Drive, Kurnell. Construction would be staged to minimise the construction impact on local roads that would need to reduce to one-lane at certain points during the construction schedule. Property access would generally not be restricted during construction, but if required would be for limited duration (for installation of utilities or materials delivery) and affected property owners would be consulted.

Vehicle access to the National Park from Cape Solander Drive would be maintained throughout construction, however pedestrian access along Monument Track would be temporarily restricted during construction at Kurnell.

As part of operation, the Proponent proposes to provide an additional 13 car parking spaces at La Perouse through the conversion of parallel parking into rear to kerb parking. The construction of additional parking bays at La Perouse would require the temporary closure of 20 parallel parking bays for period of two months. There are no anticipated impacts on parking at Kurnell.

Construction worker parking

Construction workers would arrive to site by construction vehicles, private vehicles, public transport, and shared vehicles. Construction worker parking would be available in construction compounds at both sites to mitigate parking impacts.

Operational traffic impacts

The operation of the wharves would have a minimal impact on existing traffic conditions

Existing traffic flow and intersection performance around the construction sites at Kurnell and La Perouse during weekday and weekend peak hours are generally good, with key intersections maintaining a Level of Service (LoS) A. Although the operation of the proposal would result in an increase in vehicles in La Perouse and Kurnell, the proposal would unlikely result in a significant deterioration of traffic conditions or LoS.

Despite this, observations at La Perouse indicate that there are intermittent but noticeable downstream impacts along Anzac Parade in the form of traffic queues as a result of vehicles waiting for on-street parking around the Anzac Parade loop during busy peak weekend periods.

Operational parking impacts

Existing parking demand at La Perouse is at capacity during weekends. Additional parking is required to meet the demand that would be generated by the proposal

Parking demand at La Perouse and Kurnell is considered to be seasonal with peak activity typically occurring on a Sunday between 11.00am and 2.00pm at La Perouse and at 1.00pm at Kurnell during

summer weekends. Surveys indicated that congestion along access roads and a shortage in parking is an existing issue at La Perouse. The high rate of vehicle turnover during peak times often caused traffic delays and congestion, particularly along the one-way Anzac Parade loop where vehicles wait for parking spaces. Kurnell experiences less parking demand than La Perouse, however consultation feedback indicates congestion and parking issues during summer are also experienced at Kurnell.

Additional parking would be required at La Perouse to meet demand generated by the proposal

As determined by the feasibility study undertaken by the Proponent, an additional 13 parking spaces would be required at La Perouse to accommodate the Proposal. 34 additional parking spaces would be provided at Kurnell near existing parking facilities and connected to Cape Solander Drive in consultation with NPWS. The Proponent has advised that the split of parking between both locations would encourage vehicles to park at Kurnell and access La Perouse using the ferry service. The reconfigured parking proposed at La Perouse is shown in **Figure 21**.



Figure 21 | Proposed car parking at La Perouse (Source: EIS)

Marine traffic

Marine traffic during construction can be effectively managed by preserving a shipping channel and designating a maritime construction exclusion zone

There is potential for conflict between marine construction vessels and existing marine users. During construction, seven daily construction vessel movements between construction sites and temporary loadout facilities are anticipated. These movements will reach a maximum of 20 work vessel movements a day. To prevent potential conflicts between marine traffic, a maritime exclusion zone will be established to restrict maritime access to the construction areas to construction work vessels, and ensure that the Botany Bay shipping channel will not be obstructed.

Maritime traffic during operation of the wharves must be appropriately managed to reduce conflicts between ferry services and other maritime users

During operation, a total of 36 ferry movements are expected per day during daylight hours. These movements are anticipated to be higher on weekends. Ferry paths and shipping paths are shown in **Figure 22**.

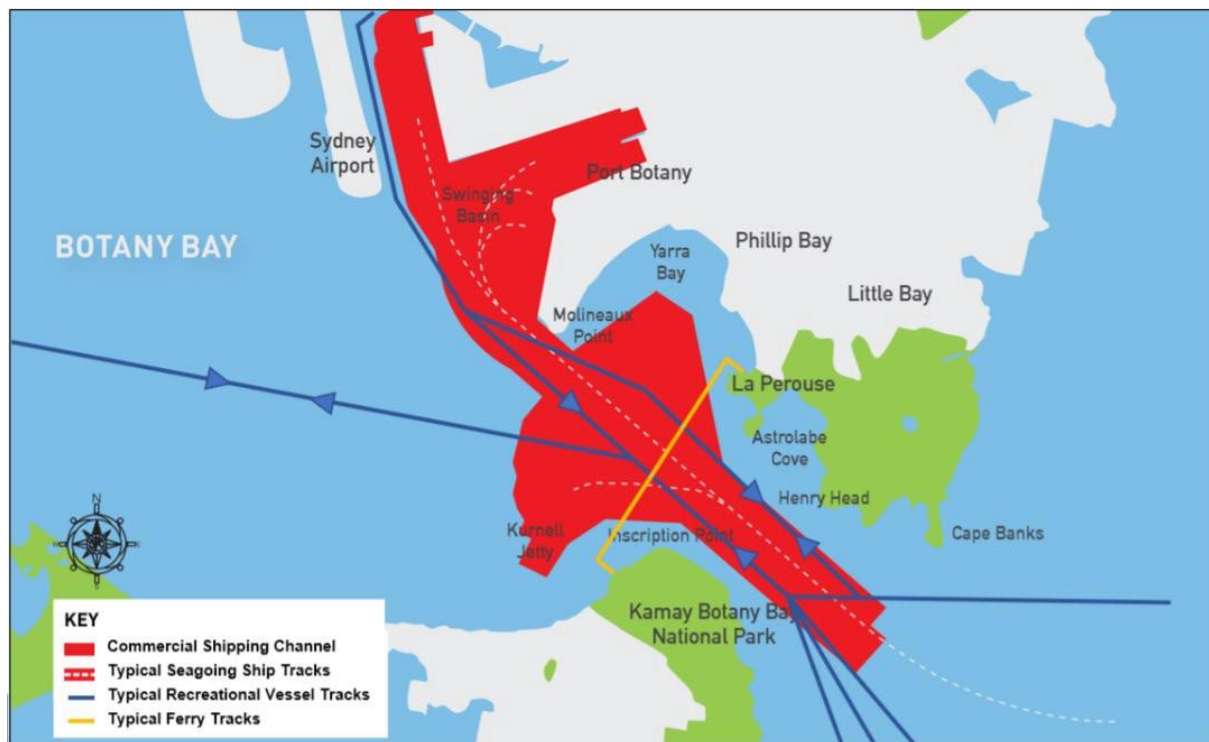


Figure 22 | Typical recreation vessel and ferry tracks (Source: EIS)

The wharves are expected to be used by an average of two recreational vessels (per wharf) and four charter and four vessels (per wharf) per day. It is anticipated that the number of private vessels will double during weekends and public holidays. The Proponent has advised that the wharves have been designed to accommodate recreational vessels which would have separate berths to prevent potential interferences with scheduled ferry services. This would reduce the likelihood for conflict between the ferry operation and other recreational vessels. Recreational swing moorings in Frenchman's Bay

located within the ferry swept paths will be permanently relocated before construction commences to enable the safe operation of the ferries.

Submissions

Community and interest groups

Community submissions raised concerns regarding:

- the validity of the parking feasibility study that was undertaken to inform the appropriate amount of additional parking required to accommodate the proposal at La Perouse
- parking demand and traffic constraints
- access to private property
- potential to restrict the activities of water users and the recreational enjoyment of Botany Bay.

Council

Sutherland Shire Council recognised the public benefits of the proposal, however provided comments relating to the traffic and parking impacts. Council raised concerns over the traffic and parking surveys that were undertaken and requested that additional surveys be undertaken over the summer period of 2021-2022. It also stated that the future parking demand is underestimated and suggested that a dedicated ferry patronage parking area be provided in the National Park.

Bayside Council acknowledged the importance of the proposal and requested that the Proponent investigate the opportunity to provide a bus service interchange, in conjunction with the two wharves, to provide a connected transport network.

Agency advice

Port Authority of NSW recommended conditions of approval to prepare and implement a Construction Maritime Works Management Plan and Operational Maritime Risk Management Plan, prior to the commencement of works, to ensure that vessel conflict does not occur due to construction and operation. It also requested that a condition that commercial shipping operations will have precedence over any ferry movements, except in the case of an emergency.

NPWS recommended conditions and indicated that the Proponent must take all reasonable steps to restrict public access to the proposal area during the construction.

Consideration

Operation of a ferry service on the proposed wharves would provide local and regional transport benefits by providing an additional public transport option, reducing demand on private vehicles, and encouraging public transport use in areas currently serviced primarily by buses. Notwithstanding the operational benefits, traffic would increase temporarily during construction and have localised impacts around construction sites.

Parking impacts during construction can be appropriately managed by restricting construction vehicle parking to construction compounds and limiting the temporary loss of parking at La Perouse.

Traffic generation during construction is expected to be minor with a worst-case scenario of up to 50 trucks accessing the construction compounds a day during the site establishment phase. These movements can be easily accommodated by the surrounding road network with a good LoS being maintained. To ensure construction traffic is effectively managed, the Department has recommended

a condition that the Proponent prepare a Traffic Management CEMP sub-plan in consultation with council.

The Proponent has addressed concerns about the temporary loss of on-street parking due to construction workforce and vehicle parking by indicating construction ancillary sites would provide parking for construction workers at La Perouse and Kurnell. The Proponent has committed to implementing measures that discourage construction workers from travelling to the construction site in private vehicles and parking in local streets. The Proponent has indicated that further consideration of construction compound parking, including design and number of spaces, would be provided in the CEMP.

Submissions also identified parking impacts as an issue of concern, and the Department considers that these impacts need to be appropriately managed by restricting construction workforce parking to construction sites. The Department has recommended a condition that would require construction parking be contained within the construction sites.

The Department recognises that the installation of additional car parking spaces at La Perouse along the Anzac Parade loop would require the temporary closure of 20 parallel parking bays for period of two months. To minimise potential parking impacts associated with the realignment of parking spaces at La Perouse, the Department has recommended that the construction of the additional parking be completed within six months of commencement of construction and during winter, to avoid the summer peak season. The Proponent must also, when programming car park works, avoid the temporary works during the peak visitation periods at La Perouse.

The proposal will enhance existing parking facilities at La Perouse

The proposal would provide additional parking at La Perouse and facilitate additional parking at Kurnell. The Department notes the existing and continuing future parking pressures at La Perouse with or without the proposal, and the significant number of submissions received on this matter. As noted, the Proponent proposed the reconfiguration of existing parking to provide an additional 13 spaces. Provision of additional parking is limited by other environmental constraints, particularly the need to retain open space and potential heritage impacts.

The Department considers there is potential to further increase the number of spaces, through the further conversion of parallel spaces. The Department has recommended a condition which requires the Proponent to provide additional parking within the La Perouse parking loop through the reconfiguration of additional parking bays, subject to heritage considerations. The Proponent would also be required to implement local traffic improvements, such as the provision of line marking along the Anzac Parade loop, to enable the passing of parked vehicles and signage indicating parking availability at both Kurnell and La Perouse, in consultation with the relevant councils and NPWS.

While parking at Kurnell is not proposed as part of the proposal, the Proponent has committed to provide an additional 34 parking spaces within the National Park as part of the Master Plan, in conjunction with NPWS. The Proponent has indicated that these spaces would be established before the operation of the wharves commences, and the Department has reinforced this with a condition to this effect.

Vehicle impacts as a result of the proposal are minimal

Significant adverse traffic impacts during the operation are not anticipated. Demand analysis data undertaken by the Proponent indicated that the wharves could function to minimise the number of

induced trips at La Perouse and Kurnell and provide an opportunity to encourage greater use of public transport.

