ENVIRONMENTAL ASSESSMENT
LEVEL 3 - MINOR WORKS

Shoal Bay Carpark

07.02.2025

Version Control

REPORT PREPARATION			
Name	**Title / Position**	**Qualification(s)**	**Organisation**
	Project Support Environmental Officer		Port Stephens Council

DOCUMENT CONTROL			
Version No.	**Date**	**Description**	**Author/ Reviewer**
1	29/01/2025	Draft	Nathan Ottley (Author) Natalie Nowlan (Reviewer)
2	01/02/2025	Draft	Nathan Ottley (Author) Natalie Nowlan (Reviewer)
3	07/02/2025	Draft	Nathan Ottley (Author) Heather Maher (Reviewer)
4	07/03/2025	FINAL	Natalie Nowlan (Reviewer)

DOCUMENT PURPOSE

This document is An Environmental Assessment (EA) for the proposed activity as required under Division 5.1 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). This activity is permitted without consent in accordance the *NSW State Environmental Planning Policy (Transport and Infrastructure) 2021* SEPP (T&I). This EA has been prepared in accordance with Part 8 Division 1 of the *NSW Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and Division 5.1 of the EP&A Act.

Pursuant to section 5.1 (1) of the EP&A Act, Port Stephens Council (PSC) is prescribed as a 'public authority' for the purposes of being a 'determining authority' within the meaning of Part 5 Division of the EP&A Act. This is only permitted where a proposal is permitted without consent on land vested in, leased by or otherwise under the ownership, care, control or management of Council. For the purposes of this activity, Council is both the proponent and determining authority.

This EA enables Council to assess the potential environmental impact of the activity and detail the protective mitigation measures for implementation prior to activities commencing, whilst activities are occurring onsite, once activities are complete and during operation and maintenance. In doing so this EA helps to fulfil the requirements of section 5.5 of the EP&A Act, that Council examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

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Declarations

ASSESSOR DECLARATION

As the Assessor of the activity:

- I am delegated to undertake this assessment.
- This EA provides a true and accurate review of the activity in relation to its likely impacts on the environment and contains neither false nor misleading information.
- The environmental impacts of the activity are NOT likely to be significant and therefore an EIS is NOT required.
- The activity is NOT within a declared area of outstanding biodiversity value and is NOT likely to have a significant impact on threatened species, threatened ecological communities or their habitat. Therefore, a SIS and/or BDAR is NOT required.

Name	Title / position	Service unit	Signature	Date
Natalie Nowlan	Project Support Environmental Officer	Capital Works	*N.Nowlan*	07/03/2025

PORT STEPHENS COUNCIL PROJECT MANAGER SIGNOFF

As the Project Manager of the activity:

- I certify to the best of my knowledge that this EA adequately reflects the proposed activity.
- I also understand that completion of this EA does not imply permission to undertake the proposed activity, but provides a collated report suitable for the appropriately Delegated Officer to consider the proposal and determine if the activity should be undertaken, given any potential harmful impacts on the local environment.

Name	Title / position	Service unit	Signature	Date
Grant Whitbourne	Project Manager - Civil	Capital Works	[redacted]	10/03/25

PORT STEPHENS COUNCIL REVIEW

As the Reviewing Officer of the activity:

- I am delegated to authorise this assessment on behalf of Council as the determining authority.
- The activity has been adequately assessed in accordance with Council's EMS 3.0 Environmental Assessment Procedure.
- I have reviewed the contents of this EA (REF) document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.
- The environmental impacts of the activity are NOT likely to be significant, therefore no EIS or SIS and/or BDAR is required, and the activity may proceed subject to the implementation of all mitigation measures set out in Section 8 of the document.

Name	Title / Position	Service Unit	Signature	Date
Heather Maher	Biodiversity Assessment Officer	Strategy and Environment	[redacted]	10/03/2025

PORT STEPHENS COUNCIL DETERMINATION

As the Determining Officer of the activity:

- I am delegated to authorise this EA on behalf of Council as the determining authority
- The activity has been adequately assessed in accordance with Council's EMS 3.0 Environmental Assessment Procedure
- I have reviewed and endorse the contents of this EA and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.
- The environmental impacts of the activity are NOT likely to be significant, therefore no EIS or SIS and/or BDAR is required, and the activity may proceed subject to the implementation of all mitigation measures set out in Section 8 of the REF document.

Name	Title / position	Service unit	Signature	Date
Phillip Miles	Capital Works Section Manager	Capital Works	[redacted]	10 Mar 25

PUBLISHING REQUIREMENTS

Publishing threshold	Yes	Publishing location
Project has a Capital Investment of more than $5 million	☐	
An approval or permit for an activity that requires approval under:		
NSW Fisheries Management Act 1994 (FM Act) sections: • 144 Aquaculture. • 201 Dredging and reclamation. • 205 Harm to marine vegetation. • 219 Blockage of fish passage.	☐	
NSW Heritage Act 1977 (Heritage Act) section 57 State Heritage Register listed or items under an interim heritage order.	☐	
NSW National Parks and Wildlife Act 1974 (NP&W Act) section 90 Aboriginal Heritage Impact Permit	☒	Port Stephens Council website
NSW Protection of the Environment Operations Act 1977 (POEO Act) sections: • 47 Scheduled development work. • 48 Scheduled Activities (premises-based). • 49 Scheduled Activities (not premises based). • 122 Environmental Protection Licence (Water Pollution).	☐	
If the determining authority considers it to be in the public interest (for further guidance refer to Point 6 in Attachment A of the Department of Planning and Environment, Guidelines for Division 5.1 assessments, February 2022).	☐	

Environmental Assessment to be published in accordance with Decision pathway – Publishing EAs on the Council website Record Number22/168216

PORT STEPHENS COUNCIL

Table of Contents

1. Project Details

Activity details	
Activity name	Shoal Bay Carpark
Job number	W12496
Section	Capital Works - Civil
Timing & duration	May-August 2025 12-14 weeks

Locality map

Figure: Locality map

Permissibility

	Chapter	*Part*	*Division*	*Section*
SEPP (T&I)	2 – Infrastructure	3 – Development Controls	12 Parks and other public reserves	2.73(3)(a)(i)

	Lot	*DP*	*Zoning*	*Permitted*
PS LEP	Road reserve		RE1 – Public Recreation	☒
	1	1225747	RE2 – Private Recreation	☒
				☐

Site details, ownership and requirements

Street address	Suburb	Land owner[1]	Requirements[2]	Status
Corner of Shoal Bay Road and Government Road	Shoal Bay	Crown Lands managed by Council	Compliance with the Shoal Bay Holiday Park Plan of Management 2023	N/A

1 e.g. Council, privately owned, Transport for NSW Lands, Crown Lands managed by Council, Crown Lands managed by other Authority.

2 e.g. Voluntary acquisition process in accordance with the *NSW Land Acquisition (Just Terms Compensation) Act 1991* and/ or permit to enter for survey works, activities during works, revegetation etc., Crown Lands Licence, check of Aboriginal Land Claim Register.

Land acquisitions & Crown Lands map

Land acquisitions map *(delete as appropriate)*

Land acquisitions will not occur	☒

Figure: Land acquisitions map

NSW Crown Lands reserve map *(GIS)*

Activity is not occurring on Crown Lands.	☐

Figure: Crown Lands reserve map

Activity description

Brief description *(Scope of Works Agreement)*

The project works include the following:

- Formalising and sealing Shoal Bay Carpark including allocation of disabled car parking spaces.
- Installation of a drainage system including improving drainage and stormwater detention onsite and installation of bio retention basins.
- Installation of SMART parking. Meters to be installed in area with land use classification as road reserve (northern section of carpark).
- Installation of lighting.
- Tree removal and installation of shade replacement.
- Construction of safe pedestrian access and connection to existing footpaths.
- Provision of access for waste services and Shoal Bay Holiday Park.
- Line marking of carpark area.
- Installation of signage.

Background and need *(Scope of Works Agreement)*

Shoal Bay town is a busy hamlet for locals and tourists. An opportunity exists to create additional car parking spaces in this precinct that will enhance the overall visitor experience and support both the Holiday Park and local businesses as well as users of the adjacent Crown foreshore reserve and parkland (Shoal Bay Holiday Park Plan of Management, 2023).

The area is heavily utilised by the general public for car parking, predominantly for people accessing the extensive adjacent Crown foreshore reserves as well as the shopping and commercial development on the eastern side of Government Road (Shoal Bay Holiday Park Plan of Management, 2023).

A parking study was conducted which found the following (see Attachment 13):

- There is a significant deficiency in parking supply along the waterfront and near the access tracks to the Tomaree Headland and Zenith Beach on a busy weekend and during school holiday periods.
- The capacity of the Government Road Car Park could be increased by formalising the parking spaces available and introducing a parking limit of 2 hours.

The current carpark is an unsealed/gravel area with limited pedestrian access points and uneven surface. Potential safety issues have been highlighted for pedestrians throughout carpark area. The site also has drainage issues with water ponding onsite. The carpark has no current formalised drainage system. The project will help alleviate these issues by improving pedestrian safety and drainage within Shoal Bay carpark to increase safety and accessibility and improve stormwater runoff quality from any impervious surfaces installed.	
Objectives *(amend as appropriate)*	
Port Stephens Community Strategic Plan 2022-2023 *(amend as appropriate)*	Focus Area Two Our Place – Port Stephens is a liveable place supporting local economic growth: • P2 Infrastructure and facilities: Our community's infrastructure and facilities are safe, convenient, reliable and environmentally sustainable: ○ P2.2 Build Council's civil and community infrastructure to support the community. ○ P2.3 Maintain Council's civil and community infrastructure to support the community.
Local Strategic Planning Statement	Planning Priority 6 | Plan infrastructure to support communities.
Plan of Management	The site is managed under the Shoal Bay Holiday Park Plan of Management 2023. The figure below illustrates the configuration of land governed by the Plan of Management.  *Figure: Tenure of land covered by the Shoal Bay Holiday Park Plan of Management 2023* The yellow highlighted area is the locality of the works and is known as Crown Reserve 77932. Reserve 77932 is Crown Land and Port Stephens Council is the appointed land manager. The reserve is known as part Lot 1 DP 1225747 (yellow on Figure 4 over page) and is located immediately to the east of Reserve 1037609. The Reserve has a total area of 0.81ha with approximately 0.37ha covered by the Shoal Bay Holiday Park Plan of Management 2023 which is used as public access car parking and is categorised as General Community Use. The remaining 0.44ha currently has no active applicable plan of management and is used for public recreation purposes. Works are not occurring within this area of the reserve. With the Shoal Bay Holiday Park Plan of Management 2023, the land is divided into distinct precincts.

	 *Figure: Shoal Bay Holiday Park Plan of Management precincts* The area defined as Precinct 1A sits outside Shoal Bay Holiday Park at the eastern most end. The precinct on Crown Land has always been utilised by the general public as a car park however has never been officially recognised. Some years ago Council formalised an access point from Shoal Bay Holiday Park to Shoal Bay Road. The Shoal Bay Holiday Park Plan of Management 2023 recognises an improvement opportunity to construct a structured public car park to increase parking spaces on Shoal Bay foreshore with a key management priority to formalise the carpark and install smart parking to increase parking spaces to support visitation and access to Shoal Bay foreshore and town centre.
Shoal Bay Place Plan	The site is located within the area covered by the Shoal Bay Place Plan. Council adopted the Place Plan in 2024 to provide a framework for collaboration between Council, community and business for managing growth to benefit everyone. To cater for continued growth and the development of the Shoal Bay area into the future, the Shoal Bay Place Plan focuses on enhancing the natural assets, improving pedestrian access, traffic circulation, and drainage infrastructure, and investigating opportunities for new housing (Shoal Bay Place Plan, 2024). In the next 5 years, Council expects a range of projects to commence. These projects will improve liveability in Shoal Bay and include improvements or replacement of existing roads, additional pedestrian and cycle infrastructure, gutters, drainage improvements and recreational facilities. The propose works at Shoal Bay carpark are listed in the Place Plan as part of the Smart Parking Infrastructure Projects. This project includes: • Car park upgrades, surface and line markings • Smart lights, below ground conduits for future electric vehicle charging and CCTV.
Objectives	• Improve the opportunity for safe and accessible parking for visitors to Shoal Bay • Improve pedestrian safety within the Shoal Bay carpark • Improve drainage within the Shoal Bay carpark to increase safety and accessibility for pedestrians and improve stormwater runoff quality from any impervious surfaces installed.

Relationship to other activities

The Port Stephens Council mobile library bus utilises the carpark on the corner of Shoal Bay Road and Government Road, Shoal Bay. The progression of the carpark works requires the relocation of the mobile library. In January 2025, construction works were undertaken to convert the roadside parking area in front of the Shoal Bay Tennis Club into the new mobile location (see Attachment 14). Works included erection of parking signs and overhead power services.

Works description

Activities prior to works commencing *(amend as appropriate)*

- Environmental impact assessment in accordance with Council's EMS.
- Risk assessment in accordance with Council's Risk Management System.

- Undertaking the following:
  - Project site inspections.
  - Invasive species site inspection.
  - Waste classification testing.
  - Aboriginal Cultural Heritage Assessment.
  - Geotechnical investigations.
  - Arborist Impact Assessment.
  - Parking Assessment.
- Preparation of the following plans:
  - Design plans including erosion and sediment control plan.
  - Construction environmental management plan.
  - Traffic guidance scheme.
- Site survey and set out.
- Site establishment including:
  - Compound.
  - Site facilities e.g. work shed, toilets, parking etc.
  - Site fencing and restricted entry signage erected.
- Community and stakeholder consultation.
- Establishment and implementation of mitigation measures including:
  - Erosion and sediment controls.
  - Traffic management controls.
  - Extent of works with stakes and coloured tags or other suitable alternative where erosion and sediment control fencing is not installed.
  - Tree protection fencing as required.
- Transport of machinery, equipment, and materials (excluding stockpile materials) to the project site.
- Site induction.

Activities during works *(amend as appropriate)*

- Maintenance and inspection of mitigation measures.
- Site visits for project management, work health safety and environmental compliance.
- Stockpile and waste management.
- Removal of existing signage and other infrastructure.
- Receipt of stockpile fill from haulage trucks for temporary storage onsite for future use and placement of stockpile fill into haulage trucks for removal from site.

<u>Tree Removal and bulk earthworks</u>

- Removal of 27 trees (see Tree Schedule included in Attachment 3).
- Scraping and excavation of material to required depth with benching for safety.

<u>Installation of 76m of 375mm pipe and four pits</u>

- Installation of bedding material.
- Placement of compacted fill into overlay zone.
- Installation of pipe/stormwater pit
- Connection of pipe/stormwater pit to adjacent drainage infrastructure.
- Placement of backfill.

<u>Installation of bio retention systems</u>

- Installation of bedding material.
- Placement of compacted fill into overlay zone.
- Installation of 100mm slotted wrapped subsoil line.
- Installation of deep castellated kerb.
- Installation of filter membrane.

<u>Plantings</u>

- Roughening/de-glazing of edge of tree pit.
- Backfilling with ameliorated site soil. Firm manual compaction.
- Installation of plantings as shown on planting plan.
- Placement of mulch, keeping trunk clear of mulch.
- Staking of trees including poly or hessian webbing tree tie.

<u>Installation of Pavement</u>

- In situ stabilisation and compaction of subgrade.
- Installation of base course overlay.
- Installation of DGB 20 or equivalent.
- Installation of AC10/7 wearing course.

<u>Installation of permeable pavement:</u>

- In situ stabilisation and compaction of subgrade.
- Installation of permeable subbase of variable depth 100-300mm
- Installation of geotextile.

- Installation of permeable pavers.

Installation of wombat/pedestrian crossings:

- Application of tackcoat to existing wearing course.
- Installation and formation of a 100mm high asphalt speed hump using AC10 to form profile.
- Installation of envirowalk micro-mesh grate.

Installation of pathways and concrete perimeter:

- Installation of kerb and gutter.
- Installation of concrete perimeter including:
  - Installation of 10mm ableflex strip fixed to rear of kerb.
  - Laying of 100mm think reinforced concrete slab with broom finish.
- Installation of pathways including:
  - Compaction of subgrade material.
  - Installation of 50mm thick sand.
  - Laying of 125mm thick reinforced concrete footpath.

Installation of light poles with CCTV cameras and SMART parking metres:

- Trenching within excavated areas as required.
- Installation of footings.
- Installation of sand material.
- Installation of light power supply/ (list)
- Backfill with sand
- Construction of pavement as specified on plans.
- Installation of light poles, CCTV cameras and SMART parking metres and connection to power supply.

Installation of landscaping:

- Installation of copper log fences.
- Installation of seating including installation of anchor points and attachment of prefabricated seat to anchor points.
- Footings and installation of steel bollards including installation of footing and connection of footing to bollard.
- Relocation of sandstone blocks.
- Installation of 8 small trees including placement of tree, installation of stakes and tree ties, backfilling with ameliorated site soil and gentle compaction and installation of mulch.

Installation of signage and line marking:

- Signage
  - Excavate hole.
  - Install signage.
  - Concrete hole.
  - Backfill around concrete.
- Line marking
  - New line markings to match onto existing line at limit of new pavement works.
  - All raised pavement markings to be retroreflective.

Activities upon completion of works *(amend as appropriate)*

- Maintenance of stabilised areas as required.
- Removal of environmental controls including erosion and sediment control fencing and any other protective fencing.
- General site clean-up, rubbish removal and removal of any excess waste.
- Removal of site compound and facilities, restrictive access signage and fencing and traffic controls.
- Site visits for practical completion of works.

Operation and maintenance *(see https://myport.portstephens.nsw.gov.au/corporateservices/organisationDevelopment/riskManagement/EnvironmentalAssessments/Forms/AllItems.aspx for a list of EAs and their inclusions)*

The operation and maintenance of the site will be covered by a maintenance Environmental Assessment in accordance with the Port Stephens Council's EMS 3.0 Environmental Assessment Procedure. Specify EA:	2020 EA2 - Road maintenance – heavy patching – AUTHORISED 2024 EA2 - Road maintenance – hand patching – AUTHORISED
Activities	Activities for maintenance may include site inspections, removal of sediment and rubbish from the bioretention systems and drainage pipes, maintenance of the lighting, gardens and trees, rubbish removal, mowing, patching of concrete cracks, and replacement of vandalised or otherwise damaged infrastructure.

Plant & equipment *(QF-ENV-DRAFT- EA PM Information Sheet for Environmental Assessment and amend list as needed)*

- Site shed caravan/shipping container.
- Asphalt truck/ sprayer
- Franna crane.
- Compactor
- Light vehicles e.g. crew truck/ute.
- Profiler
- Pavement laying machine
- Pile boring

• Concrete pump • Concrete saw • Concrete truck • Concrete vibrator • Delivery truck • Generator • Grader	• Pneumatic tyred roller • Roller • Scissor lift • Scraper • Small hand tools • Steel drum roller • Water cart

Materials *(QF-ENV-DRAFT- EA PM Information Sheet for Environmental Assessment and amend list as needed)*

Materials List	• Sand. • Concrete. • Steel. • Gravel. • Asphalt. • Subbase. • Stormwater Pipes • Stormwater Pits • 7mm Primer Seal • AC10 40mm thick • Coir Logs • Sediment Fence • Bioretention Media	• Garden Planting • Double Bin Enclosure • Bench Seat • Light Pole with CCTV Camera • Topsoil • Turf • Small Mature Tree • Permeable pavers Type A • Permeable Pavers Type B • AC10 Wombat Crossing • Line marking and Pavement Markers • Traffic Signs

Imported materials	**Material**	**Source**	**Amount**
	DGB	Quarry	2,000t
	Asphalt	Contractor batch plant	280t
	Concrete for kerbs (various shapes)	Concrete batch plant	715m
Exported materials	**Material**	**Source**	**Amount**
	ENM	Newcastle Airport	1,500t
	Recovered Aggregate	Newcastle Airport	1,500t

Amount of material being disturbed onsite	3,800m^3
Maximum excavation depth	Light footings may be up to 3m deep via bored pier construction.