The Department notes that line marking has been recommended along the Anzac Parade loop. The loop currently functions as a one-way arrangement, which contributes to traffic delays at La Perouse. To address this issue, the Department has recommended a condition that requires the Proponent to undertake line delineation along the Anzac Parade loop, in consultation with council and NPWS, to allow for improved traffic movements, supported by formal marking and signage. The proposed line delineation is shown in **Figure 23**.



Figure 23 | Line delineation along the Anzac Parade loop shown in black (Source: EIS)

Overall, based on the traffic data and the recommended conditions of approval, the Department considers that the proposal would have a minimal impact on local traffic surrounding Kurnell and La Perouse.

Marine traffic during operation can be effectively managed

Marine traffic will be effectively managed during the operation of the wharves in accordance with strict timetabling and scheduling. In accordance with requests from the Port Authority NSW (Port NSW), the Proponent has indicated that strict timetable scheduling would ensure that commercial shipping operations will have precedence over any ferry movements associated with the development, except in the case of an emergency.

The Proponent also indicated that all passenger ferries operating between La Perouse and Kurnell will participate in the Vessel Traffic Service (VTS) system at all times, which requires them to report their activities to Port NSW and being fitted with an Automatic Identification System (AIS) transponder to enable monitoring by VTS and other AIS fitted vessels in the area. The wharves would also be

designed to provide Aids to Navigation which require the Proponent to provide appropriate lighting and other aids to navigation (such as buoys and channel markers).

To ensure that potential conflicts between vessels and shipping operations are minimised, the Department has recommended conditions of approval which require the Proponent to prepare a Vessel Traffic Management Plan (VTMP) and Operational Maritime Risk Management Plan (OMRMP). The VTMP would provide guidance for vessels, to ensure that commercial shipping operations take precedence over ferry movements, to enhance marine and navigation safety when entering, exiting, and operating in Botany Bay. The OMRMP would include management and mitigation strategies to identify how vessel movements could be aligned with the operation of shipping vessels and would be prepared in consultation with the Harbour Master.

6.5 Place and urban design

The proposal would alter the visual character of the Kurnell and La Perouse headlands, which are particularly sensitive to change due to the historic significance and visual prominence of the area. An Urban Design and Landscape Plan (UDLP) was prepared by the Proponent to ensure that improved design, amenity, and a sense of place are key outcomes for the proposal. The UDLP incorporates design objectives with supporting principles that consider the local landscape character with particular focus on Aboriginal heritage values.

To ensure independent design review is achieved through the detailed design process, conditions have been recommended requiring the establishment of a State Design Review Panel (SDRP) chaired by the NSW Government Architect (or nominee) and include a First Nations design expert acknowledging the sensitivities of the site(s) and surrounding area(s).

The proposal will enhance active transport facilities and facilitate a Botany Bay circuit for pedestrians and cyclists.

The Department is satisfied that the assessment has identified the landscape characteristic of the local area and potential visual and amenity impacts, including impacts such as amenity, landscaping and heritage values. The Department considers these impacts are acceptable and can be managed through the Proponent's proposed mitigation measures and recommended conditions.

Issue

The new wharves and shared zones are unlikely to have a negative impact on the landscape character and amenity around Kurnell and La Perouse

Kurnell and La Perouse headlands comprise mainly open space within the National Park, free of significant built form. The ferry wharves introduce infrastructure to the area, modifying the natural setting. At La Perouse, the visual amenity of the area is influenced by a diverse and unsympathetic suburban setting. Visual impacts are likely to be positive due to the high-quality architectural design of the wharves of the wharf entrances (**Figure 24**) that would have sympathetic connections into the open recreation and shared zones.

Key visual receptors with potential high visual impacts include:

- La Perouse Museum, sited approximately 175m from the La Perouse ferry wharf
- Frenchman's Beach, sited 185m from La Perouse from the La Perouse ferry wharf
- Captain's Cook Landing Place, sited 100m from the Kurnell ferry wharf

- Prince Charles Parade, sited 370m from the Kurnell ferry wharf
- Monument Track, sited 300m from the Kurnell ferry wharf.

During construction, the impacts on landscape character would vary from moderate to high within six landscape character areas (LCAs) in the study area. These LCAs have a high sensitivity to change and are expected to experience visual impacts from construction activities. These impacts are temporary and apply only for the duration of construction of the proposal.

While the proposal is visible from key visual receptors, the Proponent considers the design is sympathetic to the industrial nature of Port Botany and has minimised visual impact by maintaining a lightweight appearance with open sides to maintain views.



Figure 24 | Artist's impression of ferry wharf at Kurnell (Source: EIS)

The location of the wharves would potentially impact on recreational activities within Botany Bay including fishing, swimming, boating, and windsurfing

The construction of the wharves and operation of the ferry service would impact on recreational activities within Botany Bay, through the introduction of permanent wharves and ferry services that operate across the mouth of Botany Bay. The ferry wharves have been located away from popular swimming locations, sited approximately 100m from Frenchmans Bay and approximately 600m from Silver Beach at Kurnell, to provide swimmers with a buffer from the operation of the ferry service.

Botany Bay users such as sports craft, small boats, kayaks, and windsurfers currently use the bay. Botany Bay is also used by larger vessels such as container ships and oil tankers. All waterborne activities, including large commercial vessels, are required to operate under maritime safety rules.

The Proponent has committed to the preparation and implementation of a Marine Works Management Plan (MWMP) to address any conflict issues between marine construction vessels and other marine users. The plan would establish necessary exclusion zones and include mooring plans and a communication protocol to ensure safety of all recreation users within Botany Bay.

Submissions

Community and interest groups

Community submissions raised concerns and comments about design including:

- inappropriate size, scale and design, resulting in a high visual impact
- the use of materials including concrete and steel were not consistent with the historic character and buildings of La Perouse
- the accessibility of the wharves and surrounding areas within Botany Bay
- compatibility with cycling.

Councils

Randwick City Council is generally supportive of the proposed design, particularly the lightweight appearance of the wharf structures, reducing the visual impact on the landscape. However, it requested that suitable weather protection be included as part of the design, particularly waiting areas. Council also commented on the need to provide details on signage / wayfinding, which should be undertaken with NPWS and Council, to ensure cohesion with any signage associated with the La Perouse Museum upgrade which is currently being undertaken by Council.

Sutherland Shire Council advised it was difficult to comment on the concept design and required more detail. Concern was raised over the proposed rectilinear forms and large concrete surfaces that would not be suitable for the area. A curved connection from the ferry berth at Kurnell would better relate to natural features of the local environment. The inclusion of natural materials such as weathered timber and stone would also be more appropriate.

Agency advice

Heritage NSW recommended conditions relating to the preparation of a Heritage Interpretation Strategy and the UDLP incorporating the valued history of the area. Recommendations included leaving archaeological remains exposed to incorporate them into the visual history of the area.

Consideration

High quality design finishes, material, and landscaping to be informed through ongoing consultation and independent design review

The Department acknowledges concerns raised about visual impacts from residents including the dominance of the design and how the design will respond to the heritage values of the area. The Department acknowledges that there has been an appropriate level of consultation with stakeholders on the potential design of the proposal to date.

The final design of the proposal will be informed by a State Design Review Panel chaired by the Government Architect NSW

The Department consulted the NSW Government Architect for advice on the design and they raised concern over the lack of independent design review of the proposal, which is particularly important given the area's significance to the First Nation's people. The Department agrees with NSW Government Architect's position that, considering the visually prominent location and the significance of the site, the final design should be verified through independent review.

The Department considers that independent expert review is necessary to ensure the proposal's detailed design reflects the quality of the indicative design provided in the EIS and the design guidelines and has recommended conditions requiring the establishment and utilisation of a SDRP for

independent quality design review. The SDRP will be chaired by the NSW Government Architect (or its nominee) and operate throughout the final stages of design development, particularly where there is a proposed change to the detailed design or materials to be used. The SDRP will contain an Aboriginal panel member with design background who will provide advice on the design. The SDRP will provide advice and recommendations on the detailed design and architecture, heritage, urban and landscape design, and artistic aspects of the proposal.

To ensure that the outcomes of consultation are translated into the detailed design and delivery of the proposal, the Department has recommended that the UDLP address the consideration provided by the SDRP. The updated UDLP will facilitate and ensure that high quality finishes are maintained for the ferry wharves.

Aboriginal cultural values will be integrated into the design of the proposal

The Department recognises that Kurnell and La Perouse headlands are of significant cultural and historic significance as the area was the first meeting place between Aboriginal Australia and the expedition of Captain Cook. The area also represents the dispossession of Aboriginal Australians. It is important that the Aboriginal cultural values of the area are captured within design elements to provide a link between the past and the present, consistent with the NSW Government Architect's *Connecting with Country* framework.

The Department acknowledges the design of the proposal has been developed through extensive consultation with local Aboriginal groups, including La Perouse LALC, Aboriginal artists and La Perouse United Men's Aboriginal Corporation. Aboriginal artists have been engaged to develop a design response that connects the design with dreamtime stories to honour Aboriginal Elders and culture. These interpretative designs include a dreaming story about the creation of Kurnell Bay, which has been passed down through countless generations.

The Proponent has committed to ongoing engagement with local Aboriginal communities throughout the life of the proposal, to ensure community needs and concerns are addressed, and to identify opportunities to celebrate Aboriginal heritage in the design. The Department has recommended that the UDLP be updated and finalised in consultation with Aboriginal stakeholders.

While the Department considers the nature and extent of consultation with local Aboriginal communities to be appropriate given the context, it has recommended that the Proponent prepare a Heritage Interpretation Plan which identifies how the Aboriginal cultural values of the area are integrated into the broader proposal design, including design elements (form and fabric), landscaping and cultural design principles.

The proposal will enhance active transport connectivity

The operation of the ferry service will connect to the Botany Bay cycleway, creating a Botany Bay circuit for active transport. To support active recreation, the Proponent will ensure bicycle parking is provided at La Perouse. Bicycle parking would be delivered by NPWS as part of the Kamay Botany Bay National Park Kurnell Master Plan. To establish a loop cycleway way around Botany Bay, the Department has recommended a condition that the Proponent ensure bicycle storage is available on ferry vessels. This will encourage cyclists to use the facilities and the existing cycle paths around Botany Bay.

While the proposal does not extend any cycleways, the ferry wharves are located near existing active transport infrastructure, and to enhance the proposal's benefits, the Department has recommended a condition requiring the Proponent to provide or upgrade shared pathways connecting ferry wharves to

bus stops at Kurnell and La Perouse. The ferry wharves will thus promote La Perouse and Kurnell as recreational spaces, and complete the Botany Bay active transport circuit. The Department is satisfied that the proposal will enhance the existing active transport network.

The impacts from construction are temporary and will last for 13 months, which is considered a minor impact. The Proponent will provide alternative pathways during construction to maintain the amenity of La Perouse and Kurnell and allow for cycling connectivity.

The proposal will achieve improvements in landscaping

Construction would require the removal of a relatively minor amount of vegetation, six juvenile trees including an African Olive Tree at Kurnell and some soft landscaping. The Proponent has committed to reinstating vegetation that is in keeping with the locality and visual setting, resulting in a positive visual impact. Consistent with policy objectives of increasing tree coverage in Sydney, the Department has recommended that trees be offset at a ratio of 2:1 and tree canopy be increased.

6.6 Soil and water contamination

The investigations undertaken for the EIS indicate that low levels of contamination are present and could be attributed to a number of sources including from previous industrial land uses at La Perouse, Kurnell and within Botany Bay.

Construction activities, particularly excavation and piling, have the potential to impact groundwater and cause soil disturbance within the construction footprint. In acknowledging community concerns regarding potentially contaminated land, the Department has recommended the appointment of an EPA accredited site auditor to review proposal documentation and oversee further testing, remediation (if required) and construction. The Department is satisfied that the recommended conditions of approval would allow contamination risks to be independently reviewed and impacts appropriately managed.

Issue

The Proponent undertook targeted and preliminary investigations, tests and assessments of water and soil characteristics at La Perouse and Kurnell, to determine potential impacts of the construction and operation of the wharves. Investigations undertaken for the EIS indicate that low levels of contamination is present and could be attributed to a number of sources from previous industrial land uses at La Perouse, Kurnell and within Botany Bay.

Construction activities, particularly excavation and piling, have the potential to impact groundwater and cause soil disturbance within the construction footprint. On balance, the Department considers the risk of adverse contamination impacts is low, however further testing, and auditing by an EPA accredited site auditor, would ensure that contamination is managed appropriately.

Contamination may be present at La Perouse and Kurnell, due to previous activities and land uses undertaken at both sites

Targeted and Preliminary Site Investigation Reports were included as part of the EIS and identified there is potential for contamination to occur at La Perouse and Kurnell, due to the current and previous land uses in the vicinity of both wharf sites. Former land uses include sand mining at Frenchmans Bay, military, and fortification facility at Bare island, Kurnell Port and Berthing Facility at Kurnell. Current land uses include a former crude oil refinery that was converted to a Caltex fuel supply terminal in 2014.

The contaminants suspected to be attributed to previous and current land uses include Per and Polyfluoroalkyl Substance (PFAS), Tributyltin (TBT), heavy metals, nutrients, and inorganics. Asbestos may be present in uncontrolled fill and building materials. The construction of the ferry wharves has the potential to disturb existing contamination during construction and operation.

An assessment of potential impacts to contamination, land, marine sediments, and groundwater has been undertaken

The assessment identified two aquifer systems present within the proposal areas: an unconfined aquifer associated with the coastal sands of the Botany Sands aquifer, and a semi-confined aquifer associated with the underlying Hawkesbury Sandstone aquifer. Due to the history of industrial activities in the area, shallowness of the aquifer, and permeability of the sands, the Botany Sands aquifer is expected to be contaminated with chlorinated hydrocarbons. This indicates that groundwater would be polluted above the ANZECC guidelines (ANZECC and ARMCANZ, 2000). Groundwater disturbance could occur as a result of piling and associated works for the construction of the wharves. The installation of piles offshore could intersect the seabed sand sheet deposits and groundwater, resulting in cross contamination or saline intrusion.

Based on previous monitoring at 15 beaches within Botany Bay, water quality in Botany Bay and lower Georges River swimming sites were graded as 'Good'. However, separate modelling undertaken at Kurnell indicated that sediments in Botany Bay have concentrations of TBT, which exceed the water quality limits outlined in the *Guidelines for Fresh and Marine Water Quality 2000* (ANZECC & ARMCANZ, 2000). The assessment also indicates a high probability of encountering Acid Sulfate Soils (ASS) in Botany Bay within the construction boundaries at both La Perouse and Kurnell. However, the probability of ASS on land is considered to be low.

Soils at La Perouse and Kurnell are prone to erosion, which could lead to runoff. Test pits carried out at both sites identified bedrock between 0.8 and 1.3 metres at La Perouse and 0.8 to 1.1 metres at Kurnell. The risk of erosion could be increased as a result of excavation required during construction. Further soil investigations have shown evidence of PFAS approximately 300 metres to the south of the Kurnell construction boundary and in two soil samples at La Perouse. PFAS is known to be toxic to fish and other animals and has been detected in samples across Botany Bay as part of a NSW State-wide PFAS investigation program. Disturbance of PFAS could impact environmentally sensitive receivers, water quality, and human health.

The potential for fuel/oil leaks and erosion and scour from operating the vessels has been assessed

Impacts from the operation of vessels such as fuel and oil leaks and spills have been assessed by the Proponent. Other operational impacts considered included scour of the seabed from propeller wash and sediment plumes, which could be caused from vessel operation. The Proponent's assessment is based on site investigations undertaken at Manly East wharves in 2018, which confirmed that maximum disturbance is at the surface within 10 metres of the propellers. While the disturbance decreases to virtually no effect after approximately 70 metres, disturbance can be caused at around 20 to 40 metres behind the propellers at around 4.5 metres below the surface at Manly East. Wash from ferries would create a scour hole of approximately one to two metres, occurring in short bursts when a ferry arrives and leaves. Similarly, ferries at La Perouse and Kurnell would berth in water about 3.5 to 4.5 metres deep, which would create a scour hole.

Submissions

Community and interest groups

Community submissions raised concerns regarding soil, water, and contamination, including:

- the assessment does not consider the potential risk of fuel/oil leaks from commercial and recreational vessels and how this would be managed
- adequacy of technical documents including appropriateness of borehole locations and testing depths
- the proposal has the potential to cause and disturb contamination which would impact human and biodiversity health
- there should be signage and an approval process that requires minimum environmental performance limits and regular maintenance to minimise the risk of pollution from vessels
- the construction method should include best practice for piling installation to minimise disturbing sediment, using floating booms to contain silt.

Agency advice

EPA acknowledged community concerns regarding potentially contaminated land at both La Perouse and Kurnell and recommended detailed conditions requiring the Proponent to engage an independent site auditor post approval. The site auditor would review all relevant documentation, oversee construction activities, and determine if further testing or a remedial action plan is required. EPA recommended additional conditions to ensure that monitoring, auditing, and reporting on contamination is undertaken appropriately during construction.

Consideration

The short construction period and minimal ground penetration during construction limits the extent of soil and groundwater disturbance

The Department acknowledges that the historic industrial activities undertaken at La Perouse, Kurnell and Botany Bay caused contamination in the area. Therefore, there is potential that construction of the proposal could cause disturbance of contamination. The proposed construction activities, particularly piling for the ferry wharves, may disturb existing contamination present in the soils. However, the construction of the ferry wharves on relatively flat topography is not expected to cause significant soil disturbance. Further, dredging is not proposed for the proposal, and the risk of soil erosion is expected to be low. The Proponent has committed to implementing an erosion and sediment control plan, to manage potential impacts, which is supported by the Department.

The Department notes piling for the wharves could cause groundwater disturbance at both sites, due to the shallow groundwater levels. However, the potential connection between marine water and groundwater would be temporary and localised around the piles. Proposed piling methods undertaken during construction minimises the mixing between marine and groundwater, and reduces the potential impact to groundwater quality. The Proponent has committed to storing, testing, and appropriately disposing of groundwater encountered, in accordance with a soil and water management plan. The Department supports this measure and has included a condition requiring a site audit statement be obtained to certify the soil and water management plan.

Measures including onsite monitoring, auditing, and reporting manage potential contamination impacts during construction

The Department acknowledges concerns raised by the EPA and community regarding the likelihood of contamination at La Perouse and Kurnell and the potential for impacts to arise from construction and operation of the proposal, particularly on nearby beaches, beach users and biodiversity. The Department notes that due to the number of potential sources of contamination found in the area during site investigations, it is difficult to attribute contamination to individual sources within the construction footprint. While contaminants have been detected in soil and water samples near the wharf locations, concentrations have been below the adopted assessment criteria. The Department notes community concern around the extent and method of testing, questioning some results, and considers that adopting the EPA's recommendations for the engagement of a site auditor would provide the community with comfort that all relevant project documents would be further scrutinised by an independent expert post approval.

The Proponent has committed to implementing various plans to manage potential soil and water disturbance, sedimentation, erosion, and contamination, to prevent and manage impacts on human health and biodiversity. In response to EPA and community concerns, regarding potential impacts and the adequacy of technical reports, the Department has recommended conditions requiring the appointment of an EPA accredited site auditor to review technical reports, proposed mitigation measures and oversee construction.

The site auditor would undertake an independent review role and oversee further testing if required, ensuring greater transparency in managing contamination risk. Should contamination be detected during further testing, a condition has been included to ensure that a Remedial Action Plan is prepared and reviewed by the site auditor. If remediation is undertaken, a site audit statement and report must be prepared, to certify that the remediation works have made the land suitable for the intended use. The Department is satisfied that an appropriate level of assessment has been undertaken and considers the Proponent's mitigation measures and recommended conditions would address potential impacts on the environment and on the health of beach, waterway and headland users during construction and operation.

Impacts from vessels during operation are minor and manageable

The Department acknowledges the introduction of ferry vessels from operation of the proposal has the potential to introduce fuel and oil leaks, and scour holes from propeller wash. However, the Department considers these impacts can be reduced and managed through mitigation measures and recommended conditions. The Proponent has committed to the preparation and implementation of a spill management plan, which would require the ferry operator to manage impacts from the operation of the vessels. Recreational vessel operators are required to comply with the Transport for NSW *Boating Handbook 2021* to manage potential impacts to the environment and avoid pollution of waterways such as potential spills/leaks.

The Department notes that due to shallow water depths in Botany Bay, localised scour is unavoidable. However, the wharves have been designed to accommodate the necessary depth for the safe berthing of vessels, while minimising the protrusion of the wharves into Botany Bay. Scour holes or tracks are not expected to form across Botany Bay while the ferries travel between La Perouse and Kurnell due to the water depth in Botany Bay. The Proponent's assessment and observation of the existing (notably larger) commercial traffic using Botany Bay has not created scour along the shipping channel. The Proponent has committed to implementing operational restrictions to control approaching, berthing, and departing at the wharves in order to limit scour. This would be enforced for all vessels using the wharves, and would be undertaken in consultation with the Port Authority NSW, including the Harbour Master. The Department supports this commitment and is

satisfied the assessment undertaken adequately addresses operational impacts on the surrounding environment.

6.7 Other issues

Issue	Findings	Recommendations
<p>Social and economic impacts</p>	<p>The main social impacts relate to a reduction in amenity and potential interruption to tourism activities during construction. Construction impacts include generation of dust and noise and parking impacts during realignment works. Visual impacts and restrictions to access would also create short-term socioeconomic impacts for the surrounding community.</p> <p>These amenity related impacts would be managed by the CEMP and relevant sub-plans that minimise and reduce impacts on the community.</p> <p>Pedestrian pathways at La Perouse and Kurnell would be required to be closed off during construction, especially during utilities instalment activities. However, alternative access arrangements have been identified to maintain access.</p> <p>The proposal will have positive economic benefits, including up to 45 full time jobs to support the operation of the proposal. The operation of the ferry is expected to attract increased tourism and spending in the area, which would benefit the local economy.</p> <p>It is also noted that the social benefits of the proposal align to community values identified in the Randwick City and Sutherland Shire Councils' community plans and supports improved connectivity between communities.</p>	<p>Standard conditions have been recommended to manage amenity and access impacts.</p>
<p>Climate change and sustainability</p>	<p>The assessment identified increased ambient temperatures and heatwave impacts due to increased rainfall intensity and rising sea levels as risks to the proposal as a result of climate change. Weather impacts resulting from storms and strong winds also pose a risk that could impact the operation of the ferry wharves.</p> <p>The assessment also identified that the proposal would result in 10,962 units of greenhouse gas emissions, with the operation of ferries being the primary contributor. Sustainability measures incorporated into the design of the proposal include the installation of energy efficient systems and the use energy efficient materials such as prefabricated construction components, modular design for easy replacement, and reuse of recycled or reclaimed material.</p>	<p>Standard sustainability conditions have been recommended.</p>

The Department considers the Proponent adequately addressed anticipated climate change impacts, and that the proposed mitigation measures (wharf design and consideration of rainfall and sea level rise impacts when selecting and designing equipment to be used on the wharves) adequately address climate change risks.

Air quality

During construction, there will be localised dust impacts from activities (particularly during piling), works involving temporary structures and the movement of construction vehicles.

Standard air quality conditions have been recommended.

The air quality assessment identified low to negligible air quality impacts at the nearest premise at La Perouse (the Boatshed). However, dust impacts would be greater at Kurnell with several commercial and residential properties being located within 20 metres of the construction activities and haulage routes.