Traffic *(QF-ENV-DRAFT- EA PM Information Sheet for Environmental Assessment)*

Traffic control	Traffic control required for site entry and exit only.
Other, specify	

Hours of operation *(QF-ENV-DRAFT- EA PM Information Sheet for Environmental Assessment)*

Standard operating hours Monday to Friday 7am to 6pm and Saturday 8am to 1pm. No night works.	☒
Non-standard operating hours, specify:	

Extent of works & site compound

Extent of works *(design plans)*

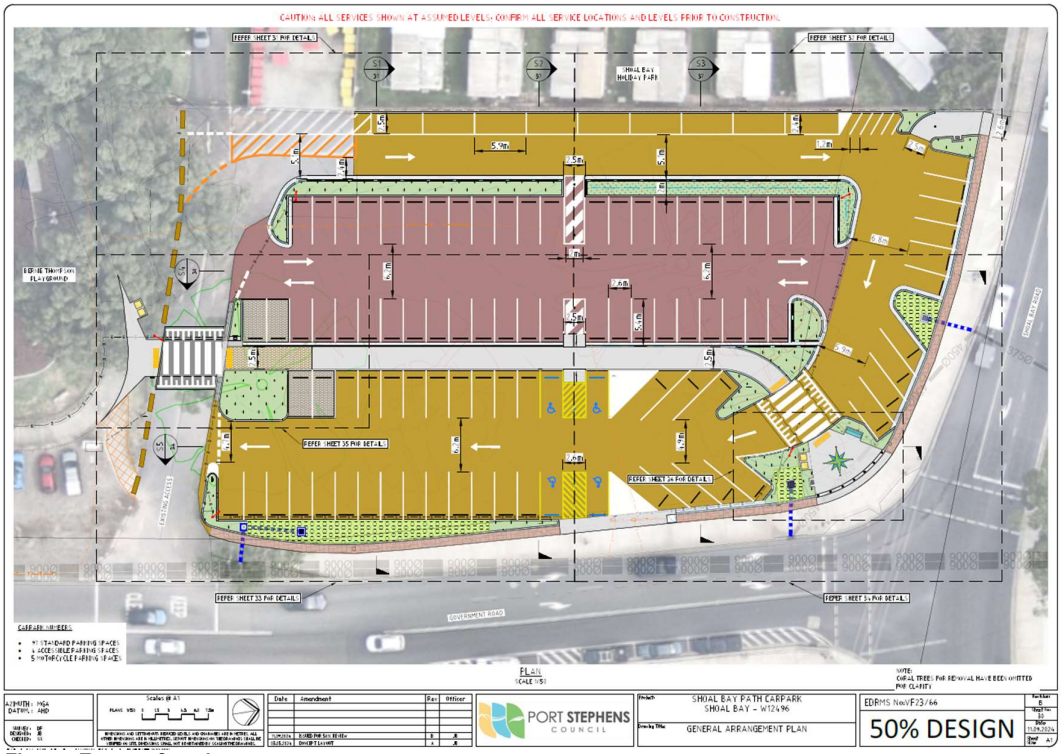

Figure: Extent of works

Site compound location *(QF-ENV-DRAFT- EA PM Information Sheet for Environmental Assessment)*

***Figure: Compound** location in Bernie Thompson Carpark.*

2. Evaluation of Alternatives

Options Assessment			
Criteria	**Do Nothing**	**Partial Implementation (resurfacing with no drainage works)**	**Full Implementation**
Ability to satisfy the proposal objectives	Objectives relating to pedestrian safety and improving condition of the carpark surface not achieved.	Not completing part of the works may address the formalising and sealing of the carpark and address some pedestrian issues, however would not address any drainage issues on site.	Achievement of objectives relating to formalising the carpark, improved pedestrian safety and drainage works.
Relative financial costs	No cost upfront, however, higher ongoing maintenance and future for replacement costs.	Short term cost but not as high as full implementation, lack of adequate drainage works likely to cause pavement failures potentially leading to higher operation and maintenance costs.	Short-term cost high due to high short-term expenditure. Operation and maintenance costs would include the maintenance of the carpark surface and associated infrastructure, such as raingardens, lighting, smart parking metres, line and pavement markings, signage etc. Due to increased infrastructure onsite and need to maintain the new infrastructure, maintenance costs for the site are not necessarily reduced.
Relative environmental and other costs	Lowest environmental impact short-term. However, long-term poor management of road the surface may lead to asset failure, increased environmental impacts and unsafe access conditions for vehicles and pedestrians.	Environmental costs would be reduced in comparison to full implementation due to less excavation works and tree removal. However, possible future drainage failures and lack of treatment of carpark stormwater runoff may lead to downstream impacts.	Highest environmental cost short term due to increased construction extents and timeframes and larger degree of tree removal, however, long term this option would achieve improved water quality outcomes in comparison to the two other options.
Acceptability of environmental impacts and/or any identified environmental objectives	Lowest environmental impact short-term, however asset failure in long term may lead to increased environmental impacts due to asset failure.	High acceptability in short term, however, low acceptability long term.	Low to moderate acceptability in short term during construction works and high acceptability long term once works.
Acceptability of environmental risks and uncertainties	High acceptability in short-term and low acceptability in medium to long term due to possible increased environmental impacts due to asset failure.		High acceptability due to minimising environmental risks and providing for reduction of potential for harm.
Reliability of proposed environmental impact mitigation measures	Low reliability due to no use of mitigation measures. Increased likelihood of reactive actions.	Environmental impact during construction controlled through physical and process mitigation measures such as preclearance inspections, erosion and sediment controls and unexpected finds procedures. Increased likelihood of use of reactive mitigation measures being required where works such as drainage upgrades are not completed to rectify/prevent environmental harm.	Environmental impacts during construction controlled through physical and process mitigation measures such as preclearance inspections, erosion and sediment controls and unexpected finds procedures. Environmental impacts during operation and maintenance controlled through physical and process mitigation measures in accordance with approved Environmental Assessment.

		No long term mitigation measures such as bio retention systems.	
Efficient use of land, raw materials, energy and resources	Less material, energy and resource usage in short-term, and minimal expenditure of nature resources. Future asset degradation may require additional materials, energy and resources for maintenance and future rectification activity to prevent and rectify environmental harm.	Less use of materials, energy and resources than full implementation. Future asset degradation may require additional materials, energy and resources for maintenance and future rectification activity to prevent and rectify environmental harm.	Higher use of materials, energy and resources in short-term and possibly medium term due to asset site inspections and maintenance. In the long term, material, energy and resource usage may be less due to proactive management of assets present onsite.
Option Selected and justification			
Full implementation was selected to improve pedestrian safety and accessibility through the Shoal Bay carpark, as well as improve the quality of stormwater runoff and the drainage within carpark.			

Design refinement

Refinement	Justification for refinement
Removal of Bernie Thompson Park	Project was to include formalising and sealing the small gravel carpark in front of Bernie Thompson Park, adding two rows of parking spaces (51 standard, 2 disabled and 3 motorcycle spaces). During the assessment process, the parking area in front of Bernie Thompson Park was identified as Crown Lands. As a result of budget restrictions and no applicable Plan of Management for the site saw it removed from the scope.
Deletion of two (2) parking spaces within the SRZ to retain a large habitat tree	As per the arborist impact assessment (Attachment 3), Tree 9, *Eucalyptus pilularis*, is a good example of the species, appearing to be a structurally sound, hollow bearing tree. Recommendations were made by the arborist to protect this tree by modifying the construction method of the proposed carpark and using a permeable pavement, installed on or above the existing grade within 6.6 metres radius of the trunk.

3. Consultation (Excluding Landowners)

Applicable mandatory consultations under Part 2.2 Division 1 of the NSW SEPP (Transport and Infrastructure) 2021 and *NSW Crown Land Management Act 2016* and other relevant statutory provisions							
Activity occurring on or involves the following activities	**Consultation**	**Type**	**App**	**Comments received**	**Date**	**Corro. location**	**Planned actions**
Land not owned or controlled by PSC	Land owner	Consent	☐	Lands are Crown Lands with and applicable Plan of Management permitting the works. See Section 1.			
NSW Crown Lands not classified or subject to Plan of Management.	NSW Crown Lands	Land owner consent Crown Lands Licence	☐	Lands have an applicable Plan of Management permitting the works. See Section 1.			
NSW Crown Lands subject to Aboriginal Land Claim.	Claimant	Consent	☐	Check completed with no submissions received.	2/11/2023	On file	
NSW Crown Lands subject to Native Title Land Claim.	Native Title Manager Claimant	Consent	☐	Check completed with no submissions received.	20/08/2024	On file	
Adjacent to land reserved under the NP&W Act.	NSW NPWS	Written notice of intention to carry our works and scope of works to NPWS	☐				
Earthworks near services (gas, telecommunications, electricity, water)	Dial before you dig Australia	Dial Before you Dig check	☒	DBYD to be completed prior to commencement of construction.			
Working in a mine subsidence area	Subsidence Advisory NSW Government	Approval	☐				
Working near items on the State Heritage Register	NSW Department of Climate Change, Energy, the Environment and Water	Heritage Act: • S57(2) exempt notification • S60 approval • S140 excavation approval	☐				
Harm or potential harm to Aboriginal objects and places	NSW Department of Climate Change, Energy, the Environment and Water	Aboriginal Heritage Impact Permit (AHIP) S90 NPW Act	☒	Comments included in Aboriginal Cultural Heritage Report	TBC	On file	
Local heritage item	Port Stephens Council (PSC)	Concurrence	☐				
Natural water usage (dewatering or ground water use)	NSW Department of Climate Change, Energy, the Environment and Water	Water Access License	☐				

Working near or in a Marine Park	Department of Primary Industries (Marine Parks)	Marine Parks Permit	☐				
Constructing a fixed or floating structure in or over navigable waters (e.g. new boat ramp)	Written notice of intention to carry our works and scope of works to Transport for NSW	Transport for NSW	☐				
Dredging or reclaiming of waterways	Department of Primary Industries (Marine Parks) NSW DPI (Fisheries)	Land owner consent 1. Fisheries Permit 2. Marine Park Permit 3. Crown Land License	☐				
Use explosives or electrical devices in a waterway	NSW DPI (Fisheries)	Fisheries Permit	☐				
Working near aquatic reserves, habitat or marine vegetation	NSW DPI (Fisheries)	Fisheries Permit S205	☐				
Obstructing fish passage	NSW DPI (Fisheries)	Fisheries Permit S219	☐				
Taking or possessing fish or marine vegetation	NSW DPI (Fisheries)	Fisheries Permit S37/ S144	☐				
Working near or with threatened species or part of an ecological community.	NSW Department of Climate Change, Energy, the Environment and Water	Threatened Species Licence	☐				
Research, education or conservation activities involving protected, threatened and/or endangered species.	NSW Department of Climate Change, Energy, the Environment and Water	Scientific Licence	☐				
Harm of protected native fauna	NSW Department of Climate Change, Energy, the Environment and Water	Licence	☐				
Flood liable land.	Notification	State Emergency Services	☒	N/A	N/A	N/A	Notification of Works.
Discharging to sewer	Hunter Water	Trade Waste Agreement	☐				
Access to Hunter Water sewer or water network	Hunter Water	Section 50 Certificate	☐				
Classified road and involve a deviation or alteration of the road or construction of a bridge tunnel or level crossing.	Consultation/ approval/ notification of works	Transport for NSW	☐				

Road and has a value of over $2 million.	Consultation/ approval/ notification of works	Transport for NSW	☐				
The activity will affect the development or further development of a main road, tollway or transitway.	Consultation/ approval/ notification of works	Transport for NSW	☐				
The activity includes the provision of conduits across a public road for the carriage of utility services.	Consultation/ approval/ notification of works	Transport for NSW	☐				
The activity includes the use of traffic control on a classified road.	Consultation/ approval/ notification of works	Transport for NSW	☐				
The activity includes the construction, erection, installation, maintenance, repair, removal or replacement of a traffic light control.	Consultation/ approval/ notification of works	Transport for NSW	☐				

Community

Person/ group	Name	Matter discussed	Date	Corro. location	Response
General Community	N/A	Notification of works	Within 2 weeks prior to commencement of works	On file	Respond to enquiries as required
Shoal Bay business community and residents	Multiple responses	Development of Shoal Bay Place Plan	From 2021-2024	On file	Shoal Bay Place Plan was adopted by Council on 23 April 2024 The action to upgrade the car park is referenced on page 17 and 24-25 of the Place Plan.
Shoal Bay business community and residents	Multiple responses	Introduction of Smart Parking at Shoal Bay	From 2021-2024	On file	Smart Parking extension to Shoal Bay and accompanying infrastructure plan was adopted by Council on 26 September 2023

Other Stakeholders or Interested Parties

Stakeholder	Name	Matter discussed	Date	Corro. location	Planned actions
Shoal Bay Tennis Club	Charles Shaddock	Mobile library connecting to their power	02.09.24	Email	Compensation for the club for the cost of power.
PSC – Team Leader Mobile Library	James Norcross	Mobile library relocation	04.11.24	Email	Supported no further actions.
Local businesses	Various	Shoal Bay Place Plan consultation	From 2021-2024	On file	N/A Consultation complete with adoption of place plan.
Local businesses	Various	Smart Parking consultation	From 2021-2024	On file	N/A Consultation complete with adoption of place plan.

4. Site Description

4.1 Land use & sensitive receivers (e.g. bushland, residences, commercial and industrial premises/ precincts, recreational lands, educational precincts, hospitals etc.)

Historical land use *(knowledge of locality and heritage studies etc.)*

From Biosis ACHA (2024):
The Shoal Bay area comprises a series of low and steep hills, with rocky headlands and dune systems forming the shoreline and beaches. Soils for the most part include sands, with some clay loams along streams. Vegetation in the park comprises dry sclerophyll forests on the slopes and ridges, coastal heath along shorelines and maritime grasses within sand dune formations. The proximity and variety of resources offered by these communities would have been significant in the selection of sites for resource gathering and occupation by Aboriginal people and this is reflected in the archaeological record.

The local area was favourable for occupation by Aboriginal people due to the presence of important resources including andesite stone used for the manufacture of stone tools, shellfish and fish, as well as sea birds, which were food sources and freshwater which was present in the wetlands in the western portion and could also have been accessed in the swales behind the foredunes during occupation of dune systems. Within the sclerophyll forests a variety of mammals, birds and reptiles would have offered further food and medicine resources.

Archaeologically this region contains a rich array of Aboriginal site types including middens, artefact scatters, scarred trees, grinding grooves, water holes and burials. It is considered that the study area is included in this category and would have provided resources, shelter, water and food for Aboriginal people.

The lands where the works are occurring were originally bushland that has been modified over time by anthropogenic changes. Initial anthropogenic changes were the management of the land by the Worimi, the traditional owners of the Port Stephens areas. The Worimi were first encountered by Europeans in late 1790, when a group of escaped Second Fleet convicts were taken in by the Worimi following a sea passage from Sydney Harbour.

In 1795, Captain W.R. Broughton on HM Providence was driven by bad weather past his destination of Port Jackson into Port Stephens for shelter. He was amazed to discover the survivors living among the Worimi, and proceeded to recapture them. Overtime further exploration of the area continued with camps established at Raymond Terrace and further along the main watercourses. In 1816 early shipping of cedar from the area saw the start of the removal of bushland. In the 1820s land grants east and west of the Hunter, Paterson and Williams Rivers were made. Between 1824 to 1827 the Australian Agricultural Company was established as a land development company with a large land grant of over 1 million acres primarily used for forestry.

Over the next decade, settlers began to reside with the area and Carrington to the north of Karuah became an important settlement with a school, town and hospital built. Whalers were also frequent visitors to the estuary. Tanilba House was also developed as the locality became settled due to a land grant. Raymond Terrace also continued to develop as an important river port and the village was officially recognised in 1837. The early 1800s also many rural farming towns developed such as Seaham. Overtime further development of the settlements continued with increased agriculture/ farming lands created and townships expanded.

In 1934, a local fishing venture decided to build a clubhouse in Shoal Bay, and the area has been developing ever since. During World War II, a garrison was established on Tomaree Headland to defend the entrance to the port and provide amphibious training for U.S. and Australian soldiers.

This land use history has seen the landscape change from bushland to a mix of bushland, agricultural lands, rural townships, urban centres such as Nelson Bay and Raymond Terrace and Karuah with increasing commercial and industrial development occurring, particularly in the post WW2 era gradually urbanising the landscape into what we see today.

Areas in the vicinity of the study area have been utilised variously for residential and commercial purposes, with the study area itself utilised as a car park servicing the adjacent commercial precinct since the 1970s. Shoal Bay has been seen as a tourist centre with numerous tourist parks providing a hub for the local beaches and the nearby Tomaree National Park which gained national park status during the second half of the 20th century. Disturbances specific to the study area are in relation to its use as a car park for since at least the 1970s, and episodes of modification and filling with imported materials as part of maintenance works.

Current & adjacent land use *(knowledge of locality and GIS)*

Land uses on site include:

- Car park.
- Access way/pathway for pedestrian movement.

Land uses on adjacent land include:

- Urban road and road reserve.
- Passive recreation.
- Tourism.
- Access way/pathway for pedestrian movement.
- Public foreshore environment.

- Commercial premises.
- Entertainment precinct.

Sensitive receivers *(knowledge of locality and GIS)*	
Within 50m	Shoal Bay Holiday Park Shoal Bay Foreshore Reserve Shoal Bay Beach Telstra Payphone Shoal Bay bikes and hire Heavenly Thai Massage Shoal Bay Pharmacist Advice Bernie Thompson Park & Playground Residences Restaurants • Shoal Bay Diner • The Shoal Bay Motel
Within 100m	As per within 50m Shoal Bay Pharmacy Harbourside Haven Village • Gianni's Restaurant • Newcastle & Port Stephens Fish Club • Mod Thai • Scoop & Roll ice cream Providence Medical Shoal Bay & Anna Bay Residences Holiday Accommodation • The Shoal Restaurant • Zenith Café Restaurant and Bar • The Game O Bistro
Within 200m	As per within 50m and 100m Bus stop Telstra Payphone Port Stephens Paddlesports Shoal Bay Sirene Spa Residences Pozieres Park Tomaree National Park Wetlands Shoal Bay on-lead dog exercise area Shoal bay Tennis Club Shoal Bay Mobile Library Bay Village • Covey Coulture clothing store • Coastal Fringe Hair Home Nature • IGA X-Press Shoal Bay • The Café • Mediterranean Kings Kebab Holiday Accommodation • Beach House Shoal Bay • Breakwater Accommodation • Zenith Studios • Shoal Bay Apartments Restaurant • Atmos • Bianco on Shoal

4.2 Landform, geology and soils

Topography and landscape *(eSpade, geotechnical investigation and/or GIS)*

Landscapes within the locality include beaches, foredunes and often extensive unstable dunes and blowouts on Holocene marine and aeolian sands (eSpade). Local relief to 15m, elevation to 28m and slope gradients generally <20% but vary up to 40%. The landscape includes beaches and unstable dunes and blowouts of Quaternary Holocene sand along the coastal fringe of the Tomago Coastal Plain (eSpade).

Existing development at the site comprised the unsealed carpark at the corner of Shoal Bay and Government Roads with a caravan park adjacent to the west and commercial development to the east. Existing ground surface slopes on the site were relatively level. Published geological maps indicate that the alignment of pavement investigated overlies Quaternary alluvium.

Geology *(geotechnical investigations and/ or geology maps)*	
Source	**Description**
1:100 000 Port Stephens Soil Landscape Map	Lithology and sediments include: • Sand; stable windblown sand sheets and dunes of the Quaternary Period.
eSpade (geology and regolith description)	Shoal Bay: • Pleistocene aeolian sand sheets and low dunes composed of quartz sands. Stockton Beach • Quaternary Holocene sands—quartz sand, shell fragments and flotsam
Geotechnical Report/ Pavement Investigation (RCA Australia (2024))	Published geological maps indicate that the alignment of pavement investigated overlies Quaternary alluvium. The Port Stephens 1:100,000 map indicates that the site is in the vicinity of the Stockton Beach soil landscape. The Stockton Beach soil landscape comprises deep Aeolian sand.