The Proponent has committed to incorporating dust and odour management measures into the CEMP. These measures include dust mitigation and suppression measures through the spraying and covering of exposed surfaces, vehicle clean down areas, methods to manage works during strong winds or other adverse weather conditions, and a progressive rehabilitation strategy for exposed surfaces. The Department supports the Proponent's commitment to include specific air quality mitigation measures within its CEMP, and has reinforced this in recommended conditions of approval.

Further, the Proponent's assessment indicates the impact of vessel emissions is anticipated to be minor, compared to other transport modes that currently operate within Botany Bay.

Waste impacts

Waste generated during construction would be predominantly from site preparation, demolition, construction of infrastructure and landscaping, and excavated material (spoil) from earth works and marine sediment from piling activities.

Standard waste avoidance, reuse and management conditions have been recommended.

The Proponent has prepared mitigation strategies to avoid, minimise, and sustainably manage waste and has committed to the preparation of a Waste and Energy Management sub-plan (WEMP) as part of the CEMP.

The WEMP would include measures to minimise the amount of waste, and store, reuse, test, handle, transport and dispose of waste. Additionally, the Proponent has advised any waste produced during operation would be managed in accordance with the waste hierarchy, classified according to the *Waste Classification Guidelines* (NSW EPA, 2014) if

required and would be reused, recycled, or disposed of at suitable facilities.

Earthworks material generated during excavation works would be reused for backfilling and landscaping purposes. Cleared vegetation will be reused as millable timber where practicable.

The Department considers that waste generation and management can be adequately managed by the Proponent's proposed mitigation measures, including the standard waste management practices of reduce, reuse, and recycle and recommended conditions.

7 Evaluation

The Department considers the proposal is in the public interest and should be approved, subject to conditions. The Department's assessment considered relevant matters and objects of the EP&A Act, principles of ecological sustainable development, advice from government agencies and councils, and strategic government policies and plans. The proposal provides an accessible and reliable transport connection between Kurnell and La Perouse, which would enable access to destinations including Kamay Botany Bay National Park.

The proposal is consistent with key government policies and strategies including:

- *South East Sydney Transport Strategy* (Transport for NSW 2020)
- *Kamay Botany Bay National Park Plan of Management* (NSW Government 2020)
- *Kamay Botany Bay National Park Master Plan* (NSW Government 2019).

Key benefits provided by the proposal include:

- the provision of an accessible transport connection between Kurnell and La Perouse
- a new type of experience for visitors travelling around Kamay Botany Bay National Park
- increased visitation to the area and the creation of new commercial and recreational opportunities
- enhancement of Aboriginal cultural values
- an improvement in amenity and placemaking outcomes through wharf design and provision of footpaths, landscaping, and signage
- additional car parking.

In its assessment, the Department reviewed the EIS, RtS, and assessed key issues arising from the construction and operation of the proposal. This was undertaken with advice from the Proponent, government agencies and councils, and in consideration of government policies and plans.

Key issues associated with the proposal are:

- biodiversity
- Aboriginal and non-Aboriginal heritage
- noise and vibration
- traffic and transport
- place and urban design
- soil and water contamination.

The Proponent committed to implementing a range of environmental mitigation measures to manage impacts during construction and operation. The Department has considered the issues raised in submissions and is satisfied that these issues have been appropriately considered and responded to by the Proponent. Residual impacts can be mitigated, managed or offset through the implementation of the Proponent's commitments and the Department's recommended conditions to reinforce these

commitments and address outstanding or residual impacts. For the reasons outlined, it is considered that the proposal is in the public interest and should be approved subject to conditions.

8 Recommendation

It is recommended that the Minister for Planning:

- **considers** the findings and recommendations of this report
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to approve the application
- **agrees** with the key reasons for approval listed in the notice of decision
- **grants approval** for the application in respect of SSI-10049, subject to the conditions in the attached proposal approval
- **signs** the attached proposal approval and recommended conditions of approval.

Prepared by:



Fadi Shakir

Senior Planner

Transport Assessments

Recommended by:



Glenn Snow

Director

Transport Assessments

9 Determination

The recommendation is **Adopted / Not adopted** by:

A handwritten signature in blue ink, appearing to be 'AR', written in a cursive style.

The Hon. Anthony Roberts MP
Minister for Planning

Appendices

Appendix A – List of referenced documents

South East Sydney Transport Strategy (Transport for NSW, August 2020)

The Kamay Botany Bay National Park Kurnell Master Plan (Department, 2019)

The Kamay Botany Bay National Park Plan of Management (Department, 2019)

Kamay 2020 proposal (Kamay 2020)

Aboriginal and Torres Strait Islander people (Transport for NSW's Reconciliation Action Plan 2019 – 2021)

La Perouse – Kurnell and Botany Bay Ferry Service, Feasibility Study (Issue 2) (Patterson Britton & Partners, 1999)

Draft feasibility study (Transport for NSW, 2015)

Updated feasibility study against submissions (Transport for NSW, 2016)

NSW Infrastructure Investor Assurance Framework (Infrastructure NSW, 2020)

Appendix B – Environmental Impact Statement

<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>

Appendix C – Additional Information

<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>

Appendix D – Submissions and agency advice

<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>

Appendix E – Response to Submissions Report

<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>

Appendix F – Community Views for Draft Notice of Decision

The key issues raised by the community and considered in the Planning Secretary’s Assessment Report and by the decision maker include biodiversity, heritage, noise and vibration, traffic and transport, place and urban design and soil and water contamination.

Issue	Consideration
<p>Biodiversity</p> <ul style="list-style-type: none"> • concerns over negative impacts of construction on threatened seagrass beds, White’s Seahorse and other marine biodiversity • lack of assessment of all marine species • ferry swept path impacts on squid breeding • lack of adequate offsetting to protect threatened species • loss of biodiversity and lack of impact mitigation measures • lack of inclusion of all bird species likely to be impacted • potential impacts on Towra Point Nature Reserve. 	<p><i>Assessment</i></p> <ul style="list-style-type: none"> • The Department has assessed the biodiversity impacts of the project in consultation with the then Environment, Energy and Science Group of the Department, Department of Primary Industries (DPI) - Fisheries and the then Commonwealth Department of Agriculture, Water and the Environment (DAWE) and considers the residual impacts are acceptable subject to offsetting and ongoing management • The project has been planned and designed to avoid and minimise impacts on threatened ecological communities and threatened habitats in the study area • The proposal would directly impact <i>Posidonia australis</i> and <i>Zostera</i> seagrass meadows, reducing the amount of habitat for the threatened White’s Seahorse and key fish habitat present • The Proponent has committed to addressing impacts on Threatened Ecological Communities (TECs) and threatened species through implementing a Marine Biodiversity Offset Strategy (MBOS), preparing and implementing a Biodiversity Management Plan, undertaking general pre-clearing surveys, implementing unexpected threatened species finds procedures, and identifying and protecting sensitive areas • The Proponent’s MBOS outlines mechanisms to rehabilitate seagrass habitat, relocate White’s Seahorses prior to construction and provide artificial habitat for seahorses • The direct impacts to threatened species and threatened ecological communities would require offsetting, through the securing of ecosystem and species credits. The Proponent has committed to offsetting direct and indirect impacts in accordance with the Biodiversity Offset Scheme • The Department is satisfied that the Proponent has adequately included all bird species that are likely to

occur within the project area listed under the EPBC Act and BC Act

- The Department has determined that as the Towra Point Nature Reserve occurs approximately 1km southwest of the proposed Kurnell wharf construction boundary, the proposal is unlikely to impact on the ecological character of the wetland.

Recommended Conditions/Response

- Offset the impacts to plant community types and threatened (species credit) species
- Prepare a Terrestrial and Marine Biodiversity CEMP Sub-plan to implement construction management measures such as pre-survey clearing and protecting retained vegetation
- Implement the Marine Biodiversity Offset Strategy to rehabilitate seagrass habitat and provide artificial habitat for seahorses
- Establish a Marine Biodiversity Offset Strategy Implementation Reference Panel and the review of the Marine Biodiversity Offset Strategy based on the recommendations of this panel.
- Consult with DPI Fisheries regarding proposed ferry swept path/navigation channels for all traffic using the wharves prior to the commencement of ferry services to mitigate potential impacts on marine biodiversity including scouring.

Aboriginal heritage

- concerns over potential impacts to cultural heritage of the area, particularly due to the design of the proposal
- further engagement is required with local Aboriginal groups.

Assessment

- Construction of the project would result in direct impacts to Aboriginal heritage including the loss of two Aboriginal heritage sites of low archaeological significance and the partial loss of one Aboriginal heritage site of high archaeological significance
- The Department concurs with Heritage NSW's consideration that the proposed mitigation measures for Aboriginal cultural heritage impacts are proportionate to the degree of impact and has strengthened these commitments so that Aboriginal cultural heritage values and items are preserved
- The design of the project has been developed through extensive consultation with local Aboriginal groups and

Aboriginal artists have been engaged to develop a culturally sensitive design response.

Recommended Conditions/Response

- Inform Registered Aboriginal Parties (RAPs) at regular intervals on the construction of the SSI and continue to consult with RAPs on the Aboriginal cultural heritage management requirements of the SSI throughout construction
- Prepare an Aboriginal Cultural Heritage Excavation Report to document the outcomes of Aboriginal cultural heritage test and salvage excavations
- Cease work if the Aboriginal engraving at Site 6 – La Perouse is identified, and develop an appropriate methodology to ensure protection of the site
- Develop the Urban, Design and Landscape Plan in consultation with the La Perouse LALC and local Registered Aboriginal Parties to ensure Aboriginal heritage values are considered in the design.

Non-Aboriginal heritage

- concerns regarding potential damage to non-Aboriginal archaeological sites and heritage values
- values of Bare Island's heritage listing has not been considered
- need to retain historic ferry shelter at Kurnell
- desire to remove all existing exotic plantings at Kurnell.

Assessment

- The project would have a minor impact to the nationally listed Kurnell Peninsula Headland (NHL 105812), the state listed Kamay Botany Bay National Park and Towra Point Reserve and the locally listed Kurnell history
- The Department has reviewed the ferry wharves design and considers that certain design refinements can be incorporated to preserve the coarse sea stone wall, which has a high historical significance to the Kurnell Peninsula Headland national heritage place
- The relocation of the Captain Cook watering well and Landing Place memorial would be temporary and necessary to avoid impacts during construction
- Whilst the proposal would require the removal of a large portion of the Monument track, the track will be reinstated following the completion of construction
- The wharf at Kurnell has been designed to minimise impacts to the landform and views from Captain Cook Drive, Alpha House and from nearby monuments and would be sympathetic with the historical setting of the area

- The Department is satisfied that the heritage structures on Bare Island would not be directly or indirectly impacted by the project
- The Proponent has clarified that the historic ferry shelter at Kurnell would remain in place and any indirect vibration impacts would be mitigated
- The Proponent has committed to measures to manage impacts to local and state listed heritage items through the preparation of a Heritage Management Plan, Archaeological Research Design, site inductions and an archival recording program.
- Potential archaeological impacts would be managed through the Proponent's commitment to archaeological investigation, management and salvage requirements after detailed design.

Recommended Conditions/Response

- Nominate an Excavation Director to direct the Archaeological program and ensure archaeological investigations are undertaken adequately
- Prepare an Archaeological Research Design and Excavation Methodology to guide the archaeological program. Archaeological investigations would occur under the direction of a suitably qualified Excavation Director and outcomes would be documented in a Final Excavation Report.

Noise and vibration

- noise and vibration would impact people working from home
- concerns regarding operational noise from ferries and commercial vehicles
- potential increased noise from cars at La Perouse
- underwater noise impacts to divers and marine species
- inconsistencies with the noise and vibration impact assessment
- uncertainties regarding methods to control noise.

Assessment

- Construction noise and vibration impacts are unavoidable due to the proximity of residents and sensitive land uses
- The proposed out-of-hours works are considered necessary for some construction activities to ensure a safe work environment during calm water periods
- The Proponent has committed to a range of management measures to manage construction noise and vibration. These measures, along with the proactive and community-focused approach to managing noisy and out-of-hours works, should ensure that noise and vibration impacts are minimised.
- The operation of the ferry service should not result in any discernible increases in noise levels at nearby residences.

Recommended Conditions/Response

- Active and ongoing community consultation with the community regarding out-of-hours works
- Conduct vibration testing before and during vibration generating activities that have the potential to impact heritage items to identify minimum safe working distances
- Undertake an assessment of the noise impacts of the ferry vessels selected compared to the noise performance assumptions presented in the EIS and identify additional mitigation measures if the results of the final vessels indicate a worsening of impacts.

Traffic and transport

- concern over increased vehicle traffic that would result from the development, particularly around La Perouse
- potential increased demand for carparking and exacerbated on-street parking impacts on local streets
- inadequate traffic surveys and proposed carparking shortfall
- access to private property
- potential to restrict the activities of water users and the recreational enjoyment of Botany Bay.

Assessment

- Traffic generation during construction is expected to be minor as construction vehicle movements can be easily accommodated by the surrounding road network with a good level of service being maintained
- Adverse traffic impacts during operation are not anticipated as the wharves would function to minimise the number of induced trips at La Perouse and Kurnell through encouraging public transport use
- Impacts on the temporary loss of parking during construction would be mitigated through the provision of construction worker parking at construction ancillary sites
- The proposal would provide additional parking through reconfiguring existing parking to provide additional spaces at La Perouse and providing additional parking spaces within the National Park at Kurnell
- Property access would generally not be restricted during construction and, if required, it would be for a limited duration and affected property owners would be consulted
- The Proponent has clarified that consultation with recreational fishing groups has been carried out and would be further explored to determine the exact pathway of ferry vessels, so that important recreational areas can be avoided as much as possible
- Impacts to marine traffic can be effectively managed.

Recommended Conditions/Response

- Prepare a Traffic Management CEMP Sub-Plan to effectively manage construction traffic
- Contain all construction parking within construction sites
- Provide additional parking within the La Perouse parking loop through the reconfiguration of existing parking bays
- Establish additional parking spaces within the Kamay National Park before the operation of the wharves commences
- Undertake line delineation along the Anzac Parade loop to allow for improved traffic movements, supported by formal marking and signage
- Prepare a Vessel Traffic Management Plan and Operational Maritime Risk Management Plan to ensure potential conflicts between vessels and shipping operations are minimised.

Place and Urban Design

- inappropriate size, scale and design, resulting in a high visual impact
- the use of materials including concrete and steel are inconsistent with the historic character and buildings of La Perouse
- the accessibility of the wharves and surrounding areas within Botany Bay
- compatibility with cycling.

Assessment

- The wharf structures would alter the existing visual character of La Perouse and Kurnell. However, visual impacts are likely to be positive due to the high-quality architectural design of the wharves that would have sympathetic connections to the open recreation and shared zones
 - The design of the project has been developed through extensive consultation with local Aboriginal groups and Aboriginal artists have been engaged to develop a culturally sensitive design
 - The Department agrees with the NSW Government Architect's position that, considering the visually prominent location and historical significance of the site, particularly to First Nations' people, the final design should be verified through independent review to develop a robust and sensitive urban design
 - The ferry wharves will assist in promoting La Perouse and Kurnell as recreational spaces by completing the Botany Bay active transport loop and providing bicycle parking
 - The Proponent has prepared a Urban, Design and Landscape Plan to incorporate design objectives with supporting principles that take into consideration the
-

local landscape character, with a particular focus on Aboriginal heritage values.

Recommended Conditions/Response

- Establish a Design Review Panel to provide advice and recommendations on detailed design and architecture, heritage, urban and landscape design and artistic aspects of the proposal
- Update the Urban, Design and Landscape Plan to address the consideration provided by the Design Review Panel as well as consultation with Aboriginal stakeholders
- Ensure bicycle storage is available on ferry vessels
- Provide or upgrade shared pathways connecting the ferry wharves to the nearest bus stops at Kurnell and La Perouse to complete the Botany Bay active transport circuit
- Consider the inclusion of neutral external colour schemes and finishes that avoid reflection to reduce visual impacts to the heritage setting in the design development of the ferry wharves.

Contamination

- potential risk of fuel and oil leaks from commercial and recreational vessels
- call for independent review of contamination impacts
- concerns regarding human health risks associated with contamination
- the construction method should include best practice for piling installation to minimise disturbing sediment, using floating booms to contain silt.

Assessment

- The Proponent has advised that all marine vessel operators are required to comply with the NSW Transport for NSW Boating Handbook, which outlines measures for protecting the environment and avoiding the pollution of waterways
- In its submission on the EIS, the EPA acknowledged concerns raised by the community regarding potentially contaminated land and subsequently has recommended the appointment of a NSW EPA accredited site auditor to review project documentation, including a Remedial Action Plan (if required), and oversee construction. The EPA's recommendations are supported by the Department and have been included as conditions of approval
- The Department is satisfied that the conditions of approval would allow contamination risks, including risks to human health to be independently reviewed and residual impacts to be appropriately managed
- The Department is satisfied that the Proponent's proposed piling methods would minimise the mixing between marine and groundwater, reducing the

potential impact to groundwater quality. The Proponent has committed to storing, testing and appropriately disposing of groundwater encountered, in accordance with a soil and water management plan.

Recommended Conditions/Response

- Prepare and implement soil and water management plan during construction
- Engage an NSW EPA accredited site auditor during construction to undertake an independent review role and oversee further testing if required
- Obtain site audit statements and prepare and implement a Remedial Action Plan if remediation is required
- If remediation is undertaken, prepare a Site Audit Statement and Report to certify that the remediation works have determined the land suitable for the intended use.

Project design

- concern that the selected option is not the most appropriate for the area
- concern that the wharf design/length is too large
- loss of visual sightlines across Botany Bay
- concern that the proposal would lead to overdevelopment and threaten the natural and relaxing ambience of La Perouse.

Assessment

- A ferry service between La Perouse and Kurnell is listed as a major initiative in section 1.3 of the South East Sydney Transport Strategy (Transport for NSW, August 2020)
- The proposal would provide an accessible transport connection between Kurnell and La Perouse which would enable access to multiple destinations including the Kamay Botany Bay National Park
- The Proponent has advised that the wharf length is required to ensure sufficient and safe depth for ferry vessels and the width of the wharves would provide disability access. The wharves at La Perouse and Kurnell would respectively extend 180 metres and 230 metres from the shorelines. As the La Perouse berth is at an angle to the jetty, the total wharf would extend about 100 metres perpendicular to the shoreline
- Visual impacts are likely to be positive due to the high-quality architectural design of the wharves that would have sympathetic connections to the open recreation and shared zones
- The Department consulted with the NSW Government Architect for advice on the design within the context setting. The NSW Government Architect recommended

that the final design should be verified through independent review

- The Department considers that reduced amenity and potential interruptions to tourism activities during construction would create socioeconomic impacts for the surrounding community, however, these would be temporary and confined to the short construction period.

Recommended Conditions/Response

- Erect boundary screening to minimise visual impacts on adjacent sensitive land uses and incorporate Indigenous artwork wherever visible
- Manage amenity related impacts through the CEMP and relevant sub-plans to minimise and reduce impacts on the community
- Establish and utilise a Design Review Panel to ensure the final design is verified through independent review
- The Proponent's Urban Design and Landscape Plan will be reviewed by the DRP and Heritage NSW, RAPs and La Perouse LALC may be invited to the meetings of the Panel as observers or to provide feedback on key design elements of the SSI.

Project justification and cost

- concern that there is not enough demand for the proposal
- queries relating to the proposal's business case and cost benefit analysis
- concerns regarding the sources of project funding
- concern the proposal would form part of a future Cruise Ship Terminal.

Assessment

- The objective of the Department's assessment is to assess the environmental impacts of the project. Funding and consideration of the cost benefit analysis is a matter for the Proponent and NSW Government
- Use of the wharves by cruise passenger ships either docking or tendering passengers to shore is not proposed as part of this project. A cruise terminal project would be subject to a separate assessment process and is independent of this project.

Community and stakeholder consultation

- inadequate consultation has been undertaken

Assessment

- The Department is satisfied that consultation has been undertaken in accordance with the legislative requirements of the *Environmental Planning and Assessment Act 1979*, as amended by the *Legislation Amendment (Emergency Measures) Act 2020*

- consultation to date inaccurately represents community concerns
 - lack of consultation with all stakeholders including beach/recreational users
 - concerns with approach to consultation due to COVID-19.
- introduced during the Covid-19 pandemic and the Secretary's Environmental Assessment Requirements
 - The Proponent has also advised that consultation with the community and stakeholder groups would continue throughout construction and prior to operation of the wharves to determine operational needs and requirements for all interested user groups
 - The Proponent would continue to consult with recreational fishing groups to determine the exact pathway of the ferry vessels so that important recreational areas can be avoided as much as possible.

Recommended Conditions/Response

- Prepare a Community Communication Strategy to provide mechanisms to facilitate communication about the construction and operation of the project.

Water users

- the proposal would prevent the enjoyment of Botany Bay, Little Bay, Yarra Bay and Fisherman's island
- amenity impacts to beach/recreational users
- the proposal would create safety risks for water users due to the functioning of ferry vessels.

Assessment

- The Proponent has considered the needs of recreational and beach users by locating the ferry wharves away from popular swimming locations to provide recreational swimmers with a safe buffer from the operation of the ferry service
- The proposal would also assist in promoting La Perouse and Kurnell as recreational spaces through placemaking improvements, completing the Botany Bay active transport circuit and providing recreational fishers with a safe landside location to fish from
- The Department is satisfied that potential amenity impacts to beach users from spills or reduced water quality due to sediment dispersion and deposition would be adequately managed through the Proponent's mitigation measures. The Department has implemented conditions related to sediment and erosion controls to further ensure amenity for beach goers is not reduced
- The Department has also recommended that the Urban Design and Landscape Plan is updated, based on the advice of a Design Review Panel, to deliver improvements to visual amenity and placemaking for the community

- All waterborne activities, including large commercial vessels, are required to operate under existing maritime safety rules
- The Proponent has committed to implementing a Marine Works Management Plan to establish necessary exclusion zones and include mooring plans and a communication protocol to ensure the safety of all recreation users within Botany Bay.

Recommended Conditions/Response

- Prepare a Vessel Traffic Management Plan to provide guidance for vessels to ensure that all commercial shipping operations take precedence over ferry movements to enhance marine and navigation safety when entering, exiting and operating in Botany Bay
- Prepare an Operational Maritime Risk Management Plan to demonstrate how vessel movements will interact with recreational vessels.

Project assessment

- concerns that the Secretary's Environmental Assessment Requirements have not been met
- concerns cumulative impacts have not been assessed
- concerns operational and maintenance impacts and costs have not been assessed.

Assessment

- The Department is satisfied that the Proponent has addressed the Secretary's Environmental Assessment Requirements in the EIS, RtS and additional information provided during the assessment of the project
- The Department is satisfied that the cumulative impacts of the proposal have been adequately assessed by the Proponent and can be managed through the implementation of the Proponent's mitigation measures and the recommended conditions of approval
- The Proponent has advised that the maintenance and operational costs have been estimated across the serviceable life of the wharves. The NSW Government would pay these costs. The Government does not subsidise the cost of maintaining the ferry vessel, this would be borne by the operator.

Recommended Conditions/Response

- Prepare and implement a Construction Environmental Management Plan and Sub-plans
- Undertake management and routine maintenance for design elements and landscaping work to ensure the

success of the design and landscape outcomes for the life of the project.