Soils *(geotechnical investigations and/or eSpade)*

Soil type	***Description***	***Soil limitations***	***Landscape limitations***
Shoal Bay (9332sb)	Deep (>300 cm), well-drained Podzols (Uc2.3).	Wind erosion hazard, ground water pollution hazard, foundation hazard (localised swamps), permanent waterlogging (localised swamps), permanent high watertables (localised swampy depressions), seasonal waterlogging (localised low lying swales), acid, sandy, non-cohesive soils with very low fertility	Wind erosion hazard Non-cohesive soils Steep slopes (sba) Foundation hazard (localised, sba and swampy areas) Permanent waterlogging (localised, swamps) Permanent high water tables (localised, swampy depressions) Seasonal waterlogging (localised, low lying swales) Ground water pollution hazard
Stockton Beach (9332sk)	Deep (>300 cm), very poorly drained Solonchaks/Calcareous Sands (Uc1.11) on the beaches with very well-drained Calcareous Sands (Uc1.21) on the dunes.	Wave erosion hazard (beaches), wind erosion hazard, foundation hazard, steep slopes (localised), waterlogging (beach), ground water pollution hazard, alkaline and often saline noncohesive soils of very low fertility.	High permeability Low available water capacity Very low fertility Very strongly alkaline High erodibility Low wet strength Saline (localised, exposed areas)

Figure: Soil map

Acid sulfate soils

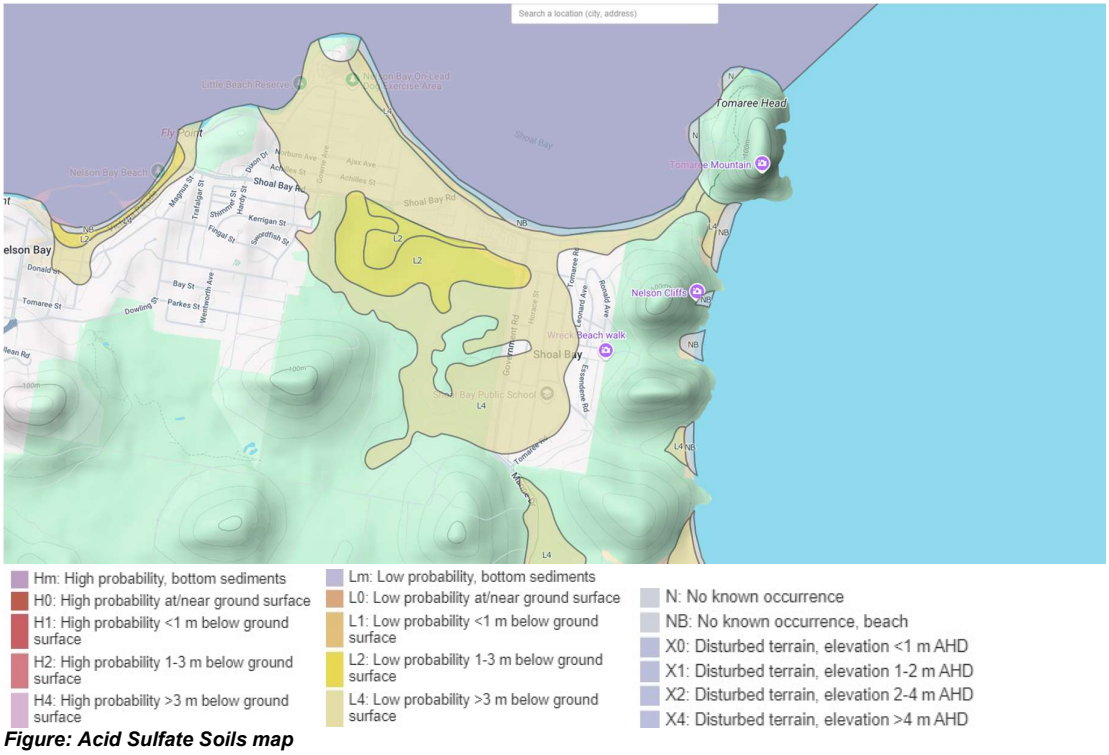

Figure: Acid Sulfate Soils map

Contamination

Works are not occurring on lands listed on the contaminated land record of notices or contaminating practices have been historically undertaken on the land.

Past land uses that may have contributed to minor contamination may include:

- Roads and carparks and other road infrastructure including brake dust, heavy metals, oils, hydrocarbons and other fuel based products and use of pesticides, fertilisers and/ or herbicides on roadsides.
- Commercial development including the use of chemicals.
- Recreational development with the use of pesticides, fertilisers and/ or herbicides.
- Past imported fill.

PFAS Contamination

Works are not occurring within a mapped PFAS Contamination area.

Landslip areas *(GIS)*

No landslip areas or slopes >20%.

4.3 Site hydrology

Site hydrology *(GIS, geotechnical investigation, site visit)*

The landscape is characterized by gently inclined sand sheets to rolling very low dunes. Slope gradients are generally <5%, but on slopes of rolling dunes are up to 15%. Local relief generally <5 m and elevation <15 m. Dunes are usually well drained, but minor swampy areas occur in deflation areas.

There is no formal drainage onsite site. As a result of modifications made to the car park surface levels, water from site drains to the north and east into a formal drainage network along Shoal Bay Road and Government Road and into Shoal Bay. This is a permanent water source, is located within 60 metres north of the study area.

A wetland area is situated within 150 metres of the southern boundary. The site drains to the north and east, therefore does not drain into or impact the wetland.

Waterway health & water quality

Stormwater runoff *(water quality monitoring reports, surrounding land uses on GIS and from site visit observations and past studies, amend as required)*

Existing stormwater runoff would consist of road runoff that has the potential to be contaminated with gross pollutants, oils, grease, heavy metals and other chemicals.	
Waterways, wetlands and Hunter Water Special Areas and Draw Down Zones	
Waterways *(select box or insert map)*	Works are within, or adjacent to a waterway and/ or are of a scale that is likely to impact a waterway to which the site drains.
LEP Wetland *(select applicable)*	LEP Wetland is mapped onsite, however, ground truthing via site visit identified no wetland present. LEP Wetland is located approximately 25m south of the site. Water from site drains to the north and east into a formal drainage network along Shoal Bay Road and Government Road and does not impact the LEP Wetland.
Significant waterway *(select applicable)*	Works are within the Port Stephens and Great Lakes estuary catchment, but are not of a scale that is likely to impact the estuary.
Hunter Water Special Areas and Draw Down Zones *(select applicable)*	Works are located within a Hunter Water Special Area but not within a Draw Down Zone.
Coastal Wetland *(select applicable)*	No Coastal Wetland mapped onsite and site is not located within the Coastal Wetland Proximity Area and does not drain to a Coastal Wetland. A Coastal Wetland Proximity Area (and Coastal Wetland) is located approximately 25m south of the site. Water from site drains east and does not impact the Coastal Wetland.

Figure: LEP wetlands mapped onsite and within the locality

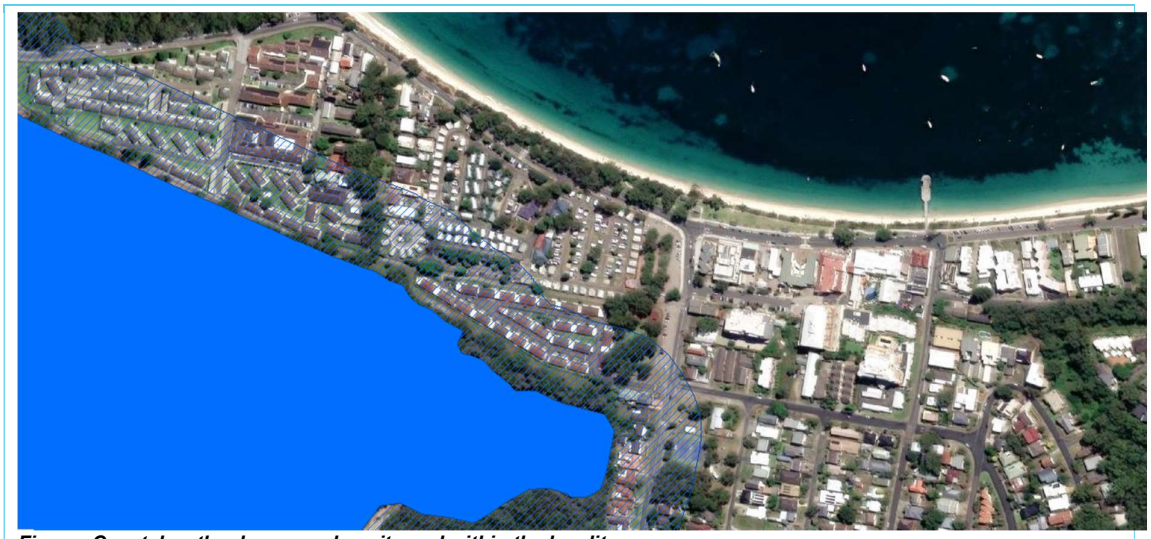

Figure: Coastal wetlands mapped onsite and within the locality

Figure: Topography and drainage on site

Port Stephens and Great Lakes Marine Park

Figure: Port Stephens and Great Lakes Marine Park zoning map

Groundwater *(geotechnical investigation)*

Works are unlikely to encounter or intercept groundwater due to no or shallow excavation or excavation in an area where groundwater is not expected to occur.

A geotechnical investigation was conducted by RCA Australia in November 2023 which included the drilling of 12 boreholes, to a maximum depth of 2.25m. No groundwater was encountered. The maximum excavation depth proposed is 800mm and it is therefore unlikely that the works will encounter or intercept groundwater.

4.4 Biodiversity

Terrestrial biodiversity *(site visit, GIS and/or biodiversity report)*

Vegetation present *(describe vegetation and PCTs present and provide map if required)*	Vegetation on the site at the time of the field investigation consisted of large mature trees growing across the carpark site.

PCT ID	*Description*	*NSW BC Act*	*Commonwealth EPBC Act*
1648	Smooth-barked Apple - Blackbutt heathy open forest of the Tomaree Peninsula	Not listed.	Not listed.
1653	Coast Tea Tree - Coast Banksia - Ficinia nodosa low open shrubland on coastal foredunes	Not listed.	Not listed.
1724	Broad-leaved Paperbark - Swamp Oak - Saw Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast	Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions	Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland - South Eastern Queensland
1741	Lepironia articulata sedgeland	Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions	Not listed.

Figure: Vegetation map

Significant trees *(select applicable and provide map if present)*	No significant trees onsite or adjacent to the site.

Habitat onsite or adjacent to the site *(select applicable)*

Habitat feature	*Onsite*	*On adjacent lands*
None present onsite or adjacent to the site	☐	☐
Fauna corridors/connectivity	☒	☒
Bush rock	☐	☐
Rocky outcrops	☐	☐
Fallen logs	☐	☒
Cliffs, caves, tunnels or disused mine shafts	☐	☐
Waterbody with emergent vegetation	☐	☒
Winter flowering eucalypts	☐	☒
Nectar or fruit resources or perch sites	☒	☒
Allocasuarina spp	☐	☒
Located onsite or adjacent to a Flying Fox camp	☐	☐
Located onsite or adjacent to a raptor nest	☐	☒
Evidence of seedling recruitment	☐	☒
Sap feed trees for glider species	☐	☒
Hollow bearing trees present onsite or adjacent to the site	☒	☒
Other (describe)		

Evidence of fauna occupation (e.g. fauna sighted, scratch marks on tree trunks, scats etc.) *(describe)*	N/A

Threatened terrestrial biodiversity with a moderate to high likelihood or known occurrence *(list)*

Species Name	*Common Name*	*NSW TSC Act Status*	*Commonwealth EPBC Act Status*
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P	
Hieraaetus morphnoides	Little Eagle	V,P	
Pandion cristatus	Eastern Osprey	V,P,3	
Pandion haliaetus	Osprey		MW, Marine
Glossopsitta pusilla	Little Lorikeet	V,P	
Ninox strenua	Powerful Owl	V,P,3	
Tyto novaehollandiae	Masked Owl	V,P,3	
Phascolarctos cinereus	Koala	E1,P	E
Petaurus norfolcensis	Squirrel Glider	V,P	
Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P	
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V,P	
Scoteanax rueppellii	Greater Broad-nosed Bat	V,P	
Miniopterus australis	Little Bent-winged Bat	V,P	
Miniopterus orianae oceanensis	Large Bent-winged Bat	V,P	

Biodiversity Values Map land type *(select applicable and provide map if present)*	Biodiversity Values mapping, on adjacent lands including core koala habitat identified in an approved koala plan of management and Coastal wetlands and littoral rainforest.

Figure: Biodiversity values map

Fauna corridors *(select applicable and provide map if present)*	Fauna corridors present onsite and on adjacent lands.

Figure: Fauna habitat corridors

Koalas *(select applicable and provide map if present)*	No koala feed tree plantings onsite or on adjacent lands. Recent koala records within the locality (records within the last 15years). Koalas may/ likely to occur onsite.

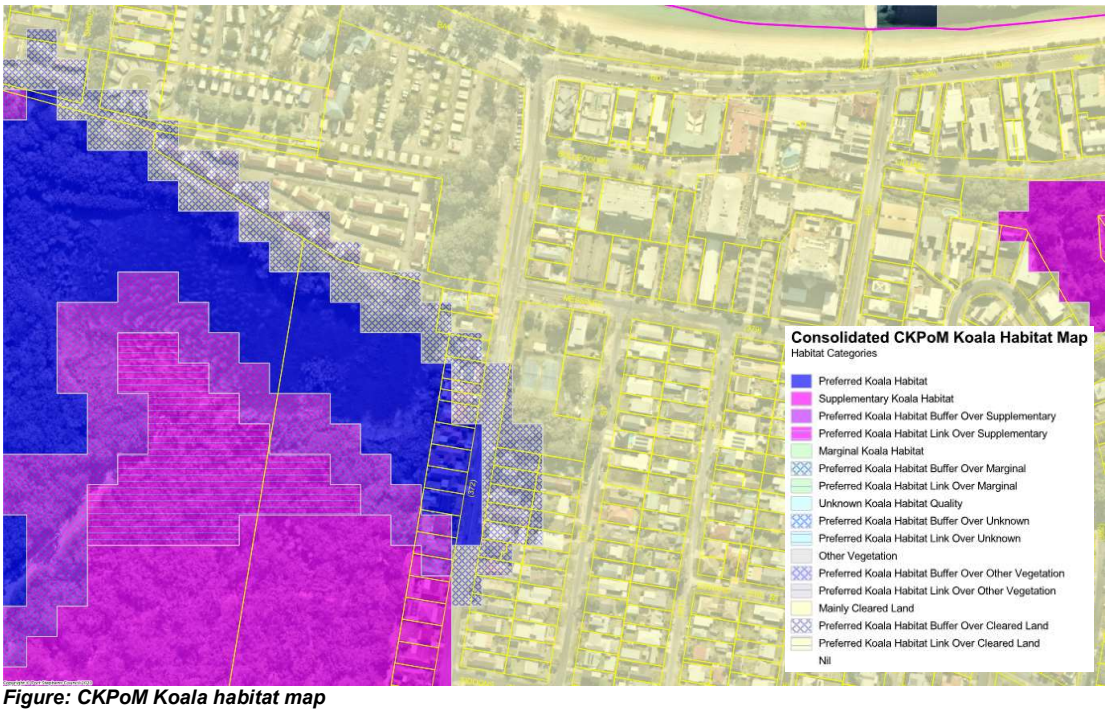

Figure: CKPoM Koala habitat map

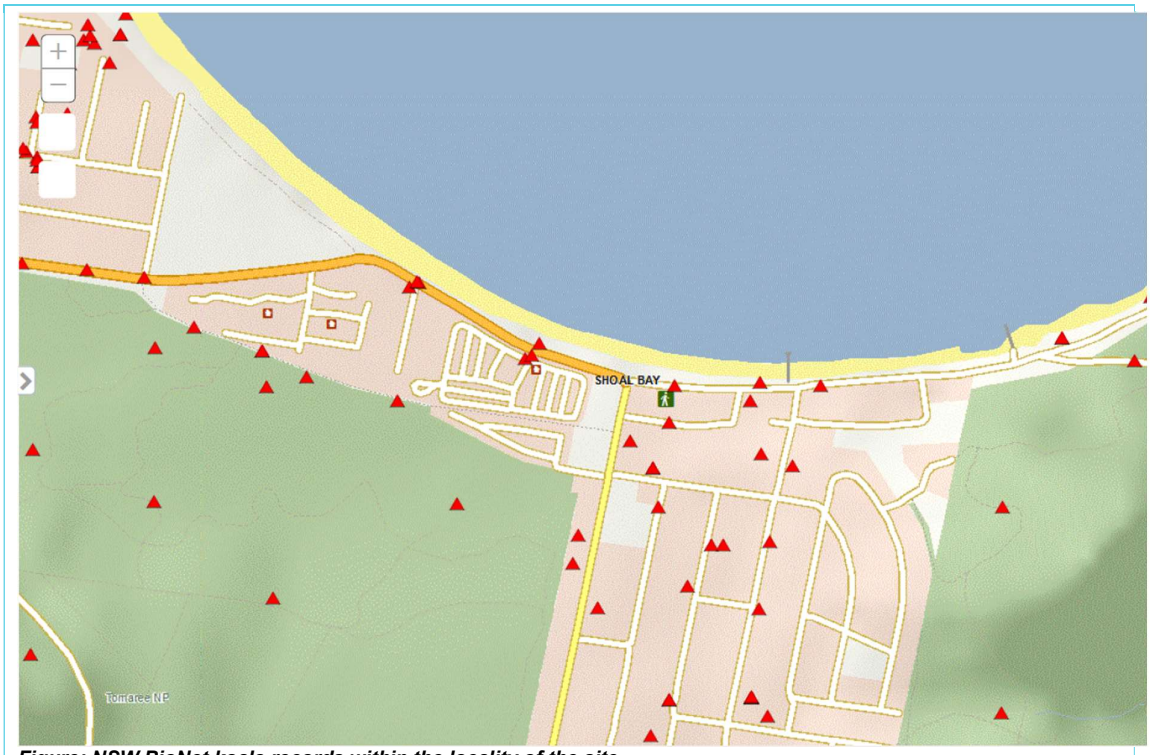

Figure: NSW BioNet koala records within the locality of the site

Key threatening processes *(delete non-applicable)*

Key threatening processes that are or may be active onsite or that the site has been subject to in the past include (**processes in bold are those currently active onsite or that will be exacerbated by the proposed works**):

- **Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802).**
- **Anthropogenic Climate Change.**
- **Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process).**
- Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*.
- **Competition from feral honey bees, *Apis mellifera*.**
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition.
- **Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations.**
- Infection of native plants by *Phytophthora cinnamomi*.
- Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae.
- Invasion and establishment of exotic vines and scramblers.
- Invasion, establishment and spread of Lantana (*Lantana camara*).
- Invasion of native plant communities by African Olive *Olea europaea subsp. cuspidate*.
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants.
- **Loss of hollow-bearing trees.**
- Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*.
- **Predation by the European Red Fox *Vulpes vulpes*.**
- Predation by the Feral Cat *Felis catus*.
- **Removal of dead wood and dead trees.**

Aquatic habitat description & key fish habitat *(marine biodiversity report and/or site visit, NSW Fisheries Key Fish Habitat online Mapping, Port Stephens and Great Lakes Marine Park online Mapping, NSW BioNet, Commonwealth EPBC Act Protected Matters Search Tool, NSW Fisheries website)*

Aquatic habitat *(select applicable)*	Site drains to aquatic habitat and activity is of a scale that may impact the aquatic habitat.
Aquatic habitat description *(describe)*	The habitat onsite is terrestrial, however the site drains into Shoal Bay, approximately 60m to the north of the site. This provides suitable habitat for

	aquatic species listed under the NSW BC Act, Commonwealth EPBC Act and NSW FM Act. Additionally, the extent of the Coastal Wetland Proximity Area is located approximately 25m south of the site. Water from site drains east and north to an outlet onto Shoal Bay Beach and does not impact the Coastal Wetland.
Port Stephens and Great Lakes Marine Park *(select applicable and add figures as required, make sure legend is visible on figure using the online drop down menu)*	Site drains to the marine park and works are of a scale that may impact the marine park.

Figure: Port Stephens and Great Lakes Marine Park zoning map

Key fish habitat *(select applicable)*	Site drains to key fish habitat and activity is of a scale that may impact key fish habitat.

Figure: Key fish habitat map

Key fish habitat description *(describe)*

The habitat onsite is terrestrial, however the site drains into Shoal Bay, approximately 60m to the north of the site. This provides suitable habitat for aquatic species listed under the NSW BC Act, Commonwealth EPBC Act and NSW FM Act.

Additionally, Key Fish Habitat is mapped to the south of the site, however, water from site drains east and north to an outlet onto Shoal Bay Beach and does not impact the area of Key Fish Habitat to the south of the site.

Estuarine macrophytes	Estuarine macrophytes mapped within 200m of the site and site drains to estuarine macrophyte habitat, but works are of a scale unlikely to impact the estuarine macrophytes.

Figure: Estuarine macrophytes map

Estuarine macrophyte habitat description *(describe)*

The site drains into estuarine macrophyte habitat containing Posidonia, Zostera and Halophila.

Threatened marine species listed under NSW TSC Act, EPBC Act and FM Act with a with a moderate to high likelihood or known occurrence adjacent to and/ or downstream of site *(Note: this list is to include marine birds)*

Threatened marine species with a moderate to high likelihood or known occurrence within Port Stephens and Great Lakes Marine Park located approximately 6- m to the north of the site include:

- Dugong
- Green Turtle
- Hawksbill Turtle
- Southern Right Whale
- Sperm Whale

Biosecurity *(GIS, Invasive Species Referral, constraints site survey, biodiversity survey)*

No weeds mapped onsite or within 200m of the site	☐

Weeds mapped onsite or within 200m of the site *(invasive species referral required)*

Figure: Priority weeds

Priority weeds mapped onsite include Opuntia & Cylindropuntia and Glory Lily are mapped as occurring within 200m of the site.

Pest animals *(select applicable)*	Pest animals common in urban areas likely to frequent the site including pest mice and rats, pest bird species, foxes, rabbits, feral dogs and feral cats.
Invasive Species Referral findings *(describe)*	A referral was sent to Council's Invasive Species Officer for advice. No priority weeds were observed (Attachment 2).

4.5 Heritage

Indigenous heritage *(GIS, AHIMS, Heritage NSW AHIP List, Due Diligence Assessment, Aboriginal Cultural Heritage Assessment)*

Indigenous history of the area *(describe)*

The following is an excerpt from Biosis NSW Heritage Report ACHA (2024, see Attachment 5):
Our knowledge of Aboriginal people and their land-use patterns and lifestyles prior to European contact is mainly reliant on documents written by non-Aboriginal people. These documents are affected by the inherent bias of the class and cultures of their authors, who were also often describing a culture that they did not fully understand - a culture that was in a heightened state of disruption given the arrival of settlers and disease. Early written records can, however, be used in conjunction with archaeological information and surviving oral histories from members of the Aboriginal community in order to gain a picture of Aboriginal life in the region.

Despite a proliferation of Aboriginal heritage sites there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups in the greater Hunter region. These debates have arisen largely because, by the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late nineteenth century, pre-European Aboriginal groups had been broken up and reconfigured by European settlement activity. The following information relating to traditional boundaries of the Worimi is based on such early records.
It is well accepted that the Newcastle Bight, in which the study area is found, is located within the traditional lands of the Worimi people (Dean-Jones 1990, p. 64). According to Tindale, the Worimi territory extends from north of the Hunter River to Forster near Cape Hawke, along the coastline, encompassing Port Stephens and stretching inland close to Gresford, and as far south as Maitland (Tindale 1974, p. 201). However, Enright recounts that Worimi people occupied the 'Country' 'bounded by the seashore from the Manning as far south as Norah Head and possibly to the Hawkesbury'. The territory then supposedly extended as far west as Barrington Tops, which was visited in the summer months (Enright 1933, p. 161). According to Sokoloffnov (1977, p. 16), the territories of the Worimi were established to include a variety of habitats rich in raw materials and food resources. Trade, intermarriage, and the sharing of ceremonial places were central to the Worimi nation's interaction with neighbouring tribal groups, such as the Awabakal, Kamilaroi, Guringai, Wanaruah, and other tribes within the region.

Little is known about the size of the population of the Worimi tribe within Port Stephens before European settlement. However, it is agreed that numbers declined rapidly after contact (Dean-Jones 1990, p. 68). Sources from the early 1800s to the 1840s vary in their estimates, from 120 within a single camp, to 500 Worimi individuals within the Port Stephens area in 1837 (refer to Dean-Jones 1990, p.68). Threkeld reports that by 1839, the population of the Awabakal people around the Lake Macquarie area, to the south of Worimi territory had declined to as low as 20 (in Dean-Jones 1990, p.68). Exposure to diseases introduced by European settlers, the destruction of food resources, and instances of hostile relations between Europeans and the Worimi and Awabakal people would have contributed significantly to this decline.
The earliest account of contact between Europeans and the Worimi is recorded by David Collins. It was reported that five convicts who had escaped from Parramatta in 1790 were shipwrecked at Port Stephens. The convicts lived among the Worimi for 5 years until they were recaptured (Bramble 1981). Following this, a small garrison of soldiers was established in the 1820's at a place now known as Soldiers Point, located 20.12 kilometres north-east of the study area, to aid in the recapture of convicts who had escaped from Port Macquarie.

Bramble (1981) accounts that relations between escaped convicts and local tribes were good natured, and signified the introduction of products of European civilisation. Colonel Paterson upon exploring the Hunter region in 1801, commented upon the possible use of European axes by Aboriginal tribes, and perhaps convicts who lived among them, to cut down trees (in Bramble 1981). This introduction to European resources would have led to the establishment of more fruitful relations between the Aboriginal people of the Hunter region and European penal authorities, in aiding in the recapture of escaped convicts.

Hostile relations between Europeans and the Worimi tribes of Port Stephens seemed to have originated from early interactions with timber-getters exploiting good quality cedar along the coastal regions of NSW. Accounts of hostilities between timber-getters and the Aboriginal people in the region are recorded from as early as 1804 (Bramble 1981). Dawson, having arrived in Newcastle in 1825 after free-settlement was made available in the Hunter region in 1820, comments upon the hostile relations which existed between European timber-getters and the Worimi Tribe of Port Stephens. This consequently set a precursor to relations between Europeans or white settlers and local tribes within the Port Stephens Area (Dawson 1831, in Bramble 1981):

> *The timber-cutting parties… were the first people who came in contact with the natives in the neighbourhood of the sea; and as they were composed of convicts and other people not remarkable either for humanity or honesty, the communication was not at all to the advantage of the poor natives, or subsequently to the settlers who succeeded those parties. The consequence of the behaviour of the cedar getters was, that the natives inflicted vengeance upon almost every white man they came in contact with, and as convicts were frequently running away from the penal settlement of Port Macquarie to Port Stephens …numbers of them were intercepted by the natives and sometimes detained whilst those who fell into their hands and escaped with life, were uniformly stripped of their clothes.*

Site fits definition of disturbed lands under the NSW Due Diligence Code of Practice *(describe the disturbance)*

The Due Diligence completed by Heritage Now (2024) found that the site had been somewhat disturbed, through vegetation clearing and use as a carpark, including associated drainage and laying of gravel and asphalt.

However, as ground disturbance appears to be relatively minimal, the survey of the site concluded that it is considered likely that Aboriginal objects may be still present at depth. As such, the Project Area is considered to be an area of Potential Archaeological Deposit, with intact archaeological deposits likely to be present at depth beneath the current carpark surface of gravel and asphalt.

Consequently, the site does not fit the definition of disturbed lands under the NSW Due Diligence Code of Practice.

AHIMS Basic/ Extensive Search findings *(search must have been conducted within the last 12 months, summarise findings)*

An AHIMS search was completed as part of the Aboriginal Cultural Heritage Assessment prepared by Biosis (2024). The search produced a result of 92 sites (see Figure 9 in the Due Diligence Assessment (Attachment 4).

There are no registered AHIMS sites within 200m of the Project Area.

Landscape features (describe)
(i.e. within 200m of waters, located within a sand dune system, located on a ridge top, ridge line or headland, located within 200m below or above a cliff face, within 20m of or in a cave, rock shelter, cave mouth, amend as required be deleting the non-applicable items in each sentence and leave the remaining statements to be true)

Works are located within:

- a sand dune system: a flat landform within former back-dune system
- within 200m of waters: Shoal Bay

Culturally modified trees exist *(describe)*	N/A

Aboriginal heritage investigations *(provide a summary of findings)*

Heritage Now Pty Ltd undertook an Aboriginal Due Diligence Assessment (ADDA) in January 2024 for the study area. The findings of the ADDA concluded that the study area is an area of Potential Archaeological Deposit (PAD) (Shoal Bay Carpark PAD-01). While there have been past disturbances in the study area due to the development of the car park, there remains potential for in-situ or redeposited archaeological deposits to be present beneath the current carpark surface.

Following this, Biosis completed an Aboriginal Cultural Heritage Assessment (ACHA) in November 2024 for the proposed carpark redevelopment. This background research found there are no previously recorded Aboriginal cultural heritage sites registered with the Aboriginal Heritage Information Management System (AHIMS) register within the study area.

Biosis also undertook a subsurface test excavation program which identified one Aboriginal heritage site within the study area. Findings from the subsurface testing resulted in the new site; AHIMS Pending/Shoal Bay Car Park AS1 which consists of a subsurface archaeological deposit of two small tuff artefacts. One artefact is a left longitudinal flake that was located within context 7 of Transect 1 test pit 1. It was located in aeolian sands at 750-800 millimetres depth. It measured 15.6 millimetres long, 15.7 millimetres wide and 4.6 millimetres thick. A second tuff artefact, a tuff complete flake, was recovered from context 6 within Transect 2 test pit 8 at a depth between 650-700 millimetres. It measured 14.4 millimetres long, 14.6 millimetres wide and 6.9 millimetres thick. The site is therefore recorded to incorporate the two test pits with a buffer of 5 metres (an area of 50 metres west to east and 25 metres north to south). The inherent level of disturbance and incidence of modern refuse at depth suggests it is likely that the artefacts are not in-situ.

Local and NSW State non-indigenous heritage *(NSW State Heritage Register,*

Non-indigenous history *(standard history from Council website or heritage investigations)*

Areas in the vicinity of the study area have been utilised variously for residential and commercial purposes with the study area itself utilised as a car park servicing the adjacent commercial precinct since the 1970s. Shoal Bay has been seen as a tourist centre with numerous tourist parks providing a hub for the local beaches and the nearby Tomaree National Park which gained national park status during the second half of the 20th century. Disturbances specific to the study area are in relation to its use as a car park for since at least the 1970s, and episodes of modification and filling with imported materials as part of maintenance works.

No heritage item listed under PS LEP or NSW State Heritage Register onsite or within 200m of the site.	☒

Listed heritage item onsite or within 200m of the site

N/A

World Heritage Areas or Commonwealth/ National Heritage Sites (*Commonwealth Matters of National Environmental Significant Protected Matters Search, Australian Heritage Database, Commonwealth Heritage Places List)*

There are no World Heritage Areas or Commonwealth/National Heritage Sites within the Port Stephens LGA.

4.6 Traffic

General description of traffic environment *(site visit, traffic report. Note: if works are not located on a road consider access to and from the site, amend as required)*

Shoal bay carpark is located adjacent to a roadway on the corner of Shoal Bay Rd and Government Rd. During peak periods, minor queuing of traffic can occur on Shoal Bay Road approaching from the west.

The carpark exits on an unnamed lane on southern boundary of the carpark, which also feeds vehicles exiting the holiday park onto Government Road.

A mid-block pedestrian crossing is located approximately 100m east of Government Road attracting the heaviest pedestrian flows. This crossing has a significant impact at times when as pedestrians using this crossing disrupted traffic flows on Shoal Bay Road.

Figure: Queuing formed on Shoal Bay Rd (Northern Transport Planning and Engineering, 2022)

Road hierarchy *(GIS, if works are not occurring on roadway, specify entry road category)*

Figure: Road hierarchy

Main road category (GIS)	Works are not occurring on a main road.

Road infrastructure onsite *(GIS, site visit; delete n/a)*

Road infrastructure present on site includes:

- Carparks.
- Kerb and channel.

Works are not occurring with the road reserve.

Public and/ or school bus route *(GIS)*	Works are not occurring on a public or school bus route. However, a public bus route is located on Shoal Bay Road and a school bus route is located on Shoal Bay Road and Government Road, adjacent to the site. Traffic from the works may cause delays.
B Double Haulage route *(GIS)*	Works are not occurring on a B Double haulage route.
Maintenance responsibility *(GIS)* *(if other maintenance delete text and describe)*	Port Stephens Council.

4.7 Waste

Existing material onsite *(site visit, amend as appropriate)*	The site is relatively free of waste, however the following waste may be present onsite or have the potential to occur onsite: • Litter. • Illegal dumping. • Green waste such as fallen branches, trees and grass. • Sewage. • General putrescible waste.
Waste assessment completed, provide summary:	N/A

4.8 Land Use

Historical land use within the locality *(GIS, historical records, amend as required)*

The following is an excerpt from Heritage Now (2024, see Attachment 4).

Few historic aerial images area available for this Project Area. The earliest available (1951) shows that whilst Shoal Bay Road and Government Road are present neither are as well constructed as today, and that all of the land west of

Government Road, including the Project Area is forested swamp land. By 1974 both roads have been formalised, and the Project Area (and areas to the west and south of it) have been at least partially cleared. Mapping is not then available until 2007, at which time the Project Area appears to still be open and to have been put into use as a carpark, which remains the case today. However, the disturbance appears to be mainly gravelling, with occasional areas of asphalt, which are likely to have limited subgrade (possibly c.20cm).

Based on this background information, the Project Area has been somewhat disturbed by vegetation clearance and activity associated with drainage and use as a carpark (possibly with some ground reduction/levelling). Given the potential depth of deposits which may be present at this site it is likely that Aboriginal artefacts and deposits survive at depth, but little is likely to be visible at the surface. The degree of disturbance was further examined during the visual inspection.

Current land use *(GIS, site visit, describe)*

Shoal Bay is small coastal town, comprising of low to medium density residential and commercial premises and surrounded predominantly by Tomaree National Park. Shoal Bay has been seen as a tourist centre with numerous tourist parks providing a hub for the local beaches and the nearby National Park. The site is utilised as a car park that has been servicing the adjacent commercial precinct since the 1970s.

Land zoning *(GIS)*

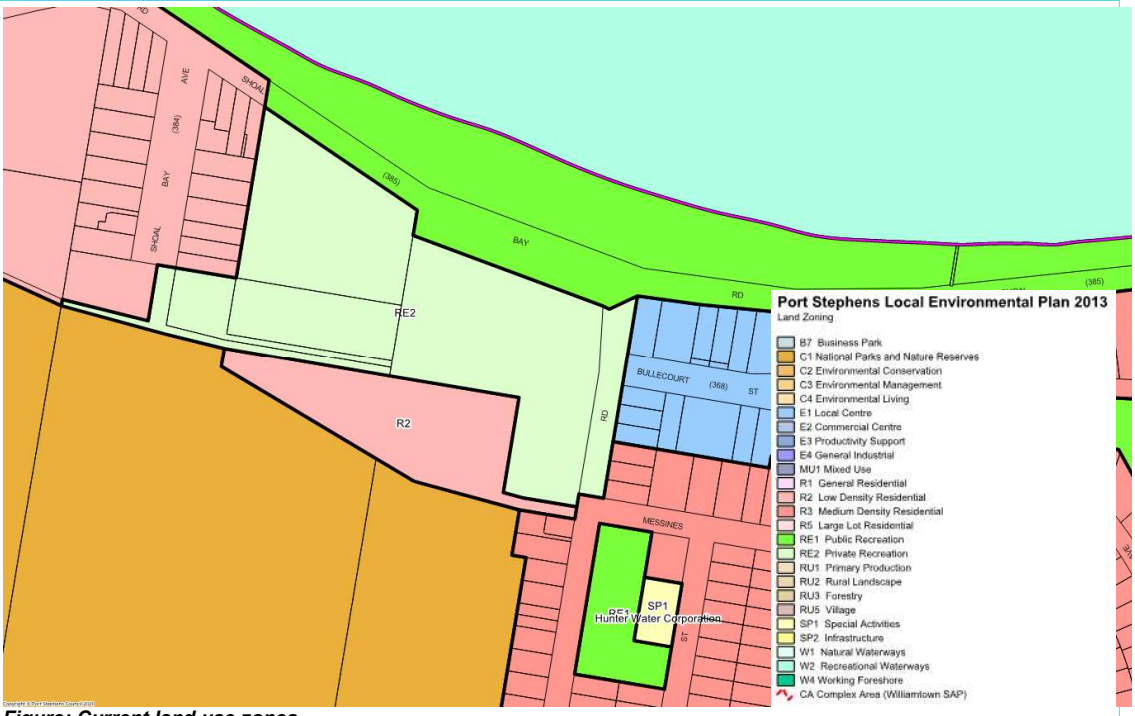

Figure: Current land use zones

Commonwealth lands onsite or adjacent to the works *(PMST Report; amend as required)*

There are no commonwealth lands onsite or adjacent to the site.

State Reserves or other conservation lands *(PMST Report; amend as required)*

There are no State reserves or other conservation lands onsite or adjacent to the site.

Existing maintenance activities *(site visit, amend as required)*

- Road maintenance.
- Cleaning.
- Rectification works for damaged infrastructure.
- Replacement of damaged infrastructure.
- Weed spraying and control.
- Rubbish removal.
- Vandalism removal.
- Tree maintenance and pruning.
- Dead animal removal.
- Line marking.

4.9 Social

Amenity and views *(site visit, Place Plan, amend as required)*

Community amenities onsite or within 50m of the works *(site visit, GIS, amend as required)*

Community amenities onsite and within 50m of the work include:

- Public amenities (toilets, showers etc.).

Views *(site visit, Place Plan, amend as required)*

Moderate numbers of residents and large numbers of visitors with an interest in the immediate environment, e.g. Shoal Bay Beach. Larger numbers of travellers with an interest in their surroundings, e.g. visitors to Tomaree National Park and Tomaree Headland, including bush walkers.

Visual receptors *(site visit, Place Plan; amend as required)*

- Residential properties.
- Commercial areas with employees and visitors.
- Tourist access way.
- Tourist viewpoint/lookout point.
- Recreational users on foot or in vehicles.
- Vehicles users including travellers.

Landscape elements *(site visit, Place Plan, amend as required)*

Landscape elements present include:

- Waterways.
- Bushland.
- Street trees.
- Flat landform/ topography with rolling hills.
- Beach.
- Headland.

Landscape character *(site visit, Place Plan, amend as required)*

Landscape character is urbanised.

Landscape value *(site visit, Place Plan, amend as required)*

A moderately valued landscape, perhaps a regionally important landscape and/or protected by regional/state designation.

Accessibility

Pedestrian access *(site visit, GIS)*

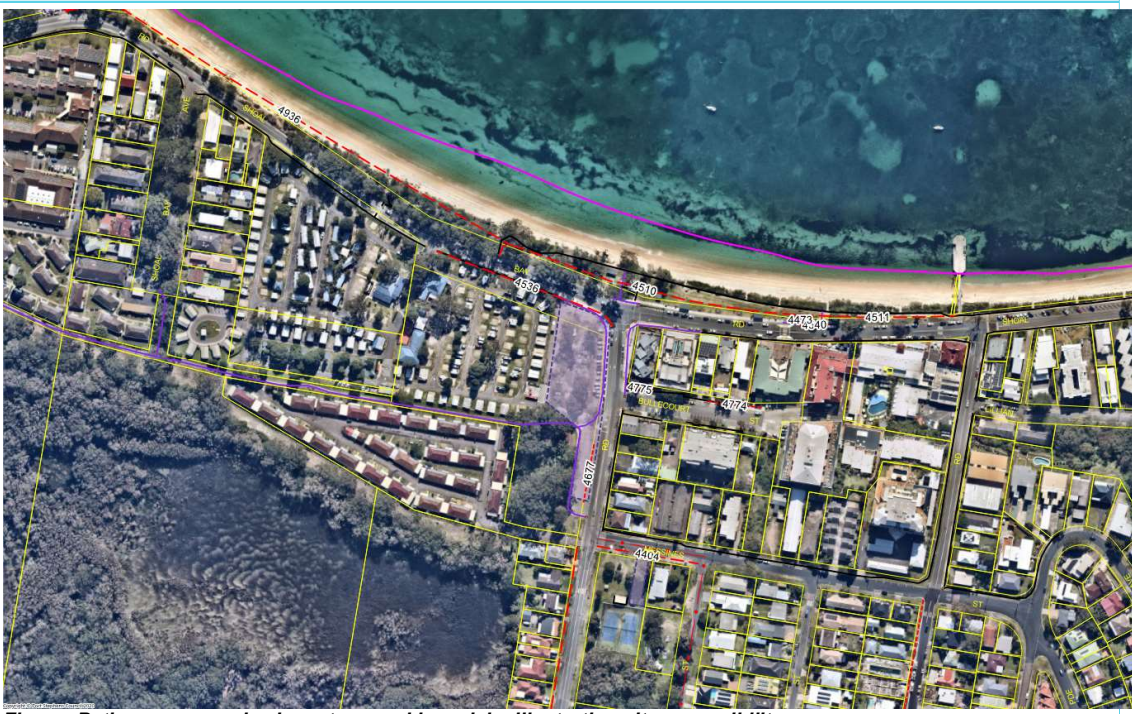

Figure: Pathways, carparks, bus stops and bus slabs illustrating site accessibility

Accessibility for intended uses *(site visit, GIS, amend as appropriate)*

Intended uses on site include:

- Car park.

Intended uses on surrounding land include:

- Urban road and road reserve.
- Passive recreation.
- Tourism.
- Access way/pathway for pedestrian movement.
- Public foreshore environment.
- Commercial premises.
- Entertainment precinct.