Appendix G – Assessment of EPBC Act listed Threatened Species and Communities

1. Identifying matters of national environmental significance (MNES)

- (a) **Confirm** whether all the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened species and communities that occur on the proposal site, or in the vicinity are identified in the Environmental Impact Statement (EIS). Note which species and/or communities have not been identified. The Commonwealth has provided NSW with referral documentation which includes a possible list of MNES recorded on and within the vicinity of the proposal site generated from the Environmental Reporting Tool (ERT Report).
- (b) **Comment** on whether the Biodiversity Assessment Method (BAM) has been applied to all EPBC Act listed threatened species and communities that occur on or in the vicinity of the proposal site.

The BAM has been applied to all EPBC Act-listed threatened species and communities. Sections 3 and 4 of the BDAR list EPBC Act-listed threatened entities that occur on or in the vicinity of the site, and section 5 of the BDAR provides an assessment of likely significant impacts to MNES.

Environment and Heritage Group notes that there are inconsistencies in the description of the amount of vegetation to be cleared in the EPBC Act MNES assessment compared to figures in the BAM. Section 5.2.3 states that 0.29ha is to be cleared, but Table 6-2 states 0.06ha is to be cleared. There are also inconsistencies in the stated amounts of clearing of habitat for the Grey-headed Flying-fox. The Proponent has rectified these inconsistencies in the latest (November 2021) version of the BDAR.

- (c) In the circumstance where there are EPBC Act-listed species that are not addressed by the BAM (i.e., migratory species) **comment** on whether these species have been assessed in accordance with the SEARs and provide references to where the assessment information is detailed in the EIS.

It is noted that the EPBC Act-listed entities that have not been considered in the BDAR are also *Biodiversity Conservation Act 2016* (BC Act) listed entities. Adequate surveys have been undertaken, as described in sections 3 and 4 of the BDAR, for all BC Act listed entities. All BC Act listed species have been assessed in the EIS in accordance with the Secretary's Environmental Assessment Requirements (SEARs). Therefore, the three EPBC Act-listed entities that have not been addressed by the BDAR, have been assessed in accordance with the SEARs.

- (d) **Verify** that the Proponent has expressed a statement about the potential impact i.e. likely significant, low risk of impact, not occurring, for each listed threatened species and community protected by the EPBC Act referred to in 1(a). Note which species and/or communities have not been addressed in this manner.

Sections 5.1, 5.2 and 5.3 of the BDAR assess the likelihood of EPBC Act-listed entities being impacted by the proposal. The only entities that have not been addressed are the ones referred to in 1(a).

- (e) **Identify** where further information from the Proponent is critical to the assessment of MNES particularly in relation to mapping Table 1 (A), analysis of impacts Table 1 (F) and Table 2 (F), avoidance, mitigation, and offsetting.

No further information was considered by Environment and Heritage Group to be critical to the assessment of MNES.

2. Assessment of the relevant impacts

All EPBC Act-listed species and/or communities that the Commonwealth consider would be significantly impacted (as noted in the referral documentation) should be assessed and offset. These

are referred to as relevant impacts.

(a) Verify

- ✓ the nature and extent of all the relevant impacts has been described
- ✓ measures to avoid and mitigate have been described
- ✓ an appropriate offset for any residual adverse significant impact has been determined. *Note an offset is appropriate if calculated by the BAM and provides an offset specifically for the entity impacted.*

The Commonwealth's proposal assessment notes list a number of species for which the Department considers there is likely to be a significant impact. It is noted that none of these are species relevant to EHG, as they are not terrestrial species. This assessment has been completed by Department of Primary Industries - Fisheries.

(b) **Note** if information in relation to any of these boxes has not been provided for any relevant EPBC Act- listed species and communities.

All relevant information has been provided.

(c) There may be listed threatened species and communities for which the Proponent will claim that the impact will be **not** significant in accordance with the *EPBC Act Significant Impact Guidelines*. Please **provide** advice for cases where EHG disagrees with this finding. *Note that generally the Commonwealth will not accept that a species determined to be significantly impacted at the referral decision stage is not likely to be significantly impacted unless strong evidence can be provided.*

Not applicable – there are no terrestrial species for which there are relevant impacts.

(d) Provide references to where specific lists or tables are detailed in the EIS i.e., *List of EPBC Act-listed EECs Appendix J Table 4 pg 65*

The PMST search results are included as Appendix C of the BDAR.

Table 1 Impact Summary - Relevant EPBC Act-listed Ecological Communities (refer to Section 3)

EPBC Act -listed EEC	Y/N	PCTs	Y/N/comment	Ha	Credits	Comment	Relevant page numbers in the EIS
N/A – no relevant terrestrial EPBC Act listed EECs would be significantly impacted							

- (A) List** the relevant EPBC Act listed ecological communities that will be significantly impacted in accordance with the referral documentation.
- (B) Verify** that there is evidence in the EIS that listed EEC and species habitat has been mapped in accordance with relevant listing guidelines (Yes/No). *Proponents are required by the SEARs to ensure that EPBC-listed communities are mapped in accordance with EPBC Act listing criteria. It is important that any derived native grassland components of an EPBC listed EEC are included in the mapping of native vegetation extent.*
- (C) List** the Plant Community Types (PCTs) associated with the ecological communities in accordance with the BAM.
- (D) Confirm** that the identification of PCTs has been correct (Yes/No) and comment if not correct.
- (E) Record** the area of impact (ha) and credits required.
- (F) Comment** on the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the EEC. Note whether further information might be required.
- (G) Cite** relevant page numbers for details provided the EIS and Appendices for each EEC.

Table 2 Impact Summary – Relevant EPBC Act-listed species (refer to Section 4)

Threatened species (listed under the EPBC Act)	Credit Type (SC/EC)	Record PCTs associated with ecosystem credits	Y/N/Comment	Hectares (total species habitat)	Credits (total species habitat)	Comment	Relevant page numbers in the EIS and Appendices
N/A – no relevant terrestrial EPBC Act listed species would be significantly impacted							

- (A) **List** the relevant threatened species that will be significantly impacted in accordance with the referral documentation.
- (B) **Record** whether the relevant threatened species is classified as “species credit species” or ecosystem credit species for the purposes of the BAM.
- (C) **List** the PCTs associated with the ecosystem credit species.
- (D) **Verify** that the habitat polygons for MNES have been mapped appropriately representing the foraging and/or breeding habitat for the species that will be impacted by the development.
- (E) **Record** the area of impact (ha) and credits required. For impacts associated with ecosystem credit species identify the total credit requirements associated with the cleared PCTs identified as habitat for the species.
- (F) **Comment** on the adequacy of the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the species. Note if further information is required.
- (G) **Cite** relevant page numbers for details provided in the EIS and Appendices for each threatened species.

3. Avoid, mitigate and offset

Comment on whether or not the EIS identifies measures to avoid and minimise impacts on the relevant EPBC Act-listed threatened species and communities. The BAM requires that proponents detail these efforts and commitments in the EIS. Identify gaps in the discussion on measures to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS.

N/A – no relevant terrestrial EPBC Act listed entities would be significantly impacted. It is noted that the BDAR proposes adequate measures to avoid and minimise impacts, which are described in section 6 of the BDAR.

Comment on the adequacy and feasibility of measures to avoid and minimise impacts. Identify inadequacies where further efforts could be made to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS that discuss avoidance and mitigation measures relevant to EPBC Act-listed species and communities.

N/A – no relevant terrestrial EPBC Act listed entities would be significantly impacted. It is noted that reasonable efforts have been made to avoid impacts, and the proposed mitigation measures are adequate.

4. Offsetting

(a) **Verify** that the offsets proposed to address impacts to EPBC- listed threatened species and communities are in accordance with the requirements under the EPBC Act.

- ✓ An appropriate offset for any residual adverse significant impact has been determined.
- ✓ Proposed offsets for EECs provide a like for like outcome i.e., proponents have identified PCTs attributed to the specific threatened ecological community being impacted
- ✓ Proposed offsets have been determined using the BAM

If offsets have not been determined in accordance with the BAM, the Department is required to discuss the proposed approach with the Commonwealth as soon as possible.

N/A – no relevant terrestrial EPBC Act listed entities would be significantly impacted. It is noted that offsets have been adequately determined for all entities to be impacted. Biodiversity credits have been calculated and are to be retired in accordance with the BAM.

5. **Comment** on whether the information and data relied upon for the assessment have been appropriately referenced in the EIS. Comment on the validity of the sources of information and robustness of the evidence.

There are no significant sources of information and data which have not been used.

Table 3: Summary of Offset Requirements

Threatened species or EEC (listed under the EPBC Act)	Credits required as calculated by the BAM	Credits generated from offsets in remnant vegetation	Credits generated from offsets proposed by other means	Comment on the proposed offsets	Relevant page numbers in the EIS and Appendices
N/A – no relevant terrestrial EPBC Act listed entities would be significantly impacted					

- (A) **List** the relevant threatened species or ecological community included in the proposed offset package (these are the listed species and communities that will be significantly impacted in accordance with the *EPBC Act Significant Impact Guidelines 1.1.*). Identify any relevant species or ecological communities which have not been included in the proposed offset package.
- (B) **List** the total credit requirement identified by the BAM for impacted listed threatened species and ecological community. For EECs and ecosystem credit species this is the sum of the credits generated by PCTs associated.
- (C) **Identify** the total number of required credits which are proposed to be retired through conserving and managing remnant / mature vegetation.
- (D) **Identify** the number of credits proposed to be met through other methods allowable under the BAM, such as rehabilitation of impacted areas or regrowth vegetation.
- (E) **Comment** on the adequacy of the proposed offset in meeting requirements of the BAM and the EPBC Act. In particular is there a reasonable argument for a shortfall in credits required for MNES and/or non-compliance with like-for like? Are the offsets proposed by means other than protection of remnant vegetation adequate?
- (F) **Reference** the relevant page numbers from the EIS and Appendices for each threatened species and community.

Appendix H – Assessment of Matters of National Environmental Significance

In accordance with the bilateral agreement between the Commonwealth and NSW Governments, the Department provides the following additional assessment required by the Commonwealth Minister for the Environment (the Minister), in deciding whether or not to approve a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department considers that all threatened species and ecological communities and National Heritage Places under Part 3 of the EPBC Act have been adequately assessed and documented in the *Kamay Ferry Wharves Environmental Impact Statement* (the EIS) dated June 2021, the *Kamay Ferry Wharves Response to Submissions Report* (the Submissions Report) dated October 2021, and the *Kamay Ferry Wharves Marine Biodiversity Offset Strategy* (the MBOS) dated November 2021.

This Appendix is supplementary to and should be read in conjunction with the assessment included in **Section 6.2** of the assessment report which includes the Department's consideration of impacts to listed threatened species and communities, mitigation and offsetting measures for threatened species, including for matters of national environmental significance (MNES).

The assessment of threatened species and ecological communities has been prepared based on the information contained in:

- Chapter 3 – Strategic justification and proposal need, Chapter 4 – Proposal development and alternatives, Chapter 6 – Consultation, Chapter 10 – Marine biodiversity, Chapter 11 – Terrestrial biodiversity, Chapter 25 – Cumulative impacts, Chapter 26 – Environmental risk analysis, Chapter 27 Proposal justification and conclusion, Appendix A – Proposal synthesis and summary of environmental management measures, Appendix B – Secretary's environmental assessment requirements and checklist, Appendix D – Consultation Process and Outcomes Report, Appendix H – Marine Biodiversity Assessment Report, and Appendix I – Biodiversity Development Assessment Report, in the EIS
- Chapter 2.8 – Biodiversity, Chapter 3.3 – DPI Fisheries, Chapter 3.4 - DPIE - EHG and Chapter 3.9 - NSW NPWS and Appendix B – Revised environmental mitigation measures, Appendix D – Marine Biodiversity Offset Strategy, Appendix E – Addendum to Marine Biodiversity Assessment Report and Appendix G – Updated Biodiversity Development Assessment Report of the Response to Submissions Report
- the Marine Biodiversity Offset Strategy (MBOS)
- supplementary information provided during the assessment process
- advice provided by the Department's Environment and Heritage Group (EHG) and DPI Fisheries, in addition to the Response to Submissions Report and MBOS.