Accessibility for non-intended uses *(site visit, GIS, amend as appropriate)*

Non-intended uses may include:

- Loitering.
- Vandalism.
- Illegal dumping.
- Graffiti.

Recreation and services

Recreational facilities onsite or within 50m of the site *(amend as appropriate)*

Recreational facilities onsite or within 50m of the works include:

- Passive recreation area.
- Open space land.
- Playgrounds.
- Skate parks.
- Open space infrastructure (bike racks, bins, fencing, picnic tables, shelters, signage and taps).

Services onsite *(amend as appropriate)*

Services onsite include:

- Irrigation areas/ plumbing assets.
- Electrical/ power supply.
- Sewerage supply.
- Pathways.

Community disturbance *(amend as appropriate)*

Community disturbances likely to occur onsite and/ or on adjacent lands include:

- Noise (aircraft, traffic, barking dogs, general residential noise including shouting and yelling, lawnmowers or operation of machinery, parties, special events within the locality etc.).
- Emissions (light, dust, odours, transport emissions).
- Pest infestations.
- Vibration from aircraft local construction works or other activities within the locality.
- Illegally dumped waste and littering and other inappropriate waste disposal.

4.9 Pollution

Existing water pollution

See Section 4.3 Site Hydrology.

Existing air & odour pollution *(amend as appropriate)*

Existing air and odour pollution within the locality would include:

- Vehicle emissions from road use.
- Residential emissions such as use of plant, machinery and equipment, burning of wood fires, use of chemicals such as paints, petrol etc.
- Emissions from commercial premises including food and cooking smells, use of plant, machinery and equipment, burning of wood fires, use of chemicals such as paints, petrol etc.

Existing noise pollution *(amend as appropriate)*

Noise pollution within the locality would include:

- Transport such as traffic and garbage collection.
- Residential sources including lawn mowing, barking dogs, house repairs, loud music, air conditioners, outdoor entertainment and gatherings etc.
- Commercial sources including shouting, yelling and general crowd noise, loud music, air conditioners, construction etc.
- Events in the park and foreshore areas including crowd noise and music.
- Local construction work.

Existing possible vibration sources *(amend as appropriate)*

Existing vibration sources would include road traffic and any construction within the locality.

Existing light sources *(amend as appropriate)*

Existing light sources within the locality would include:

- Street or safety lighting.
- Residential premises.
- Park lighting.
- Commercial premise lighting.
- Lighting from night events and gatherings within the park and foreshore areas.

4.10 Natural resource use & scientific value

Natural resource use onsite *(amend as appropriate)*

Existing natural resource use onsite would include:

- Use of fuel and other raw materials for the transportation of visitors to and from the site and boating activities within the locality.
- Use of fuel and other raw materials for operation and maintenance activities.
- Use of raw materials for production of concrete barricades and other temporary infrastructure onsite.
- Use of the aesthetic qualities of the aquatic biodiversity for tourism which may be placing stress on the local environment through accidental damage of the local environment or possible increases in infection rates of coral diseases.

Scientific value *(amend as appropriate)*

The scientific value of the site is limited. The locality has not been extensively scientifically researched. The locality has been used to, and has further potential to provide information that will contribute to our understanding of land management practices.

4.11 Climate change *(amend as appropriate)*

The effects of climate change are already well visible by increasing air temperatures, melting glaciers and decreasing polar ice caps, rising sea levels, increasing desertification, as well as by more frequent extreme weather events such as heat waves, droughts, floods and storms. Locally within Port Stephens climate change is likely to result in increased average land and sea temperatures, larger natural variation in rainfall patterns, increased fire danger and rising sea levels. Based on projections from AdaptNSW and findings of the Port Stephens Design Flood Levels Climate Change Review (WMAwater, November 2010):

- Maximum temperatures will rise by 0.7oC by 2030 and 2.01oC by 2070.
- Average rainfall will increase by 1.8% by 2030 and 7.2% by 2060-79 with the distribution in rainfall also changing:
- Summer change of -2.9% by 2030 and 9.6% by 2060-79.
- Autumn change by 12.7% by 2030 and 13.1% by 2060-79.
- Winter change of -1.3% by 2030 and -2.8% by 2060-79.
- Spring change of -0.1% by 2030 and 2.4% by 2060-79.
- Number of cold nights (nights under 2oC) will decrease -5.9 by 2030 and -15.6 by 2060-79.
- Number of high fire danger days will increase by 0.2 days by 2030 and 0.9 days by 2060-79.
- Number of hot days (days over 35oC) will increase 4.7 days by 2030 and 14 days in 2060-79.
- A climate change induced rainfall increase of up to 30% (which is above the levels predicted by AdaptNSW) will raise flood levels in the Port Stephens estuary by less than 0.1m.

The NSW Policy Statement on Sea Level Rise (October 2009 – Reference 13) also indicates that the “best national and international projections of sea level rise along the NSW coast are for a rise relative to 1990 mean sea levels of 40 cm by 2050 and 90 cm by 2100. However, the Intergovernmental Panel on Climate Change in 2007 has acknowledged that higher rates of sea level rise are possible.

4.12 Coastal processes and hazards

Coastal processes active onsite (amend as required)

The site drains to Shoal Bay Beach. The work site and surrounding lands maybe subject to coastal winds and some sand drift.

Coastal environment area	The site is located within the Coastal Environment Area.
Coastal use area	The site is located within the Coastal Use Area.

4.13 Natural Hazards

Bushfire prone lands

As a result of the bushfires in Christmas 2001, the NSW government introduced legislation to ensure residential and other developments such as child care facilities, hospitals and aged care facilities are not unduly exposed to any major bushfire risk. Council works with the NSW Rural Fire Service to identify bushfire prone areas within Port Stephens and a set of Bushfire Zone Maps were developed. The maps were developed by analysing factors such as vegetation type and patterns of existing development, and are constantly being updated.

Access to and from the site is mapped as being bushfire prone.

Figure: Bushfire prone lands

Floodprone lands

Flooding of the foreshore area surrounding Port Stephens can result from a combination of the following four factors:

- Rainfall over the local catchment, which is unable to drain away quickly, and so ponds in low areas. This is usually termed local flooding and causes inconvenience but generally not above floor flooding. It is exacerbated by elevated estuary levels (Port Stephens Design Flood Levels Climate Change Review, WMAwater, 2010).

The land and access to and from the site is mapped as being floodprone.

Figure: Flood prone lands

Extreme weather
The site is subject to: • Severe weather events. • Heatwaves. • Cold snaps. • High winds.

5. Environmental Impact Assessment

Impact assessment explanation		
Type of Impact Definitions		
Extent/ intensity		The characteristics of impacts that are likely to affect the environment.
Size		Amount, quantity, volume, mass or other of the impact.
Duration		Duration of the impacts considering construction, operations, and any decommissioning elements i.e. time length, period, interval, term, continuation or other.
Type	**Direct**	The impacts that usually occur at the same time as the project and in the vicinity of the site
	Indirect	The impacts that occur as a consequence of the project or the direct impacts of a project. They may be delayed and happen further away from the site.
	Cumulative	Impacts that are a result of incremental, sustained and combined effects of human action and natural variations over time, both positive and negative, or by the compounding effects of a single project or multiple projects in an area, and by the accumulation of effects from past, current and relevant future projects. Refer to definition for 'relevant future projects' to understand scope of projects to be included.
Mitigation measure		Actions or measures to avoid, minimise, rectify (by repairing, rehabilitating or restoring) and/or reduce or eliminate over time (by preservation and maintenance) the adverse environmental impacts.
Impact	**Negligible**	Impact that has an insignificant adverse effect (e.g. harm) to humans and/ or the environment. Effects are typically restricted to the site. With negligible impacts there is generally a high confidence of reducing impacts, high level of understanding, knowledge and experience in mitigating the impact and effective mitigation measures are readily available. Mitigation measures are often standard procedures.
	Minor	Impact that has little adverse effect (e.g. harm) to humans and/ or the environment. Effects are restricted to the site or localised. With minor impacts there is generally a moderate to high confidence of reducing impacts, good to high level of understanding, knowledge and experience in mitigating the impact and effective mitigation measures are available. Mitigation measures are often standard procedures, however, can be site specific.
	Moderate	Impact that is likely to result in an adverse effect (e.g. harm) to humans and/ or the environment. Effects are typically localised. With moderate impacts, there is generally a moderate to high confidence of reducing impacts, good level of understanding, knowledge and experience in mitigating the impact and effective mitigation measures are available. Mitigation measures can be standard procedures but are typically site specific.
	Major	Impact that will result in an adverse effect (e.g. harm) to humans and/ or the environment. Effects can be localised or of a larger scale. With major impacts, there is generally a moderate confidence of reducing impacts, there may be a low level of understanding and knowledge and experience in mitigating the impacts and mitigation measures are available, however, may not be able to mitigate all of the effects. Mitigation measures are site specific.

5.1. Landform, geology and soils

Consideration		App.	Extent/ Intensity		Size	Duration	Type	Impact before MM	Impact after MM
5.1.1	Site is within landslip areas or areas with >20% slope onsite. Possible impacts to safety of people, destruction of infrastructure, damage to the land and loss of natural resources. *GIS check*	☐ Yes ☒ No	GIS checked 12.12.2024.		Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.1.2	Works will include earthworks where ground disturbance will occur. Possible detrimental impacts to environmental functions and processes, neighbouring uses, cultural or heritage items or features of surrounding land. *Note: For Impacts to:* • *Environmental functions and processes see 5.1. 5.2, 5.3, 5.6, 5.7, 5.9, 5.11.* • *Neighbouring uses see Section 5.10.* • *Cultural or heritage items see Section 5.4.* • *Features of surrounding* land *see Section 5.1, 5.2, 5.3, 5.4, 5.8, 5.9, 5.10.*	☒ Yes ☐ No	Disruption of and/ or detrimental effect on drainage patterns and/ or disruption of and/ or detrimental effect soil stability	During the works, there is a risk of erosion and sedimentation impacting biodiversity values and sensitive areas on site and adjacent to the site. 3,800m^3 of material is being disturbed onsite.	Medium scale	Short term	Direct and indirect	Moderate: Erosion and sedimentation which may cause temporary pollution and environmental harm offsite.	Minor: Erosion and sedimentation contained to the site with risk can managed in accordance with a site specific erosion and sediment control plan.
			Impacts from the quality of the fill or the soil to be excavated and/ or removed from the site. This includes the risk of contaminated fill or other material being taken offsite and inappropriately disposed of.	3,800m^3 of material is being disturbed onsite. Approximately 3,800m^3 of material will be taken offsite to Newcastle Airport site with appropriate classification.	Medium scale	Short term	Direct and indirect	Negligible: Contamination is not known within the site.	Negligible: Contamination is not known within the site.
			Source and destination of material and use on site and end-uses. This includes risk of contaminated fill being imported or exported from the site and inappropriately managed and/or disposed of.	This includes risk of contaminated fill being imported or exported from the site and inappropriately disposed of. Approximately 3,800m^3 of material will be taken offsite to Newcastle Airport site with appropriate classification.	Medium scale	Short term	Direct and indirect	Minor: Contamination is not known onsite and will not be disturbed or taken offsite and material being imported has a low potential to be contaminated.	Minor: Contamination is not known onsite and will not be disturbed or taken offsite and material being imported has a low potential to be contaminated.
5.1.3	Site contains acid sulfate soils and excavation likely to be at a depth that will encounter acid sulfate soils. *Note: For activities that will encounter acid sulfate soils an Acid Sulfate Soil Management Plan must be prepared in accordance with template QF-ENV-*	☐ Yes ☒ No	Reference to the NSW Office of Environment and Heritage's online database 'eSpade' indicates that the site lies in category L4 – Low probability >3m below ground surface.		Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

5.1. Landform, geology and soils

Consideration		App.	Extent/ Intensity	Size	Duration	Type	Impact before MM	Impact after MM
	DRAFT - Acid Sulfate Soil Management Plan (CAP WORKS).							
5.1.4	Site is listed on the contaminated land record of notices or contaminating practices have been historically undertaken on the land[1]. *Note: For activities that will encounter contaminated or potentially contaminated lands engage an accredited site assessor and conduct a site investigation and potential site remedial action plan in accordance with NSW EPA requirements and guidelines.*	☐ Yes ☒ No	A check on the contaminated lands register was conducted on 13.12.2024 and no register of contaminated lands onsite or on adjacent lands was identified.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.1.5	Site is in a PFAS Management Zone. *GIS check* *Note: Any PFAS analysis and on-site stockpiling, storage and containment should be in compliance with Section 10 to 14 off the most current version of the PFAS National Environmental Management Plan*	☐ Yes ☒ No	Site is not located with a mapped Williamtown PFAS Management Zone. GIS checked 13.12.2024.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation measures *Amend as appropriate*

At all times

- Drive to conditions on unsealed roads and/ or onsite.
- Monitor weather conditions for adverse weather that may increase impacts such as dust, noise, vibration, emissions, odour and where possible schedule works to avoid these periods. Do not undertake activities during inclement weather to minimise the risk of damage to assets and ensure there is no compromise of site safety. Where severe weather is forecast, undertake all reasonable precautions to prepare and secure the site for a storm event and help minimise the potential for damage. If heavy rain is forecasted in the next 24 hours delay commencement or cease works until such time a suitable dry period of weather is forecast.

Prior to construction

- Prepare a CEMP that includes all the mitigation measures and environmental safeguards identified in the Environmental Assessment including any licensing requirements and permit/ conditions/ approvals.
- Prepare an erosion and sediment control plan (ESCP) in accordance with Soils and Construction Volume 1: Managing Urban Stormwater and Soils and Construction Volume 2: managing Urban Stormwater.
- Include appropriate clauses and conditions within tenders, employment contracts, subcontractor agreements and work method statements that require all workers and contractors to observe the Environmental Safeguards and directions from the site manager.
- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasise the following:
  - Sensitive downstream receiving environment; Port Stephens and Great Lakes Marine Park.
  - QF-ENV-008 Unexpected Finds Procedures (CAP WKS).
  - Erosion and sediment controls.
  - Emergency response requirements.
- Personnel onsite are to be trained and proficient in the operation of plant, equipment and vehicular procedures for the required tasks and ways to reduce impacts such as soil disturbance.
- Plan and stage works and design the site where feasible and reasonable to reduce open excavations.
- Install erosion and sediment controls in accordance with Managing Urban Stormwater: Soils and Construction (Landcom Vol 1, 4th Ed, 2004) and the approved plans.

During construction

- Complete all works in accordance with the approved plans, Construction Environmental Management Plan and relevant Safe Work Method Statement(s).
- Plan and stage works and design the site where feasible and reasonable to:
  - Reduce the exposure of soils or open excavations.
  - Minimise work during excessively wet or muddy conditions.
- Leave all controls in place during works, undertake weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls include:
  - Erosion and sediment controls.
- Signpost designated access points, routes, vehicle manoeuvring areas parking areas and ensure site personnel, contractors and delivery trucks are aware of the requirements to help reduce site disturbance.
- Cover all loads of material, soil, fill or other erodible matter transported being transported to or from the work site at all times. Coverage must be maintained for the duration of transportation and until unloaded.
- Restrict vehicles and personnel to designated tracks, trails and parking areas. Where possible park and turn-around on hard, well drained surfaces.
- Ensure truck drivers are undertaking material tracking recording the source location, destination and volumes and ensure that for any material bought onto site this information is provided to the Team Leader.
- Undertake daily checks of site drainage systems and undertake maintenance when required to ensure site drainage systems are operating at capacity e.g. removal of debris and that there is no increase in turbidity (sediment laden water). Ensure there is no release of dirty water into drainage lines and/ or watercourse.
- Visually monitor work sites, general work areas and stockpiles for dust generation and water down with clean water or cover with tarpaulins in the event of dry and/ or windy conditions.
- Visually monitor the site for signs of disturbance of acid sulfate soils or signs of contamination such as odour, seepage of unusual liquids from soil or rock, unusual metal objects, discolouration or staining of the rick, unusual colours, odours or sheens on groundwater, presence of underground storage tanks, potential asbestos containing material, presence of waste or rubbish or unusual colour of the soil. If suspected, intercepted, identified or located, stop work, cordon off the area(s) and follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
- Minimise the generation of dust as required through use of a water cart.
- Manage all stockpiles on site in accordance with the NSW Managing Urban Stormwater: Soils and construction – Volume 1 4th edition.
- Place stockpiles at strategic locations to minimise and mitigate environmental impacts whilst facilitating material handling requirements. Establish access routes around material stockpiles that enable access from adjoining haulage routes.

5.1. Landform, geology and soils

Consideration	App.	Extent/ Intensity	Size	Duration	Type	Impact before MM	Impact after MM

- Any imported fill, whether VENM, ENM or other imported material such as EPRM, must be accompanied by relevant documentation. Where documentation is not provided the source site of the material will be inspected and material sampled at a rate of one sample per 100 m3, with a minimum of 10 samples taken from each product imported.
- Store all stockpiled material in a location consistent with the approved plans and a separate area designated for storage of contaminated spoil where required.
- Where possible avoid, reuse and recycle spoil and waste generated. Manage waste that cannot be avoided, reused or recycled in accordance with the NSW Waste Avoidance and Recovery Act 2011, and classify the waste in accordance with the NSW Waste Classification Guidelines. If being removed offsite classify waste in accordance with the NSW Waste Classification Guidelines and dispose of at a facility appropriately licenced to accept such waste. Any material reused onsite shall be compliant with NSW Protection of the Environment Operations (Waste) Regulation 2014 and associated exemptions such as the NSW EPRM Exemption 2014.
- The management of concrete washout waste material must be in accordance with the Transport for NSW Concrete washout guideline 2023.

Upon completion of construction

- Leave erosion and sediment controls in place until the site is fully stabilised. Undertake weekly checks and conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are available on request.
- Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.
- Leave the site clean and free of debris.
- Wherever possible any remaining waste will be reused or recycled where possible, be managed in accordance with the principles of the NSW Waste Avoidance and Recovery Act 2011, be classified in accordance with the NSW Waste Classification Guidelines and only disposed of at a facility licenced to accept such waste(s) with supporting documentation.

[I] Acid/alkali plant and formulation, Agricultural/horticultural activities, Airports, Asbestos production and disposal, Chemicals manufacture and formulation, Defence works, Drum re-conditioning works, Dry cleaning establishments, Electrical manufacturing (transformers), Electroplating and heat treatment premises, Engine works, Explosives industry, gas works or iron and steel works, Landfill sites, Metal treatment, Mining and extractive industries, Oil production and storage, Paint formulation and manufacture, Pesticide manufacture and formulation, Power stations, Railway yards, Scrap yards, Service stations, Sheep and cattle dips, Smelting and refining, Tanning and associated trades, Waste storage and treatment, Wood preservation

5.2. Water

	Consideration	App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.2.1	Works are likely to extend to a depth where groundwater will be encountered. *Note: Provide justification for a 'No' response in extent column*	☐ Yes ☒ No	Works are unlikely to encounter or intercept groundwater due to no or shallow excavation or excavation in an area where groundwater is not expected to occur. A geotechnical investigation was conducted by RCA Australia in November 2023 which included the drilling of 12 boreholes, to a maximum depth of 2.25m. No groundwater was encountered. The maximum excavation depth proposed is 800mm and it is therefore unlikely that the works will encounter or intercept groundwater.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.2.2	Works involve direct discharge into a waterway or stormwater drain and/ or changes to site hydrology/ drainage infrastructure.	☒ Yes ☐ No	The works will involve drainage works including the construction of bio-retention gardens and installation of a drainage system. This new system is to drain to the existing Government Rd trunk drainage system. No amplification of the drainage is occurring and the flow capacity of the pipes remains consistent. There will be an increase in the impervious surface area due to the sealing of the current gravel surface. Due to the small size of the increase impervious surface and the current flow of surface water on site, the increased run-off from the road is unlikely to exacerbate drainage issues.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Change in site hydrology that will result in permanent offsite impacts BUT the offsite impacts are minor to moderate and within the environment's capability to adapt.	Minor: Change in site hydrology/ alteration of drainage infrastructure that will not result in offsite impacts OR result in only temporary/ permanent minor impacts within the environment's capability to adapt and will not impact sensitive receivers.
5.2.3	Aquatic structures onsite or within 50m of the site. *GIS check*	☐ Yes ☒ No	GIS checked 12.12.2024.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.2.4	The works will impact on lands mapped as Wetlands under the PSLEP. Consideration of the provisions of section 7.9(3)(a) whether the activity is likely to have a significance adverse effect on the following: • The condition and significance of native fauna and flora on the land. See Section 5.3. • The provision and quality of habitats on the land for indigenous and migratory species. See Section 5.3. • The surface and groundwater characteristics of the land, including water quality, natural water flows and salinity. See Section 5.2 and Section 5.10. *GIS check* Consideration of the provisions of section 7.9(4). through design and implementation of environmental mitigation measures: • The activity is designed/ sited and managed to avoid significant adverse environmental impact.	☐ Yes ☒ No	GIS checked 12.12.2024. An LEP Wetland is mapped onsite, however, ground truthing via site visit identified no wetland present. The site does not drain into a wetland.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

5.2. Water

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
	• Whilst the impact cannot be reasonably avoided the activity has been designed, sited and will be managed to minimise that impact. • The impact cannot be minimised however the activity can be managed to minimise the impact.							
5.2.5	The activity is located within the Williams River Catchment as defined in the PSLEP. • Consideration of provisions of section 7.10(3) of the PSLEP whether the activity has considered that the activity: • Promotes the sustainable use of land, water, vegetation and other natural resources within the Williams River catchment. • Promotes the protection and improvement of the environmental quality of the Williams River catchment • Will have any significant adverse impacts on water quality within the Williams River catchment • Is consistent with the Williams River Catchment Regional Planning Strategy of the Department of Planning and Infrastructure for the Williams River catchment. *GIS check* *Note: Williams River Catchment Regional Planning Strategy has been repealed.*	☐ Yes ☒ No	GIS checked 13.12.2024. The site is not located within the Williams River Catchment.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.2.6	The activity is located within the Hunter Water Drinking Water Catchment or Drawn Down Area or Special Areas. *GIS check* *Note: Consider provisions of Protecting our Drinking Water Catchments: Guidelines for developments in the drinking water catchments 2017. See QF-ENV-DRAFT – EA Activities in the Drinking Water Catchment (CAP WORKS).*	☒ Yes ☐ No	GIS checked 13.12.2024. The site is partially located within the Hunter Water Drinking Water Catchment. The Shoal Bay urban area exists within the Tomaree Sandbeds, part of the Nelson Bay Catchment Area. The catchment is primarily covered by the Tomaree National Park and exclusively supplies the Tomaree Peninsula, a significant resident population and major tourism destination, with visitor numbers peaking during the summer holiday season. Potential impacts during construction would include erosion and sedimentation and potential chemical spills and leakage of oils or other substances from vehicles, plant and machinery used onsite. During maintenance the additional potential use of pesticides and fertilisers if spilled or used incorrectly have the potential to cause downstream impacts.	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: The activity may result in temporary moderate impacts to water quality in the Hunter Water drinking water catchment.	Minor: The activity may result in temporary minor impacts to water quality in the Hunter Water drinking water catchment OR temporary moderate impacts to water quality in the drinking water catchment can be mitigated in accordance with standard procedures.
5.2.7	Site is within, adjacent to or is within 200m and/ or drains to Port Stephens Marine Park. *Note: Consider provisions of NSW Marine Parks Permit Policy 2015 assessment criteria - other requirements.*	☒ Yes ☐ No	The site drains to the Port Stephens and Great Lakes Marine Park approximately 50m downstream. Potential impacts during construction would include erosion and sedimentation and potential chemical spills and leakage of oils or other substances from vehicles, plant and machinery used onsite. During maintenance the additional potential use of pesticides and fertilisers if spilled or used incorrectly have the potential to cause downstream impacts. Due to the small scope, limited extent and short duration of the works provided the mitigation measures are implemented such as erosion and sediment controls, no offsite impacts such as erosion and sedimentation are expected to occur due to the distance from the marine park.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: The works are located outside or within the marine park, potential impacts of the works are known, the magnitude and effect on existing uses and on adjoining and adjacent areas is moderate and no research activities are proposed.	Minor: The works are located outside or within the marine park, potential impacts of the works are known, the magnitude and effect on existing uses and on adjoining and adjacent areas is minor OR moderate but impacts effectively mitigated.
5.2.8	Site is located within, adjacent to, is within 200m of and/ or drains to Kooragang RAMSAR Wetland and is likely to be impacted by the works. *Note: Where works are likely to impact on Kooragang RAMSAR Wetland, prepare an impact assessment in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.*	☐ Yes ☒ No	GIS checked 13/12/2024. The suite is no located within, adjacent to and does not drain to Kooragang RAMSAR Wetland	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
Level of confidence in predicting impacts Select appropriate response			Low adverse: High confidence/ knowledge and past experience.					
Level of reversibility of impacts Select appropriate response			Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.					

5.2. Water

Consideration	App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
Ability to manage or mitigate the impacts Select appropriate response		Low adverse: Effective mitigation measures available.					
Requirement for further information Select appropriate response		Low adverse: High level of understanding and information on the impacts.					

Mitigation Measures

See Section 5.1, additional mitigation measures include:

At all times

- Use, maintain, service and store vehicles, plant, equipment and materials in accordance with all relevant Council, manufacturing and Australian standards and procedures and regularly inspect for leaks. Repair leaks immediately or remove the leaky equipment from site and have it replaced.
- Maintain a site that is free of litter and unnecessary debris with all wastes stored securely to avoid/ minimise the risk of pollutants escaping.

Prior to construction

- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Equipment due to inappropriate use, or due to faults or poor maintenance should not be operated until repaired or replaced.

During construction

- Visually monitor for any of the signs of Groundwater. If suspected, intercepted, identified or located, stop work, cordon off the areas and follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
- Store all chemicals, fuels and oils in suitable bunded areas with the capacity of the bund at least 120 per cent of the volume of the largest container stored within the bunted area. Do not store or collect for disposal any chemicals, fuels and/or waste within or adjacent to watercourse, drainage lines or unsealed surfaces.
- Storage and use of all plant, materials and equipment must not be outside the direct works nor outside the approved site compound location.
- Keep an emergency spill response kit onsite at all times and monitor the kit for replenishment of contents. Make all staff aware of the location of the spill kit and ensure that they are trained in its use. If a spill occurs, follow the EMS Incidence Response Procedure and immediately notify the Project Manager and/or EMS Manager.
- Avoid refuelling of equipment or chemical handling activities outside the compound. Conduct the activities offsite where practical. If the works must occur onsite, conduct the works on flat ground at least 50m from any watercourse, drainage line or sensitive area with spill containment measures in place and within a bunded area.
- Use and store all hazardous and dangerous goods in accordance with all relevant statutory standards and procedures and manufacturer's MSDS. Retain a copy of all relevant MSDS onsite and ensure hazardous goods are be labelled in accordance with the requirements of the Australian Dangerous Goods Code.
- Where possible wash equipment, machinery or works vehicles offsite at an approved facility. Where onsite wash down is required for weed control, use potable water and contain any excess debris from equipment with containment material. Dispose of any containment material and water in accordance with the Waste Management requirements for the works.
- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Ensure that there are no leaks.
- Remove, transport and dispose of hazardous and dangerous goods in accordance with the NSW Waste Classification Guidelines and dispose of at a waste facility licenced to accept such waste. Any transport of dangerous goods must occur with a driver possessing a dangerous goods drivers licence and dangerous good vehicle licence. All dangerous goods transport shall be in accordance with NSW Dangerous Goods (Roads and Rail Transport Act 2008 and NSW Dangerous Goods (Road and Rail) Transport Regulation 2014).

Upon completion of construction

- Clean out the stormwater systems immediately following completion of all works using a sucker truck and classifying the waste in accordance with the NSW Waste Classification Guidelines and only dispose of the waste at a facility licenced to accept such waste(s) with supporting documentation.

5.3. Biodiversity

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.3.1	The works will include clearing of vegetation.	☒ Yes ☐ No	27 trees are scheduled for removal as part of this project. Of these, four were identified as *Eucalyptus pilularis* (Blackbutt), one *Angophora costata* (Smooth-barked Apple) and 22 as *Erythrina x sykesii* (Coral Tree). Three *E. pilularis* have been recorded to contain hollows. The site is highly modified, fragmented and frequented by vehicles and pedestrians.	Negligible/ small scale	Long term/ permanent	Direct, indirect and cumulative	Minor: <0.5 ha of vegetation clearing likely to result in minor temporary impacts eg. increased erosion and sedimentation, reduced nutrient filtering capacity and changes to site hydrology (excludes impacts to threatened biodiversity).	Negligible: <0.5ha of vegetation clearing likely to result in negligible temporary impacts eg. increase erosion and sedimentation, reduced nutrient filtering capacity and changes to site hydrology (excludes impacts to threatened biodiversity).
5.3.2	Threatened biodiversity present onsite or that have the potential to occur onsite listed under the BC Act, EPBC Act and/ or FM Act. *Note: Impact assessments for threatened biodiversity must be conducted in accordance with the Significant Impact Guidelines 1.1 Matters of National Environmental Significance and other relevant guidelines and NSW Threatened Species Test of Significance Guidelines 2018 using QF-ENV-DRAFT - EA Threatened Biodiversity Assessments (CAP WORKS).*	☒ Yes ☐ No	The works have the potential to harm threatened species or ecological communities through indirect impacts which may include: • Dust/sediment deposition on adjacent vegetation or into waterways leading to loss of plant viability and/ or weed infestation. • Unauthorised vehicle or plant movements or storage or equipment and materials or rubbish dumping causing damage to or destruction of native fauna habitat. • Contamination of soils from uncontrolled releases or inappropriate storage or use of chemicals or fuels. • Potential impacts of noise and vibration which may disrupt the roosting or breeding of or have other impacts on native fauna. • Increased soil erosion and sedimentation resulting in inability of area to regenerate. • Spread of weeds impacting native vegetation and habitats through poor hygiene practices.	Negligible/ small scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Threatened biodiversity habitat is present onsite and will be removed. Possible impacts from noise, dust, pollution and/ or physical harm to fauna wandering through the site or flora present. Unlikely significant impact.	Minor: Threatened biodiversity habitat is present onsite but not removed OR <0.5ha of habitat being removed and impacts have been assessed and are not significant. Possible minor impacts from noise, dust, pollution and/ or physical harm to fauna wander

5.3. Biodiversity

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
			The works have the potential to harm threatened species or ecological communities through direct impacts including: • Accidental harm to native flora and fauna on or near the site. • Tree pruning may occur which has the potential to decrease the viability of the tree and potential habitat or food source it provides. • Tree removal which may remove habitat and foraging resources. Assessments of Significance were conducted in accordance with the *NSW Biodiversity Conservation Act 2016* and Significant Impact Assessments were conducted in accordance with *the Commonwealth Environment Protection and Biodiversity Conservation Act 1999* for all species with a known, high or moderate likelihood of occurrence onsite. The Assessments of Significance and Significant Impact Assessments concluded that a significant impact was unlikely to occur as a result of the works. See QF-ENV-DRAFT - EA Threatened Biodiversity Assessments (CAP WKS) in Attachment 9.					
5.3.3	The works have the potential to impact on key fish habitat and/ or will involve indirect or cumulative harm to mangroves or other protected marine vegetation.	☐ Yes ☒ No	Potential impacts may include smothering of habitat, damaging the health of aquatic fauna, increasing the turbidity levels and decreasing the amount of light available for aquatic plants and increased nitrification of waterways due to increased sedimentation of nutrient laden sediment. Other potential impacts may include the release of chemicals and other pollutants such as gross pollutants which have the potential to pollute and cause harm	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: Indirect/ cumulative harm to mangroves or other protected marine vegetation and/ or fish habitat and the system is likely to recover from the impacts but harm will occur.	Minor: Indirect/ cumulative harm to mangroves or other protected marine vegetation and/ or fish habitat but due to the small scale of the activity or due to implementation of mitigation measures the impacts would be minor.
5.3.4	Priority and environmental weeds mapped onsite or within 200m.	☒ Yes ☐ No	Potential impacts may include spread of weeds impacting native vegetation and habitats through poor hygiene practices facilitating existing and/or further occupation of the site by pest fauna species.	Negligible/ small scale	Short term	Direct and indirect	Minor: Priority and environmental weeds within 200m of the works, however, located outside the costruction footprint.	Minor: Priority and environmental weeds within 200m of the works, however, located outside the construction footprint or priority weeds onsite and weed threat can be managed in accordance with standard procedures.
5.3.5	Pest species likely to frequent the site.	☒ Yes ☐ No	The site is already highly disturbed and fragmented. The works do not include any activities that are likely to control or increase the threat of pest species.	Negligible/ small scale	Short term	Indirect	Minor: Pest species likely to frequent the site, however, pose no or minimal threat to the activity and the activity will not exacerbate the threat.	Minor: Pest species likely to frequent the site, however, pose no or minimal threat to the activity and the activity will not exacerbate the threat.
5.3.6	Site is mapped as containing Koala Habitat and/ or koala feed trees are present onsite or directly adjacent to the site	☒ Yes ☐ No	No koala feed trees or koala habitat will be removed. Potential impacts to koalas include the threat of physical harm to fauna wandering through the site due to the increased use of vehicles, plant, equipment and machinery onsite and possible impacts including noise, dust and pollution. An assessment of significance for koalas was conducted to satisfy the provisions of the BC Act and EPBC Act which concluded that a significant impact on threatened species is unlikely. An assessment in accordance with Appendix 4 of the Comprehensive Koala Plan of Management was conducted and the works are consistent with the provisions of the plan of management. See Attachment 10.	Negligible/ small scale	Short term	Direct and indirect	Minor: Koala habitat onsite will not be removed. Koalas may frequent the site and the works may cause accidental harm.	Minor: Koala habitat will not be removed OR <0.5ha koala habitat will be removed and the works satisfy the performance criteria in Appendix 4 of the CKPoM. Koalas may frequent the site but can be managed in accordance with standard procedures.
5.3.7	Hollow bearing trees present onsite or directly adjacent to the site.	☒ Yes ☐ No	Four hollow bearing trees have been identified onsite, three of which are scheduled for removal. Additional hollow bearing trees are present in Bernie Thompson Playground Carpark and adjacent lands which will not be removed. Other possible impacts include noise, dust, pollution and physical harm to fauna wandering through the site. Significant impact assessments were conducted to satisfy the provisions of the BC Act and EPBC Act which concluded that a significant impact on threatened species was unlikely.	Negligible/ small scale	Short term	Indirect	Moderate: Hollow bearing trees onsite or directly adjacent to the site represent possible fauna habitat. Hollow bearing trees removed but due to scale, duration and extent of the activity, a significant impact on threatened species is unlikely.	Minor: Hollow bearing trees onsite or adjacent to the site that are potential habitat for threatened species are being removed. However the works are unlikely to result in a significant impact on threatened species.

5.3. Biodiversity

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.3.8	Site mapped as containing wildlife corridors and/ or corridors evident onsite.	☒ Yes ☐ No	A wildlife corridor is mapped onsite. Seven trees are scheduled for removal within a landscape habitat link. Of these, two were identified as *Eucalyptus pilularis* (Blackbutt) and five as *Erythrina x sykesii* (Coral Tree). The site is highly modified, fragmented and frequented by vehicles and pedestrians. Whilst mapped as a corridor, the site is probably only utilised as a corridor for more mobile species suited to persisting within an urban environment.	Negligible/ small scale	Short term	Direct, indirect and cumulative	Minor: Vegetation removal may occur and works are of a scope, duration and/ or magnitude that is unlikely to cause fragementation or interrupt use of the corridor.	Minor: Vegetation removal may occur and the works are of a scope, duration and/ or magnitude that will not or only cause temporary minor fragmentation or interruption of use of the corridor and site specific controls can effectively mitigate the impacts.
5.3.9	Site contains or is adjacent to Grey-headed Flying Fox colony. *Provide justification for 'No' response.*	☐ Yes ☒ No	No known Grey-headed Flying Fox colony is known on the site or adjacent to the site. During site visits no observations of Grey-headed Flying Fox colonies was observed.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.3.10	Site contains or is adjacent to a raptor nest. *Provide justification for 'No' response.*	☐ Yes ☒ No	No known raptor nests are known on the site or adjacent to the site. During site visits no observations of raptor nests were observed. There is a possibility that raptor nests may occur onsite prior to or during the works. Significant impact assessments were conducted to satisfy the provisions of the BC Act and EPBC Act which concluded that a significant impact on threatened species was unlikely. If raptor nests are observed onsite, QF-ENV-OO8 Unexpected Finds Procedure (CAP WKS) would be implemented.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.3.11	Works include artificial lighting and/ or will include night works with temporary night lighting.	☒ Yes ☐ No	Five permanent lights will be installed onsite. There would be existing light pollution at the site due to the proximity of the surrounding urban development, Shoal Bay Holiday Park and commercial business. Significant impact assessments were conducted to satisfy the provisions of the BC Act and EPBC Act which concluded that a significant impact on threatened species was unlikely.	Negligible/ small scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Threatened biodiversity habitat is present with possible moderate non-signifcant impacts from light.	Minor: Threatened biodiversity habitat is present with possible minor non-significant impacts from light or moderate non-signifcant impact from light that can be effectively mitigated.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation Measures *Amend as appropriate*

See SECTION 5.1 and 5.2, additional mitigation measures include:

At all times

- Avoid the use of radios, stereos, open two-way radios and public address systems outdoors where they are likely to be audible at sensitive receivers beyond the site boundary and avoid shouting, talking loudly, slamming vehicle doors or making any other unnecessary noise.

Prior to construction

- Clearly demarcate all trees to be removed in accordance with QF-ENV-001 Tree Tagging Standards.
- Demarcate the extent of works with stake rope and fluro tags or similar with fluro tape attached to the stakes and rope between the stakes or mesh fencing where in a high activity area. If exclusion fencing that may impede fauna access is used, mesh wire fencing or other climbable fencing must be used and a 300m gap provided at the base of the fencing to allow fauna to escape.
- Install tree protection fencing for all habitat trees within the construction works footprint that are to remain in accordance with QF-ENV-012 Tree Protection Fencing Rqmts (CAP WKS) and/ or approved Arboricultural Report.
- Clearly demarcate all trees to be removed in accordance with QF-ENV-001 Tree Tagging Standards.
- A preclearance survey using a suitably qualified and experienced fauna ecologist must be conducted for all hollow bearing trees to be removed within 48hours prior to tree removal in accordance with contract specifications provided by the Project Support Environmental Officer. The consultant must provide a report prepared by the supervising ecologist and in accordance with the QF-ENV-010 Preclearance Survey with Habitat Trees Report (CAP WKS) to the Council's Project Manager, Environmental Risk Officer and Project Support Environmental Officer within 7 days of completion of clearing activities
- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasize the following:
    - Site sensitivities and their relevance to the proposal including possibility of threatened species onsite and/ or adjacent to the site and hollow bearing trees onsite and/ or adjacent to the site.
    - Tree protection fencing requirements.
    - Weed management.
- Personnel onsite are to be trained and proficient in the operation of plant, equipment and vehicular procedures for the required tasks and ways to reduce impacts such as odours, noise, dust and emissions.
- Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site for any out of hours work. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.
- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Equipment due to inappropriate use, or due to faults or poor maintenance should not be operated until repaired or replaced.
- Plan and stage works as much as possible to:
- Reduce the need for reversing or movement alarms by managing access and movement around the site e.g. by planning traffic flow, parking and loading/ unloading areas.
- Prioritise work during the least sensitive time period and where possible and schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active).
- Locate the site compound and anything within the compound outside of the drip line or tree protection fencing of any trees.
- Install exclusion fencing that includes temporary fencing, bunting tape, stake rope and fluro tags or similar and signage that is clearly visible from a distance of at least 20m that is general in nature e.g. 'Exclusion Zone' to delineate the construction footprint protect public safety. If exclusion fencing that may impede fauna access is used, mesh wire fencing or other climbable fencing must be used and a 300mm gap provided at the base of the fencing to allow fauna to escape.

5.3. Biodiversity

Consideration	App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM

- Compensatory fauna habitat in the form of nest boxes, augmented hollows, salvaged hollows mounted in alternate trees will be provided with 2 nest boxes/ 1 augmented hollow/ 1 salvaged hollow for every hollow lost. The nest boxes shall be offset, constructed and installed in accordance with the Port Stephens Council Biodiversity Technical Specification 2024. Documentary evidence of installation of the nest box/ augmented hollow/ salvaged hollow must be provided in accordance with the Bushland Schedule of Rates Tender and to the Environmental Operations Team Leader or nominated representative for approval.