The assessment of the impact on Kurnell Peninsula Headland National place has been prepared based on the information contained in:

- Chapter 3 – Strategic justification and proposal need, Chapter 4 – Proposal development and alternative, Chapter 6 – Consultation, Chapter 7 – Aboriginal heritage, Chapter 8 – Non-Aboriginal heritage, Chapter 9 – Underwater heritage, Chapter 26 – Environmental risk analysis, Chapter 27 Proposal justification and conclusion, Appendix A – Proposal synthesis and summary of environmental management measures, Appendix E – Aboriginal Cultural Heritage

Assessment Report, Appendix F – Statement of Heritage Impact, and Appendix G – Underwater Cultural Heritage Assessment Report in the EIS

- the Response to Submissions
- advice provided by Heritage NSW
- supplementary information provided during the assessment process.

This appendix is supplementary and should be read in conjunction with the assessment included in:

- **Section 6.1** of the assessment report, which includes the Department's consideration of impacts to Commonwealth land in relation to biodiversity aspects of the environment, impacts to listed threatened species and communities, mitigation and offsetting measures for biodiversity aspects of the Commonwealth land and threatened species and communities; and
- **Section 6.2** of the assessment report, which includes the Department's consideration of impacts to the heritage values of the Kurnell Peninsula Headland National place.

M.1 REQUIREMENTS FOR DECISIONS ABOUT MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

In accordance with section 136 of the EPBC Act, in deciding whether or not to approve the taking of an action and what conditions to attach to an approval, the Minister must consider matters relevant to any matter protected by a provision of Part 3 that the Minister has decided is a controlling provision for the action. These matters are addressed in of this assessment of MNES.

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of sections 18 and 18A (with regard to listed threatened species and communities) and sections 15B and 15C (with regard to National Heritage places) of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Minister must not act inconsistently with certain international environmental obligations, recovery plans or threat abatement plans. The Minister must also have regard to relevant approved conservation advices.

Australia's International Obligations

Convention on Biological Diversity (Biodiversity Convention)

Australia's obligations under the Biodiversity Convention include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The recommendations of the Biodiversity Development Assessment Report (BDAR) (as updated by the revised BDAR in the Submissions Report and subsequent revision) and the assessment report to which this appendix is attached are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as the assessments under the *Environmental Planning & Assessment Act 1979* (EP&A Act) and EPBC Act) to avoid and minimise adverse impacts on biological diversity. The recommended instrument of approval requires avoidance, mitigation and management measures, and offsetting for the listed threatened species and communities. In addition, all information related to the proposed action is required to be publicly available to enable the equitable sharing of information and improved knowledge relating to biodiversity.

Convention on Conservation of Nature in the South Pacific (APIA Convention)

Australia's obligations under the APIA Convention include encouraging the creation of protected areas that, together with existing protected areas, would safeguard representative samples of the natural ecosystems (especially endangered species), protect superlative scenery and striking geological formations and regions.

Additional obligations include using best endeavours to protect such fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction.

The APIA Convention was suspended with effect from 13 September 2006. While this Convention has been suspended, Australia's obligations under the APIA Convention have been considered. The recommendations in the revised BDAR and this assessment report are not inconsistent with the APIA Convention, which has the general aim of conservation of biodiversity.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommendations in the revised BDAR and this assessment report are not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

Approved Conservation Advices and Recovery Plans

Approved Conservation Advices exists for Leafless Tongue-orchid *Cryptostylis hunteriana* and *Posidonia australis* seagrass meadows of the Manning-Hawkesbury Ecoregion Threatened Ecological Community. Recovery actions, contained within Priorities Action Statements prepared by NSW Department of Primary Industries, also apply to *Posidonia australis* seagrass meadows TEC and to White's Seahorse, and Cauliflower Soft Coral.

The latter species was not detected during diver surveys of the proposal area and no suitable habitat was found. White's Seahorse is currently listed as Endangered under the *Fisheries Management Act 1994* (FM Act) and has been proposed for listing as Endangered under the EPBC Act (DAWE, 15 April 2020). No national recovery plan is available for Black Rockcod although there is a NSW recovery plan. There are national recovery plans for Magenta Lilly Pilly *Syzygium paniculatum* and Grey-headed Flying-fox *Pteropus poliocephalus*. The background paper to EPBC Act Policy Statement 3.19 - Significant Impact Guidelines for the Vulnerable Green and Golden Bell Frog and a NSW recovery plan are available for this species.

Leafless Tongue-orchid *Cryptostylis hunteriana*

This conservation advice was approved on 3 July 2008. *C. hunteriana* occurs singly or in highly localised small colonies in coastal forest, woodland, heathland and the margins of coastal swamps and sedgeland from east Gippsland in Victoria to Forster and near Grafton in northern NSW and southeast Queensland. The NSW population is estimated to be 1,300-1,500 plants from 39 sites, the largest at Bulahdelah and in the Shoalhaven area. Suitable habitat exists in the eastern part of PCT 1778 (Bangalay/Smooth-barked Apple Forest) for Leafless Tongue-orchid at and adjacent to the Kurnell site in the proposal area.

Surveys were conducted outside of the flowering period for this species and so did not detect any individuals. The main direct threats to this species are the disruption or loss of natural habitat through development and fragmentation causing disruption to pollination and seed dispersal. Key indirect

threats are changes to drainage causing unsuitable soil microclimate conditions, loss of mycorrhizal fungi upon which this species entirely depends, frequent or intense fire, and weed invasion.

The proposal would directly impact 0.05 ha of potential habitat of this species at Kurnell. Indirect impacts such as edge effects are considered to be negligible since the proposed access road is bordered by suitable habitat within Kamay Botany Bay National Park.

The Proponent recognised in the BDAR that this species has a moderate likelihood of occurrence and presence was assumed but no biodiversity credits were assigned. An unexpected finds protocol has been recommended as a condition of approval and the Proponent is required to prepare and implement a Terrestrial and Marine Biodiversity CEMP Sub-plan which would help mitigate potential direct or indirect impacts on this species and its habitat at the Kurnell site.

Magenta Lilly Pilly *Syzygium paniculatum*

The national recovery plan for this species was approved in June 2012. *S. paniculatum* is endemic to coastal NSW from near Taree to Sussex Inlet, occurring in 44 known subpopulations (approximately 1,200 plants) on sandy soil including hind-dunes and littoral rainforest. Three of these subpopulations occur on the Kurnell Peninsula, at Towra Point Nature Reserve, along Captain Cook Drive, and in Kamay Botany Bay National Park where about 70 individuals were recorded near the proposed construction footprint.

The main threats to this species are habitat clearing and fragmentation, low genetic diversity and consequent vulnerability to climate change, livestock grazing, Myrtle Rust and other pathogens, introduced plants and animals, and high intensity or overly frequent fire.

The proposal would not directly impact on the Kurnell Magenta Lilly Pilly subpopulation because no clearing is proposed in this area. Indirect effects such as weed incursion may occur with creation of the construction access road at this site. The Proponent would mitigate these potential indirect impacts by preparing and implementing a Terrestrial and Marine Biodiversity CEMP Sub-plan.

Grey-headed Flying-fox *Pteropus poliocephalus*

The national recovery plan for this species was approved in March 2021. This species has a key ecological role in pollination and seed dispersal of many native plants across Queensland, NSW, Victoria, and Tasmania. It is a single, highly mobile population with an estimated population size of 680,000 (+/-158,500) individuals (Westcott et al. 2015). Loss of foraging habitat is the primary threat to this species since it requires multiple populations of food trees dispersed over a large area, often outside of conservation reserves. In NSW, less than 15 % of suitable foraging habitat occur in these reserves with only 5% of roost sites located within protected areas (Murphy et al. 2008). Clearing of winter and spring foraging habitat including *Melaleuca quinquenervia*, *Banksia integrifolia* and *Eucalyptus robusta* can threaten the survival of this species. Other important threats are human disturbance of flying-fox camps near urban areas, shooting of flying-fox in commercial fruit crops and entanglement in netting, death from heat stress associated with climate change, bushfire causing loss of foraging habitat and mass pup mortality, electrocution on powerlines, and public misunderstanding of disease risk.

These species are present within PCT 1778, PCT 772 and PCT 661 at the proposed Kurnell construction footprint. The Proposal would result in the removal of 0.03 ha of potential foraging habitat (PCT 661 – Kurnell Dune Forest TEC) but would not impact on the Kurnell Flying-fox camp located about 2.5 km west of the proposal area. The Proponent has allocated a total of 4 ecosystem credits to offset the removal of this habitat and would prepare and implement a Terrestrial and Marine Biodiversity CEMP Sub-plan to further reduce impacts.

Green and Golden Bell Frog *Litoria aurea*

The background paper to the EPBC Act Policy Statement 3.19 - *Significant Impact Guidelines for the Vulnerable Green and Golden Bell Frog* was released in August 2009 to help protect and recover this species and its habitat at the 43 sites where it still occurs in coastal NSW. Most of these populations are small, with less than 20 adults except for a few large populations containing an estimated 1,000+ adults - at Homebush Bay, Kooragang Island and Broughton Island (Hamer et al. 2002).

This species uses different habitats for foraging, breeding, refuge, overwintering and dispersal. Water bodies such as streams, dams, wetlands, stormwater detention basins, drains and brick pits provide breeding habitat. Foraging habitat includes grassy areas, woodland, and other patches of low vegetation not necessarily near water bodies. Individuals have been recorded moving up to 5 km in a night between foraging and breeding habitat (BDAR, page 94).

Two populations have been recorded on Kurnell Peninsula, but no individuals were detected during surveys for the proposal, which the Department notes were conducted outside of the peak BAM-recommended period (October to February). The main threats to the survival of this species are loss and fragmentation of breeding, foraging and dispersal habitat, disease - frog chytrid fungus, introduced fish such as plague minnow and carp which eat eggs, tadpoles and hatchlings, cane toads which predate this species and/or compete with it for habitat, predation by fox, cat and dog, reduction of water quality and hydrological changes, and human disturbance of habitat.

The Proponent considered this species to be absent from the proposal and adjacent areas. Therefore, no biodiversity credits were allocated. However, an unexpected finds protocol has been recommended as a condition of approval and the Proponent is required to prepare and implement a Terrestrial and Marine Biodiversity CEMP Sub-plan. This would help mitigate potential direct or indirect impacts on this species.

***Posidonia australis* seagrass meadows of the Manning-Hawkesbury Ecoregion TEC**

The national conservation advice for this community was approved in 2015. The community occurs in sheltered, permanently open estuaries along the NSW coast from Wallis Lake to Port Hacking. It grows in highly saline environments at depths of c. 1 to 10 m either as pure stands or in association with other seagrass species including *Zostera*, *Halophila* and *Ruppia*.

The community provides habitat, food, shelter, and breeding sites for a wide range of fauna including the threatened White's Seahorse and foraging sites for other Syngnathids such as Weedy Seadragon and pipefishes. Condition thresholds apply to determine when a *P. australis* patch can be considered as a MNES – the MBOS identified 683 m² of highly sensitive *P. australis* habitat in the proposal area. Key threats to this community which can be slow to recover from disturbance include coastal development causing direct loss of *P. australis* beds, reduced water quality and erosion of seagrass beds, dredging and boat mooring, pollution, and fishing activities and climate change including increased severity of storms and changing water temperature and salinity levels.