During construction

- Complete all activities in accordance with the recommendations and required actions in the approved Arboricultural Assessment Report. Ensure maintenance of all measures implemented in accordance with the approved Arboricultural Assessment Report.
- Removal of habitat trees using sectional dismantling until all hollows are removed, as per QF-ENV-014 Veg & Tree Removal Procedure (CAP WKS) (see Attachment 18).
- Plan and stage works and design the site where feasible and reasonable to:
- Reduce the need for reversing or movement alarms and manage access and movement around the site to reduce disturbance.
- Reduce noise as much as practically possible by prioritising work during the least sensitive time period and where possible schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) to make the most of opportunities to reduce construction noise intruding above background noise. Where possible, schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) to make the most of the opportunities to reduce construction noise intruding above background noise.
- Conduct all works between the daylight hours of 7am to 6pm, Monday to Friday, and 8am to 1pm, Saturdays, with no works occurring on Sundays or public holidays.
- Leave all controls in place during works, undertake weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls include exclusion fencing and tree protection fencing.
- Conduct daily fauna checks prior to works commencing. If fauna are encountered during the daily check or during works follow QF-ENV-008 Unexpected Finds Procedures (CAP WKS).
- Operate, inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Requirements include:
  - Checking equipment fitted with enclosures to ensure acoustic doors and seals are in good working order and that doors close properly against the seals.
  - Ensuring air lines on pneumatic equipment do not leak and plant silencers are well maintained
  - Monitoring for atypically high noise levels and/or annoying characteristics and removing the equipment from operation until repaired or replaced.
  - Ensuring plant and equipment are fitted with approved exhaust systems (to maintain exhaust emissions within acceptable standards)
  - Ensuring only manufacturer approved reversing alarms and lights are used (to ensure onsite safety)
  - Operating equipment in a quiet and efficient manner e.g. reduce throttle setting and turn off/ shut down vehicles, plant and equipment when not in use
- Maximise the offset distance between noisy plant and adjacent receivers where feasible and only have necessary equipment on site and working. Where possible, avoid mobile plant and equipment clustering near residences and other sensitive land uses.
- To reduce operational noise onsite:
  - Avoid unnecessary dropping of materials from a height and metal-to-metal contact on equipment.
  - Avoid the use of equipment that generates impulsive, tonal or irregular noise. Where feasible and reasonable, adopt less-annoying alternatives to 'beeper' alarms, such as smart alarms that adjust their volume to the ambient level of noise and 'broadband' alarms.
  - Only use the necessary size and power equipment and identify and use equipment with the lowest noise emissions in its class to complete specific tasks e.g. prioritise the use of super-silenced compressors, silenced jackhammers and damped bits and select the most effective mufflers, enclosures and low-noise tool bits and blades. Always seek the manufacturer's advice before modifying plant, equipment or vehicles to reduce noise.
  - Use portable plant, machinery or equipment with the potential to create high levels of noise that incorporates effective noise control. Where possible locate the plant, machinery or equipment onsite to provide a natural ground barrier between the plant, machinery or equipment and any sensitive receiving environments.
  - Where feasible and reasonable, implement quiet work methods for diesel and petrol engines and pneumatic units (such as hydraulic or electric-controlled units) and where there is no electricity supply, consider an electrical generator away from residences or within an acoustic enclosure.
  - Avoid placing noise-producing equipment where surfaces will reflect noise or reduce the effectiveness of mitigation
- Reduce transport noise by:
  - Encouraging staff to ride-share to minimise traffic.
  - Providing parking and on-site truck waiting areas away from noise sensitive receivers where possible.
  - Optimising the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads.
- Use quieter and less vibration emitting work methods where feasible and reasonable.
- If damage occurs to vegetation, fauna or their habitat other than that indicated on the approved plans notify the site Team Leader. The Team Leader shall notify the Project Manager and contact Council's EMS Risk Officer or EMS Manager for advice. Any advice, corrective or preventative works must be implemented onsite in a timely and efficient manner.
- If pruning works are required for example for machinery access, undertake pruning works in accordance with AS4373 Pruning of amenity trees and where required the approved Arboricultural Assessment Report. Retain any limbs bearing hollows if pruning a hollow bearing tree.
- Ensure materials, plant and equipment are not be placed in a manner that could result in damage to surrounding vegetation and located outside any exclusion zones. Locate any vehicles, materials, plant and equipment outside of the drip line or tree protection fencing of any trees.
- Locate the site compound and anything within the compound outside of the drip line or tree protection fencing of any trees.
- If priority weeds not previously identified are observed, cease works in the vicinity and follow the Unexpected Finds Procedure.
- Minimise work during excessively wet or muddy conditions where possible.
- All machinery, plant, equipment, vehicles and boots should be clean prior to entry to the site.
- Ensure any fill, soil, mulch or plants bought onto site for landscaping purposes is free of priority weeds and/or weed seeds, cane toads, pathogens or any of the imported pest ant species.

Upon completion of construction

- Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.

5.4. Heritage

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
Indigenous heritage								
5.4.1	Activity will disturb the natural ground surface and extend into undisturbed or minimally disturbed ground and an AHIMS Basic/ Extensive Search was conducted within the last 12 months and there are no AHIMS sites or other associated landscape features or information within the locality of the activity.	☐ Yes ☒ No	Heritage Now Pty Ltd undertook an Aboriginal Due Diligence Assessment (ADDA) in January 2024 for the study area. The findings of the ADDA concluded that the study area is an area of Potential Archaeological Deposit (PAD) (Shoal Bay Carpark PAD-01). While there have been past disturbances in the study area due to the development of the car park, there remains potential for in-situ or redeposited archaeological deposits to be present beneath the current carpark surface. Biosis undertook a subsurface test excavation program within the study area. AHIMS Pending/Shoal Bay Car Park AS1 consists of a subsurface archaeological deposit of two small	Choose an item.	Choose an item.	Choose an item.		
5.4.2	The activity will disturb the natural ground surface and extend beyond areas already disturbed and an AHIMS Basic/ Extensive Search was conducted within the last 12 months and there are confirmed AHIMS	☒ Yes ☐ No		Medium scale	Long term/ permanent	Direct	High potential for Aboriginal heritage impacts. Impacts	High potential for Aboriginal heritage impacts. Impacts

	sites or other associated landscape features or information identified within the locality of the works. *Note: no landscape features means not within 200m of waters, not within a sand dune system, not located on a ridgetop, ridgeline or headland, not located within 200m above or below a cliff face and is not within 20m of, or within, a cave, rock shelter or cave mouth) identified within the locality of the activity.* *If yes, summarise impact assessment from Due Diligence Assessment/ACHR.*		tuff artefacts. One, a left longitudinal flake, was located at 750-800mm depth. A second tuff artefact was recovered at a depth between 650-700mm. The inherent level of disturbance and incidence of modern refuse at depth suggests it is likely that the artefacts are not in-situ. The Aboriginal community was consulted regarding the heritage management of the project throughout its lifespan. Consultation has been undertaken as per the process outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010. Additionally, the appropriate government bodies were notified, and advertisements placed in the Port Stephens Examiner (5 September 2024). Recommendations regarding the archaeological value of the site, and the subsequent management of Aboriginal cultural heritage include: • Application for an AHIP for AHIMS Pending/ Shoal Bay Carpark AS1 • Have a RAP on site during ground disturbance works, particularly those extending beneath 900-millimetres in depth • Should unanticipated relics be discovered during the project, work in the vicinity must cease and an archaeologist contacted to make a preliminary assessment of the find • If any suspected human remains are discovered during any activity, immediately cease all work at that location and notify the NSW Police and Heritage NSW Environmental Line • Continued consultation with the RAPs • Care of artefacts recovered during the archaeological testing.				likely. Permit required.	likely. Permit required.
5.4.3	Culturally modified trees are present within the construction footprint or within 20m of the site.	☐ Yes ☒ No	As the area appears to have been predominantly cleared, modified trees are unlikely to remain (Heritage Now, 2024)	*Choose an item.*	*Choose an item.*	*Choose an item.*	*Choose an item.*	*Choose an item.*
5.4.4	Activity affects wild resources or access to these resources, which are used or valued by the Aboriginal community. *Note: If activity affects wild resources or access to these resources, consultation with the local Aboriginal community should occur.*	☐ Yes ☒ No	The activity is occurring in a urbanised, cleared rural roadside environment and is therefore unlikely to affect access to wild resources or access to these resources, which are used or valued by the Aboriginal community	*Choose an item.*	*Choose an item.*	*Choose an item.*	*Choose an item.*	*Choose an item.*
5.4.5	Activity affects Aboriginal people's access to culturally important places. *Note: If activity affects wild resources or access to these resources, consultation with the local Aboriginal community should occur.*	☐ Yes ☒ No	From ACHA (Biosis, 2024): It is acknowledged that Aboriginal people are the primary determiners of the cultural significance of Aboriginal cultural heritage. It is generally considered that the Port Stephens area retains a high level of both cultural and archaeological significance. Information received from Bec Young of Mur-Roo-Ma identifies one of the large Eucalypts on the foreshore and on the opposite side of the road from the study area as a Burial Tree and the location of the burial of an infant (Mur-Roo Ma, pers.com.25/11/2025). This tree is outside the construction footprint and therefore unlikely to be impacted by the works. No comments were received from the RAPs during the program of test excavations. The activity is unlikely to affect Aboriginal people's access to a culturally important place.	*Medium scale*	*Long term/ permanent*	*Direct*	*Moderate: Activity may temporarily impact access to culturally important places with moderate impacts.*	*Minor: Activity may impact access to culturally important places, however, impact is temporary during construction and impacts can be effectively mitigated.*
5.4.6	Activity is occurring on Crown Lands and is subject to Native Title or Aboriginal Land Claim.	☒ Yes ☐ No	The site is located on Crown Land (Crown Reserve 77932) with Port Stephens Council is the appointed land manager. The Reserve is covered by the Shoal Bay Holiday Park Plan of Management 2023 which is used as public access car parking and is categorised as General Community Use. Checks of the Native Title Register and Aboriginal Land Claims Register were completed with no comments or submissions received from NTS Corp. See Attachment 15.	*Negligible/ small scale*	*Long term/ permanent*	*Direct and indirect*	*Minor: No significant impacts to heritage likely. Low potential for Aboriginal heritage.*	*Minor: No significant impacts to heritage likely. Low potential for Aboriginal heritage.*
Non-indigenous heritage								
5.4.6	Local or NSW State Heritage item onsite or within 200m of the activity. Activity may impact on places, buildings or landscapes of heritage significance or relics or moveable heritage items or an area with a high likelihood of containing relics. *Note: Where the activity will impact a Local or NSW State Heritage including views and vistas to and from the heritage item and/ or cultural landscape in which is it sited seek advice from Council's heritage officer and if required prepare a Statement of Heritage Impact in accordance with the Guidelines for the preparation of a Statement of Heritage Impact 2023.*	☐ Yes ☒ No		*Choose an item.*	*Choose an item.*	*Choose an item.*		
5.4.7	World Heritage Areas or National Heritage Sites within the Port Stephens LGA.	☐ Yes ☒ No	There are no World Heritage Areas or National Heritage Sites within the Port Stephens LGA.					
Level of confidence in predicting impacts *Select appropriate response*			Low adverse: High confidence/ knowledge and past experience.					
Level of reversibility of impacts *Select appropriate response*			Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.					

Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation Measures *Amend as appropriate*

See Section 5.1, additional mitigation measures include:

At all times

- Drive to conditions on unsealed roads and/or site.

Prior to construction

- Application for an Aboriginal Heritage Impact Permit (AHIP) covering the entirety of the development footprint be obtained. AHIPs should be prepared by a qualified archaeologist and lodged with Heritage NSW.
- Advise Worimi Local Aboriginal Land Council of the works and arrange supervision of the works as required.
- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasise the following:
  - Statutory obligations in relation to Aboriginal and non-Indigenous heritage.
  - Unexpected finds procedure.

During construction

- Continued consultation with the registered Aboriginal parties (RAPs). AHIMS Pending/Shoal Bay Carpark AS1 was found to contain low scientific significance and works may proceed in these areas following the approval of an AHIP for the proposed development, and subject to recommendations 3 to 5 below. It was suggested by Mur-Roo-ma that due to the archaeological testing not being able to reach below 900 millimetres in depth, PSC may be willing to have a RAP on site during the limited ground disturbance works that are to extend beneath the 900-millimetre depth and also the length of the electrical trench where it extends outside the area tested during the sub-surface testing program.
- All works must be in accordance with the Aboriginal Heritage Impact Permit granted for the works.
- Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, all works must immediately cease at that location and not further move or disturb the remains and implement QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
- Relics are historical archaeological resources of local or State significance and are protected in NSW under the Heritage Act 1977 (Heritage Act). Relics cannot be disturbed except with a permit or exception/exemption notification. Should unanticipated relics be discovered during the project, work in the vicinity must cease and QF-ENV-008 Unexpected Finds Procedure (CAP WKS) implemented.

5.5. Traffic

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.5.1	The activity is occurring within or adjacent to a road or will increase traffic volumes as a result of truck and vehicle movements.	☒ Yes ☐ No	Traffic access through the site will be restricted to facilitate the works. There will be increased movement of vehicles to and from the site during the activity for deliveries and removal of spoil, plant, vehicles, materials and other equipment and also commuting to and from the site. Works are expected to take 12-14 weeks to complete. Works will be completed prior to the higher summer traffic periods and consultation will occur to ensure any impacts can be appropriately considered by those affected.	Medium scale	Short term	Direct and indirect	Minor: Activity occurring adjacent to a road but not a main road. Will contribute to a minor increase in traffic volumes.	Negligible: Activity occurring adjacent to a road but not a main road. Traffic impacts effectively managed through standard procedures.
5.5.2	The activity is occurring on a bus route, school bus route or heavy haulage route.	☒ Yes ☐ No	There will be increased movement of vehicles to and from the site during the activity for deliveries and removal of spoil, plant, vehicles, materials and other equipment and also commuting to and from the site. The site is adjacent a school and bus route and therefore has the potential to impact on bus timetables and cause delays. Works are expected to take 12-14 weeks to complete. Works will be completed outside the higher summer traffic periods and consultation will occur to ensure any impacts can be appropriately considered by those affected.	Medium scale	Short term	Direct and indirect	Negligible: Activity is not located within the roadway, however, will result in a negligible impacts on bus/ heavy haulage route and likely to cause minor delays.	Negligible: Activity is not located within the roadway, however, will result in a negligible impacts on bus/ heavy haulage route and likely to cause minor delays.
5.5.3	The activity is occurring on a road utilised by services such as utilities, waste services and emergency services	☐ Yes ☒ No	There will be increased movement of vehicles to and from the site during the activity for deliveries and removal of spoil, plant, vehicles, materials and other equipment and also commuting to and from the site. The site is a road utilised by and therefore has the potential to impact on service delivery and cause delays. Works are expected to take 12-14 weeks to complete. Works will be completed outside the higher summer traffic periods and consultation will occur to ensure any impacts can be appropriately considered by those affected.	Medium scale	Short term	Direct and indirect	Negligible: Activity is not located within the roadway, however, will result in a negligible impacts on services routes and likely to cause minor delays.	Negligible: Activity is not located within the roadway, however, will result in a negligible impacts on services.
5.5.4	The activity may restrict access to residences and/ or businesses	☒ Yes ☐ No	For the duration of the project, access to parking for surrounding businesses will be restricted. Works will be completed outside the higher summer traffic periods and consultation will occur to ensure any impacts can be appropriately considered by those affected.	Medium scale	Short term	Direct and indirect	Minor: Activity is located adjacent a roadway and will result in short term temporary impacts on access to packing.	Minor: Activity is located adjacent a roadway and will result in short term temporary impacts on access to packing.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.
Mitigation Measures *Amend as appropriate*	
At all times	

- Drive to conditions on unsealed roads and/ or onsite.
- Handle enquiries and complaints in accordance with Council's complaints handling procedures and eliminate or reduce the source where practical.

Prior to construction

- Prepare a CEMP that includes all the environmental mitigation measures identified in the Environmental Assessment including any licencing requirements and permit conditions/approval.
- Prepare a traffic guidance scheme and implement traffic controls as appropriate. Traffic controls, if using barrier devices such as concrete jersey kerbs or water filled barriers, must have provision for fauna escape with a 2-300mm gap for every 2 barriers or climbable fauna structures secured to the barrier devices.
- Include appropriate clauses and conditions within tenders, employment contracts, subcontractor agreements and work method statements that require all workers and contractors to observe the mitigation measures and directions from the site manager.
- Notification of works should occur to provide advance warning of the works and potential disruptions for all sensitive land uses. Notification may consist of or use variable message signage, letterbox drop (or equivalent), website/ social media or a combination to distribute information detailing the work activities, dates and hours, impacts and mitigation measures and complaints handling contact. Notification should include the likely noise impact of the work without understating its effect and any work activities or equipment that will be particularly noisy or noticeable. Notification should be provided a minimum of 10 working days prior to the start of works. Where works are likely to affect businesses or driveway entrances or night works are proposed specific notification letterbox dropped (or equivalent) shall be provided no later than 5 working days ahead of construction activities. The specific notification must provide additional information specific to the period driveway or business access may be restricted and out of standard hours works being completed. Notification must be provided to residences, commercial businesses, educational institutions, medical facilities, places of worship, active and passive recreational areas, industrial premises and offices that are operational or likely have persons present at the time works are occurring. For larger projects or projects that have a potential impact on health and safety of individuals or may be of particular interest to the community should include the use of social media and/or provision of a regular newsletter and/or community liaison officer and/or community liaison group should be considered. Development of a project specific engagement plan should be considered.
- Notify emergency and waste services, utilities, local bus companies and/ or haulage companies via letter or phone call or as appropriate of the intention to carry out works. Notification should detail the work activities, dates and hours, impacts and mitigation measures and complaints handling contact. Notification should include the likely noise impact of the work without understating its effect and any work activities or equipment that will be particularly noisy or noticeable. Notification should be provided a minimum of 10 working days prior to the start of works.
- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasize the following:
    - Permissible hours of work (including for deliveries).
    - Site sensitivities and their relevance to the proposal including
    - Surrounding residences, commercial or industrial or any other sensitive land uses e.g. hospitals, retirement homes, schools etc.
    - High public use areas.
    - Community access and interest.
    - Noise and vibration management requirements including any site specific and relevant mitigation measures, any limitations on high noise generation activities, the location of the nearest sensitive receivers.
    - Traffic management and onsite plant, vehicle and equipment management requirements in accordance with the Traffic Guidance Scheme prepared for the works and identifying parking areas and designated load/ unload areas and procedures.
    - Public access and safety requirements.
    - Emergency response procedures.
    - Site compound areas and construction employee parking areas and designated loading/ unloading areas and procedures.
- Plan and stage works and design the site where feasible and reasonable to:
    - Balance the inconvenience to road users.
    - Minimise disruption to traffic especially at peak times, nights, weekends, holiday periods or special events.
    - Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity.

During construction

- Complete all works in accordance with the approved plans, Construction Environmental Management Plan and relevant Safe Work Method Statement(s).
- Conduct all works between the daylight hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. No work on Sundays, public holidays or night works are permitted.
- Plan and stage works and design the site where feasible and reasonable to:
    - Balance the inconvenience to road users.
    - Minimise disruption to traffic especially at peak times, nights, weekends, holiday periods or special events.
    - Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity.
    - Restrict and schedule deliveries to standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. Where deliveries must be made during the evening or night-time (or on weekends or public holidays), schedule vehicle movements to avoid residential streets where possible and ensure requirements are clearly communicated. Identify a parking area away from noise sensitive receivers for deliveries that arrive prior to the site being open.
    - Ensure the loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers and where possible shielded is close to sensitive receivers if possible.
- Leave all physical mitigation measures in place during activities, undertake daily and weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant mitigation measures including traffic controls.
- Schedule deliveries to defined hours and ensure these requirements are clearly communicated. Where deliveries arrive before the site is open, identify a parking area.
- Reasonable efforts must be made to maintain vehicle access for residents/ businesses to their properties at the end of each work day. The exception to this will be for unavoidable reasons such as concrete pours. The contractor shall notify Port Stephens Council and affected residents provided a minimum of 2 workings days' notice in advance of preventing vehicle access at any time.
- Minimise the number of vehicular and/or truck movements to and from the site through amalgamation of loads and schedule arrivals and departures to minimise the number arriving at any one time.
- Leave all controls in place during works, undertake weekly checks and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls including traffic controls.
- Keep a record of the traffic guidance scheme onsite at all times. Keep a record of any inspections and/or any corrective actions.
- If a serious incident occurs, cease works in the vicinity and immediately notify the Team Leader follow the requirements of the relevant Safe Work Method Statement.
- Drivers of vehicles, plant and equipment shall comply with NSW Road Rules and the TMP and take care when entering and exiting the site to avoid incidents.
- Signpost designated access points, routes, vehicle manoeuvring areas parking areas and ensure site personnel, contractors and delivery trucks are aware of the requirements to help reduce site disturbance.
- Personnel on site where possible shall not be within 3m of moving vehicles, plant or equipment.
- Check traffic management signs and devices regularly to ensure they are:
    - Still relevant, in good mechanical condition, clean, not faded and if necessary have good night-time visibility.
    - Clearly visible to road users and are not obscured by vegetation, vehicles, plant, equipment or other signs and devices.
    - Displayed in the correct sequence.
- Ensure traffic control is conducted by traffic controllers with a traffic controller qualification.
- Provide temporary trafficable access to the holiday park for the duration of the works. Ensure reasonable efforts are made to maintain vehicle access for residents/ businesses to their properties at the end of each work day. Visually monitor traffic within the holiday park to ensure appropriate provisions for access and safety have been provided for. Notify the Team Leader and appropriate Manager (if required) and amend the controls (if required).