The Proponent has prepared and is committed to implementing a Marine Biodiversity Offset Strategy (MBOS) to minimise direct and indirect impacts on this community in the proposal area. This includes rehabilitating and improving 2,000 m² of seagrass meadows in Botany Bay, creating 55m² of artificial reef habitat, and supporting existing research and restoration programs such as 'Operation Posidonia' in Botany Bay. This is a partnership between three universities (NSW, Sydney and Western Australia), NSW Department of Primary Industry - Fisheries (DPI Fisheries), Gamay Rangers and local community volunteers to improve seagrass transplantation and rehabilitation outcomes in Botany Bay.

The Department has recommended a condition of approval which requires the Proponent to undertake a pre-clearing survey to confirm, survey and map areas of *Posidonia australis* seagrass and other Key Fish Habitat identified for removal and disturbance in the construction footprint. The Department considers that this would address the requirement to protect *Posidonia australis* and other Key Fish Habitat in this zone and in accordance with the MBOS.

White's Seahorse *Hippocampus whitei*

The national conservation advice for this species was approved on 12 December 2020. This includes priority management and research actions recommended by the NSW Fisheries Scientific Committee such as the reduction of boat moorings to minimise habitat impact, maintenance of swimming nets, use of seahorse-friendly net cleaning methods, monitoring the distribution and abundance of *H. whitei* at Port Stephens and Sydney Harbour, development and trialling of artificial habitats to promote recovery, and implementation of eDNA-based research to determine this species' occurrence in estuaries and bays across its range.

In NSW, *H. whitei* occurs in 8 estuaries between Forster and Port Hacking and in the Tweed River, with a single 2018 record of a juvenile from St Georges Basin. Port Stephens and Sydney Harbour are the only locations supporting more than 10 individuals. *H. whitei* occurs at depth of between 1-15 m and utilises natural habitats such as *Posidonia australis* seagrass meadows, sponges, and soft corals. Artificial habitats such as jetty pylons and swimming netting are also used.

This species has very low (less than 5%) survival of juveniles, poor dispersibility, strong site fidelity and has suffered substantial population declines at its core sites (Port Stephens and Sydney Harbour) since the mid-2000s (Harasti 2016). Total population size (NSW and Queensland) is unclear because of data deficiency but is likely to be 1,000+ adults (Harasti 2016).

Key threats include the loss of natural habitat - *Posidonia australis* seagrass, sponge, and soft coral, anchor and mooring damage of habitat, sand inundation of foraging and refuge habitat, and cleaning of artificial habitat (swimming nets) which can directly reduce seahorse abundance through their death and loss of food.

The Proponent has committed to implementing the MBOS which aims to offset potential direct and indirect impacts on White's Seahorse and its habitat by establishing artificial compensatory habitat (seahorse hotels) and transplanting *Posidonia australis* habitat in Botany Bay. Other seahorse habitat protection and restoration actions would also be implemented by the Proponent in consultation and collaboration with UNSW, DPI Fisheries, DPE and Gamay Rangers through the MBOS Implementation Reference Panel.

The Department has recommended conditions of approval which require the Proponent to engage an experienced ecologist (and diver) to undertake an inspection when proposal construction methods may impact potential habitat for White's Seahorse in and within 100 metres of the construction footprint and relocate any seahorses detected within this zone in accordance with the MBOS and Biodiversity Management Plan. The Department considers that this would address the requirement to protect this species and its habitat.

Black Rockcod *Epinephelus daemeli*

The NSW Black Rockcod recovery plan was released by Department of Primary Industries in February 2012. This species is a large reef-dwelling groper found in warm temperate and subtropical waters along the NSW coastline. Adult Black Rockcod utilise caves and gutters in rocky reefs from nearshore to depths of at least 50 m. Estuaries are important for juvenile development grounds - small juveniles utilise shallow intertidal rock pools while larger juveniles occur in rocky reefs (DPI, 2012).

This species is slow moving, curious and displays high fidelity to specific caves for periods of up to 20 years (DPI, 2012). These are attributes that make it particularly susceptible to hook, line and spearfishing. Other threats include the introduction of exotic fish and vegetation species, commercial trapping and trawling, commercial mesh netting, and aquarium collecting.

The Proponent has committed to implementing the MBOS which includes actions to protect potential Black Rockcod habitat at Watts Reef near the Kurnell site and near the La Perouse site. In addition, an unexpected finds protocol has been recommended as a condition of approval and the Proponent is required to prepare and implement an Operational Impact Assessment Report and submit this to the MBOS Implementation Reference Panel. These measures would help mitigate potential direct or indirect impacts on this species.

The Department has recommended a condition of approval which requires the Proponent to engage an experienced ecologist (and diver) to undertake an inspection when any construction methods have the potential to impact Black Rockcod and its habitat. The Department considers that this would address the requirement to protect this species and its habitat.

Threat Abatement Plans

The Threat Abatement Plans (TAP) relevant to this action are discussed below and are available at <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>.

Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans

The key threatening process addressed by this TAP is the injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris. Appendix B of the TAP lists *Posidonia australis* seagrass meadows of the Manning-Hawkesbury ecoregion as being adversely impacted by marine debris (Department of the Environment and Energy [DEE], 2018). This threatened ecological community is impacted by increased inputs from a range of pollutants associated with catchment disturbance including sediment, nutrients, metals, hydrocarbons, industrial compounds and litter to the associated estuary (Department of the Environment, 2015). A recovery plan is not considered necessary for this ecological community given that there are existing applicable catchment and estuary management plans and protection is provided by the community's listing under the EPBC Act (DEE, 2018).

The Proponent has committed to a Marine Biodiversity Offset Strategy (MBOS) which includes monitoring and reviewing actions as recommended by the interagency MBOS Implementation Reference Panel. This will feature best-practice translocation, restoration and maintenance of *Posidonia australis* seagrass beds impacted by construction and operation of the proposal. The Department considers that this would address the TAP for the impacts of marine debris on *Posidonia australis* seagrass meadows in the proposal area.

Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*

Phytophthora dieback is a destructive disease caused by the pathogen *Phytophthora cinnamomi* and other *Phytophthora* species and represents a significant threat to Australian native species. The disease places important plant species at risk of death, local extirpation or even extinction, potentially resulting in major declines in some insect, bird and animal species due to the loss of shelter, nesting sites and food sources. Phytophthora dieback can cause permanent damage to ecosystems and is a key threatening process under the EPBC Act. Once an area is infested with the pathogen, eradication is usually impossible. Remnant native vegetation in the proposal area is susceptible to Phytophthora dieback.

The TAP recognises that any activity that moves soil, organic material or water into susceptible native vegetation areas has the potential to introduce and spread soil pathogens. The limited management options available focus on modifying human activities through education, restricting access to certain sites and when access is necessary, deploying and enforcing strict hygiene controls.

The Proponent has identified Phytophthora dieback as a significant construction risk particularly through earthworks and movement of people and vehicles and plant along the proposal alignment. The Proponent has committed to prepare and implement hygiene protocols to minimise the spread of *Phytophthora cinnamomi*. To ensure that risks of Phytophthora dieback are managed, the Department has recommended a condition of approval which requires the Proponent to prepare and implement a Terrestrial and Marine Biodiversity CEMP Sub-plan to manage construction impacts on flora and fauna, including specific measures to manage the spread of diseases and pathogens. The Department considers that this would address the TAP for Phytophthora disease in natural systems.

M.2 REQUIREMENTS FOR DECISIONS ABOUT WORLD HERITAGE PROPERTIES

The Commonwealth determined that the action is not a controlled action for the controlling provision of World Heritage (section 12 and section 15A of the EPBC Act) and further consideration is not required.

M.3 REQUIREMENTS FOR DECISIONS ABOUT NATIONAL HERITAGE PLACES

The Commonwealth determined that the action is a controlled action for the controlling provision of National Heritage (section 15B and 15C of the EPBC Act) and further consideration is required.

Kurnell Peninsula Headland (NHL ID 105812)

The proposal is not inconsistent with the National Heritage management principles and would not result in a significant impact to the National heritage values, setting and/or fabric of these items. This is supported by the NSW Heritage Council.

M.4 ADDITIONAL EPBC ACT CONSIDERATIONS

The table below contains the additional mandatory considerations under the EPBC Act, additional to those already discussed, which the Commonwealth Minister must consider in determining the proposed action.

Table 1 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in Section 6 of the assessment report.	The Department considers that the proposal would result in a range of benefits to the State and regional economy through improvements connections between Kurnell and La Perouse, improving active transport links and tourism.
Factors to be taken into account		
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary	The Department considers that the proposal, if undertaken in accordance with the recommended conditions of approval, would be consistent with the principles of ESD.

EPBC Act section	Considerations	Conclusion
	<p>principle, have been considered, particularly:</p> <ul style="list-style-type: none"> the long-term and short-term economic, environmental, social and equitable considerations that are relevant to this decision conditions that restrict environmental impacts and impose monitoring and adaptive management reduce any lack of certainty related to the potential impacts of the proposal conditions requiring the proposal to be delivered and operate in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance advice provided within this report reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for the proposal mitigation measures to be implemented which minimise potential impacts of the proposal on biodiversity within the proposal area. 	<p>Sections 4.4.2 and 6.6 of the assessment report addresses the proposal in regard to ESD principles.</p>
136(2)(e)	<p>Other information on the relevant impacts of the proposed action.</p> <p>The Department is not aware of any relevant information not addressed in this assessment report.</p>	<p>The Department considers that all information relevant to the impacts of the proposal have been taken into account in its assessment. The Department's consideration on key issues is presented in Section 6 of the assessment report.</p>
Factors to have regard to		
176(5)	Bioregional plans	N/A.
Considerations on deciding on conditions		
134(4)	<p>Must consider:</p> <ul style="list-style-type: none"> information provided by the person proposing to take the 	<p>All related documentation provided by the Proponent of the action is available on the Department's website www.majorproposals.planning.nsw.gov.au.</p>

EPBC Act section	Considerations	Conclusion
	action or by the designated Proponent of the action; and <ul style="list-style-type: none"> • the desirability of ensuring as far as practicable that the condition(s) is a cost-effective means for the Commonwealth and a person taking the action to achieve the object of the condition. 	The Department considers that the recommended conditions at Appendix I are a cost-effective means of achieving their purpose.
Requirements for decisions about National Heritage places		
137A	In deciding whether or not to approve for the purposes of section 15B or 15C the taking of an action, and what conditions to attach to such an approval, the Minister must not act inconsistently with: <ul style="list-style-type: none"> (a) the National Heritage management principles; or (b) an agreement to which the Commonwealth is party in relation to a National Heritage place; or (c) a plan that has been prepared for the management of National Heritage place under section 324s or as described in section 324x. 	The Department considers that the proposal, if undertaken in accordance with the recommended conditions of approval would not be inconsistent with the National Heritage management principles, an agreement to which the Commonwealth is party in relation to National Heritage place or of a plan that has been prepared for management under section 324s or 324x.

M.5 CONCLUSIONS ON CONTROLLING PROVISIONS

Listed threatened species and ecological communities (sections 18 and 18A of the EPBC Act)

For the reasons set out in **Section 6.1** of this assessment report and this appendix, the Department recommends that the impacts of the action on threatened species and ecological communities would be acceptable, subject to the implementation of the avoidance and mitigation measures described in the Submissions Report, Response to Submissions Report, MBOS and the requirements of the recommended conditions.

National Heritage Places (sections 15B and 15C of the EPBC Act)

For the reasons set out in **Section 6.1** and **Appendix G – Assessment of EPBC Act Listed Threatened Species and Communities** and this appendix, the Department recommends that the impacts of the action on the Kurnell Peninsula Headland National place would be acceptable, subject to the implementation of the avoidance and mitigation measures described in the Submissions Report and the requirements of the recommended conditions.

M.6 OTHER PROTECTED MATTERS

The DAWE determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed migratory species, Commonwealth marine

environment, world heritage properties, nuclear action, Great Barrier Reef Marine Park and the RAMSAR-listed wetland – Towra Point Nature Reserve which is located about 2.5 kms from the proposal area.

Appendix I – Recommended Instrument of Approval