Upon completion of construction

- Remove all physical construction elements from the site included vehicles, plant and equipment and traffic controls.

5.6. Waste

Consideration	App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM

5.6.1	The site has a building or other structure on site that was built prior to 1990 and/ or Asbestos Register Record onsite, summarise details from Asbestos Record.	☐ Yes ☒ No	Asbestos register checked 13.12.2024.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.6.2	Generation of waste.	☒ Yes ☐ No	Waste generated onsite will include recyclables and litter. Waste has the potential to cause: • Odour emissions from waste generated and/ or stored on site with the potential to create unsightly odours, a health hazard or environmental harm. • Visual impacts of waste onsite. • Visual and health impacts of dust emissions. Waste generated onsite, excluding spoil is likely to be restricted to personal waste from the activities, only small amounts of recyclables and litter will be produced. The litter is unlikely to be of a volume where odour or visual amenity are a matter of concern. Approximately 3,000t of spoil will be removed from the site and transferred to Newcastle Airport. Existing amenities will be used onsite.	Medium scale	Short term	Direct, indirect and cumulative	Moderate: Moderate amounts of waste produced and moderate opportunity for waste to cause environmental harm.	Minor: Minor amounts of waste produced and limited opportunity for waste to cause environmental harm OR moderate amounts of waste produced but waste managed in accordance with standard procedures.
5.6.3	Activity will involve generating, handling, storing, transporting or disposing of special (e.g. asbestos, clinical, tyres), liquid, hazardous (batteries, coal tar, lead paint waste etc.), or restricted solid waste (e.g. contaminated soil etc.), dangerous goods, or controlled chemicals.	☒ Yes ☐ No	Dangerous goods maybe transported to the site, used on site and disposed of offsite as required. Dangerous good used onsite are likely to be minimal. No storage of dangerous good will occur onsite. The volumes are is unlikely to be of a small magnitude, however, still have the potential to cause environmental harm. Poor storage, use and management of hazardous materials may also lead to leakages of substances causing soil contamination, groundwater contamination and contamination of stormwater and waterbodies.	Negligible / small scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Activity involves use or storage or handling of dangerous goods with a moderate likelihood of environmental harm.	Minor: Activity involves negligible use or storage or handling of dangerous goods with a low likelihood of environmental harm OR use or storage or hadling of dangerous goods that can be managed in accorandance with standard procedures.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation Measures *Amend as appropriate*

At all times

- Maintain a clean site that is free of litter and unnecessary debris with all wastes stored securely to avoid/ minimise the risk of pollutants escaping.

Prior to construction

- Prepare a CEMP that includes all the environmental mitigation measures identified in the Environmental Assessment including any licencing requirements and permit conditions/ approval.
- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasize the following:
  - Site sensitivities and their relevance to the proposal including
    - Any significant waterways.
    - Key fish habitat.
    - Surrounding residences, commercial or industrial or any other sensitive land uses e.g. hospitals, retirement homes, schools etc.
    - High public use areas.
    - Community access and interest.
  - Waste management requirements.
- Site compound areas and construction employee parking areas and designated loading/ unloading areas and procedures.
- Include appropriate clauses and conditions within tenders, employment contracts, subcontractor agreements and work method statements that require all workers and contractors to observe the mitigation measures.

During construction

- Complete all works in accordance with the approved plans, Construction Environmental Management Plan and relevant Safe Work Method Statement(s). The CEMP must include a detailed work methodology for each stage of works with hold points identified and the mitigation measures to be implemented prior to and during and post completion of each stage of the activity.
- Ensure truck drivers are undertaking material tracking recording the source location, destination and volumes and ensure that for any material bought onto site this information is provided to the Team Leader.
- Remove, transport and dispose of hazardous and dangerous goods in accordance with the NSW Waste Classification Guidelines and dispose of at a waste facility licenced to accept such waste. Any transport of dangerous goods must occur with a driver possessing a dangerous goods drivers licence and dangerous good vehicle licence. All dangerous goods transport shall be in accordance with *NSW Dangerous Goods (Roads and Rail Transport Act 2008)* and *NSW Dangerous Goods (Road and Rail) Transport Regulation 2014*.
- Where possible avoid, reuse and recycle spoil and waste generated. Manage waste that cannot be avoided, reused or recycled in accordance with the *NSW Waste Avoidance and Recovery Act 2011*, and classify the waste in accordance with the NSW Waste Classification Guidelines. If being removed offsite classify waste in accordance with the NSW Waste Classification Guidelines and dispose of at a facility appropriately licenced to accept such waste.
- The management of concrete washout much be in accordance with the Transport for NSW Concrete washout guideline dated June, 2023.
- Ensure the provision and regular service of portable self-contained toilets by contractors.
- Provide a sufficient number of suitable and labelled receptacles for generated waste and recyclable materials and clean receptacle as required to avoid overflows.
- Visually monitor for any of the signs of acid sulfate soils. If suspected, intercepted, identified or located, stop work, cordon off the areas and follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).

Upon completion of construction

- Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.

- Leave the site clean and free of debris.
- Wherever possible any remaining waste will be reused or recycled where possible, be managed in accordance with the principles of the NSW Waste Avoidance and Recovery Act 2011, be classified in accordance with the NSW Waste Classification Guidelines and only disposed of at a facility licenced to accept such waste(s) with supporting documentation.

5.7. Air quality & odour, noise, vibration & light

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.7.1	Sensitive receivers close to the site.	☒ Yes ☐ No	The activity may produce the following impacts onsite and offsite that have the potential to create a visual nuisance, local decline in air quality, health hazard and/or environmental harm from: • Dust emissions from soil exposure and disturbance, the operation of plan and equipment, unnecessary vehicle, plant and equipment movements, vehicles transporting materials to and from the site and handling of stockpiled materials onsite. • Emissions from vehicle, plant and equipment releasing emissions (gases, liquid droplets or solid particles), chemical usage, wind borne rubbish, generation of carbon dioxide from vehicle emissions associated with driving to and from the site and operation of plant and machinery onsite. • Unsightly odours from vehicle, plant and equipment releasing emissions (gases, liquid droplets or solid particles), chemical usage, wind borne rubbish, generation of carbon dioxide from vehicle emissions associated with driving to and from the site and operation of plant and machinery on the site and waste generated and/ or stored on site. • Light disturbance from installation of permanent lighting which also has additional impacts of potential interruption of the natural patterns of wildlife, minor increase in carbon dioxide production through increased electricity consumption and obscuring of sky views. Lighting is already installed onsite and the site would be subject to light spill from the adjoining caravan park and commercial areas. • Noise disturbance from use and operation of plant, machinery and equipment, and general noise such as yelling, shouting, radios and truck reversing alarms which also has additional impacts of disturbances to fauna, roosting and use of the site and disturbance of daily activities. Noise disturbance will be influenced by: ○ Time of construction: ▪ Works to occur during standard operating hours only. ○ Duration of works: ○ Noise-making equipment and processes such as: ▪ Use of light equipment (e.g. hand-held tools), infrequent use of hand saws or drills. Light vehicles on the worksite and infrequent deliveries and removals. ▪ Use of medium-sized equipment (e.g. light to medium excavators, graders and loaders). Use of hand-held jackhammers and small rock breakers and medium sized drills and cutting machines. Light and medium-sized vehicles on the worksite. Occasional deliveries and removals by large vehicles. ○ Proximity to sensitive receivers: ▪ Minimal distances between the worksite and noise sensitive receivers (e.g. tens of metres). ○ Ability to contain noise: ▪ Works include outdoor activities with minimal isolation or containments from sensitive receivers and limited opportunities available to control noise at the source and in the path. ○ Number of people/businesses affected: ▪ Large numbers of sensitive receivers. ▪ Commercial businesses likely to be impacted.	Medium scale	Short term	Direct, indirect and cumulative	Moderate: Activity is likely to cause moderate impacts to sensitive receivers.	Minor: Activity is likely to cause minor impacts to sensitive receivers or has the potential for moderate to major impacts but impacts can be effectively mitigated.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation Measures *Amend as appropriate*

At all times

- Drive to conditions on unsealed roads and/or onsite.
- Handle enquiries and complaints in accordance with Council's complaints handling procedures and eliminate or reduce the source where practical.
- Monitor weather conditions for adverse weather that may increase impacts such as dust, noise, vibration, emissions, odour and where possible schedule works to avoid these periods. Do not undertake works during inclement weather to minimise the risk of damage to assets and ensure there is no compromise of site safety. Where severe weather is forecast, undertake all reasonable precautions to prepare and secure the site for a storm event and help minimise the potential for damage. If heavy rain is forecasted in the next 24 hours delay commencement or cease works until such time a suitable dry period of weather is forecasted.
- Maintain a clean site that is free of litter and unnecessary debris with all wastes stored securely to avoid/ minimise the risk of pollutants escaping.
- Avoid the use of radios, stereos, open two-way radios and public address systems outdoors where they are likely to be audible at sensitive receivers beyond the site boundary and no swearing or unnecessary shouting, loud talking, dropping materials from height, slamming of doors or making any other unnecessary noise.

Prior to construction

- Prepare a CEMP that includes all the environmental mitigation measures identified in the Environmental Assessment including any licencing requirements and permit conditions/ approval.
- Prepare an erosion and sediment control plan in accordance with Managing Urban Stormwater: Soils and Construction (Landcom Vol 1 and 2, 4th Ed, 2004).
- Include appropriate clauses and conditions within tenders, employment contracts, subcontractor agreements and work method statements that require all workers and contractors to observe the mitigation measures.
- Notification of works should occur to provide advance warning of the works and potential disruptions for all sensitive land uses. Notification may consist of or use variable message signage, letterbox drop (or equivalent), website/ social media or a combination to distribute information detailing the work activities, dates and hours, impacts and mitigation measures and complaints handling contact. Notification should include the likely noise impact of the work without understating its effect and any work activities or equipment that will be particularly noisy or noticeable. Notification should be provided a minimum of 10 working days prior to the start of works. Where works are likely to affect businesses or driveway entrances or night works are proposed specific notification letterbox dropped (or equivalent) shall be provided no later than 5 working days ahead of construction activities. The specific notification must provide additional information specific to the period driveway or business access may be restricted and out of standard hours works being completed. Notification must be provided to residences, commercial businesses, educational institutions, medical facilities, places of worship, active and passive recreational areas, industrial premises and offices that are operational or likely have persons present at the time works are occurring. For larger projects or projects that have a potential

impact on health and safety of individuals or may be of particular interest to the community should include the use of social media and/or provision of a regular newsletter and/or community liaison officer and/or community liaison group should be considered. Development of a project specific engagement plan should be considered.

- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasise the following:
  - Permissible hours of work (including for deliveries).
  - Site sensitivities and their relevance to the proposal including:
    - Surrounding residences, commercial or industrial or any other sensitive land uses e.g. hospitals, retirement homes, schools etc
    - High public use areas
    - Community access and interest.
  - Erosion and sediment control requirements.
  - Noise and vibration management requirements including any site specific and relevant mitigation measures, any limitations on high noise generation activities, the location of the nearest sensitive receivers.
  - Waste management requirements.
  - Site compound areas and construction employee parking areas and designated loading/ unloading areas and procedures.
- Personnel onsite are to be trained and proficient in the operation of plant, equipment and vehicular procedures for the required tasks and ways to reduce impacts such as odours, noise, dust and emissions.
- Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site for any out of hours work. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.
- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Equipment due to inappropriate use, or due to faults or poor maintenance should not be operated until repaired or replaced.
- Plan and stage works and design the site where feasible and reasonable to:
  - Reduce open excavations.
  - Reduce the need for reversing or movement alarms by managing access and movement around the site e.g. by planning traffic flow, parking and loading/ unloading areas.
  - Prioritise work during the least sensitive time period and where possible and schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active).
  - Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity.
  - Plan to optimise the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads.
  - Locate compounds away from sensitive receivers.
  - Where possible, use natural barriers, such as landforms or existing non-sensitive infrastructure, and design the site so that site offices, storage containers etc. are situated between noise sources and noise sensitive receivers.
- Install erosion and sediment controls in accordance with Managing Urban Stormwater: Soils and Construction (Landcom Vol 1, 4th Ed, 2004) and the approved plans.

During construction

- Complete all works in accordance with the approved plans, Construction Environmental Management Plan and relevant Safe Work Method Statement(s).
- Conduct all activities between the daylight hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. No work on Sundays, public holidays or night works are permitted.
- Plan and stage works and design the site where feasible and reasonable to:
  - Reduce open excavations.
  - Reduce the need for reversing or movement alarms and manage access and movement around the site to reduce disturbance.
  - Reduce noise as much as practically possible by prioritising work during the least sensitive time period and where possible, schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) and sequencing vibration generating activities to be isolated from other vibration generating activities and use alternative, lower impact plant and equipment or methods to minimise disturbance where required.
  - Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity.
  - Restrict and schedule deliveries to standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. Where deliveries must be made during the evening or night-time (or on weekends or public holidays), schedule vehicle movements to avoid residential streets where possible and ensure requirements are clearly communicated. Identify a parking area away from noise sensitive receivers for deliveries that arrive prior to the site being open.
  - Minimize the number of vehicular and/ or truck movements to and from the site through amalgamation of loads and schedule arrivals and departures to minimize the number arriving at any one time.
  - Ensure the loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers and where possible shielded is close to sensitive receivers if possible.
- Leave all controls in place during works, undertake weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls include:
  - Erosion and sediment controls.
- Signpost designated access points, routes, vehicle manoeuvring areas parking areas and ensure site personnel, contractors and delivery trucks are aware of the requirements to help reduce site disturbance.
- Do not alter designated access and egress. Inform truck drivers of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices, such as minimising use of engine brakes and avoiding engine idling.
- Cover all loads of material, soil, fill or other erodible matter transported being transported to or from the work site at all times. Coverage must be maintained for the duration of transportation and until unloaded.
- Restrict vehicles and personnel to designated tracks, trails and parking areas. Where possible park and turn-around on hard, well drained surfaces.
- Visually monitor work sites, general work areas and stockpiles for dust generation and water down with clean water or cover with tarpaulins in the event of dry and/ or windy conditions.
- Periodically check the site, nearby residences and other sensitive land uses to proactively identify noise issues and feasible and reasonable mitigation.
- Do not carry out works such as bitumen spraying, the spraying of paint or other materials during strong winds or adverse weather conditions.
- Minimise the generation of dust as required through use of a water cart.
- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions.
- Operate, inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Requirements include:
  - Checking equipment fitted with enclosures to ensure acoustic doors and seals are in good working order and that doors close properly against the seals.
  - Ensuring air lines on pneumatic equipment do not leak and plant silencers are well maintained.
  - Monitoring for atypically high noise levels and/or annoying characteristics and removing the equipment from operation until repaired or replaced.
  - Ensuring plant and equipment are fitted with approved exhaust systems (to maintain exhaust emissions within acceptable standards).
  - Ensuring only manufacturer approved reversing alarms and lights are used (to ensure onsite safety).
  - Operating equipment in a quiet and efficient manner e.g. reduce throttle setting and turn off/ shut down vehicles, plant and equipment when not in use.
- Maximise the offset distance between noisy plant and adjacent receivers where feasible and only have necessary equipment on site and working. Where possible, avoid mobile plant and equipment clustering near residences and other sensitive land uses.
- To reduce operational noise onsite:
  - Avoid unnecessary dropping of materials from a height and metal-to-metal contact on equipment.
  - Avoid the use of equipment that generates impulsive, tonal or irregular noise. Where feasible and reasonable, adopt less-annoying alternatives to 'beeper' alarms, such as smart alarms that adjust their volume to the ambient level of noise and 'broadband' alarms.
  - Only use the necessary size and power equipment and identify and use equipment with the lowest noise emissions in its class to complete specific tasks e.g. prioritise the use of super-silenced compressors, silenced jackhammers and damped bits and select the most effective mufflers, enclosures and low-noise tool bits and blades. Always seek the manufacturer's advice before modifying plant, equipment or vehicles to reduce noise.
  - Use portable plant, machinery or equipment with the potential to create high levels of noise that incorporates effective noise control. Where possible locate the plant, machinery or equipment onsite to provide a natural ground barrier between the plant, machinery or equipment and any sensitive receiving environments.
  - Where feasible and reasonable, implement quiet work methods for diesel and petrol engines and pneumatic units (such as hydraulic or electric-controlled units) and where there is no electricity supply, consider an electrical generator away from residences or within an acoustic enclosure.
  - Avoid placing noise-producing equipment where surfaces will reflect noise or reduce the effectiveness of mitigation.
- Reduce transport noise by:
  - Encouraging staff to ride-share to minimise traffic
  - Providing parking and on-site truck waiting areas away from noise sensitive receivers where possible.

- Optimising the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads.
- Use quieter and less vibration emitting work methods where feasible and reasonable.

- Manage all stockpiles on site in accordance with the NSW Managing Urban Stormwater: Soils and construction – Volume 1 4th edition and if applicable the approved stockpile management plan prepared for the site.
- Place stockpiles at strategic locations to mitigate environmental impacts whilst facilitating material handling requirements. Establish access routes around material stockpiles that enable access from adjoining haulage routes.
- Where possible avoid, reuse and recycle spoil and waste generated. Manage waste that cannot be avoided, reused or recycled in accordance with the NSW Waste Avoidance and Recovery Act 2011, and classify the waste in accordance with the NSW Waste Classification Guidelines. If being removed offsite classify waste in accordance with the NSW Waste Classification Guidelines and dispose of at a facility appropriately licenced to accept such waste.
- Ensure the provision and regular service of portable self-contained toilets by contractors.
- Provide a sufficient number of suitable and labelled receptacles for generated waste and recyclable materials and clean receptacle as required to avoid overflows.

Upon completion of construction

- Leave erosion and sediment controls in place until the site is fully stabilized. Undertake weekly checks and conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are available on request.
- Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.
- Leave the site clean and free of debris.
- Wherever possible any remaining waste will be reused or recycled where possible, be managed in accordance with the principles of the NSW Waste Avoidance and Recovery Act 2011, be classified in accordance with the NSW Waste Classification Guidelines and only disposed of at a facility licenced to accept such waste(s) with supporting documentation.

5.8. Visual amenity and social considerations

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.8.1	Site is located within an area of high scenic and/ or landscape value and/or site is located in an area where views/vistas are likely to be impacted by the activity e.g. water views, ridges and hillsides, hinterland, wetlands, conservation areas.	☒ Yes ☐ No	The activity will temporarily restrict access to the site, reducing access to car parking facilities and therefore access to the surrounding areas of high scenic value. Works are expected to take 12-14 weeks to complete. To minimise impacts, the activity is being conducted outside of peak holiday and visitation times i.e. summer period. Once the activity is complete, the aesthetics would be similar to that which currently exist. The activity is not of a scale where the bulk, scale and size of the proposed development would affect the high scenic and/or landscape values and views/vistas are unlikely to be impacted once the activity is complete. There is a risk of community complaints during the construction period due to the loss of views and scenic and landscape values.	Medium scale	Short term	Direct and indirect	Moderate: Activity will have temporary moderate impacts on views and amenity with complaints likely.	Minor: Activity will have temporary or permanent minor impacts on views and amenity that can be effectively mitigate. Complaints unlikely.
5.8.2	Site is located within or adjacent to an active or passive recreation area and activity may affect a site(s) that is important to the local or broader community for their recreational values.	☒ Yes ☐ No	The site is located adjacent to the passive recreation area of Shoal Bay Beach. The activity will temporarily restrict access to the site, reducing access to car parking facilities and therefore access to the surrounding recreation areas. Works are expected to take 12-14 weeks to complete. To minimise any impacts of the reduced parking available, the activity is being conducted outside of peak holiday and visitation times i.e. summer period. Once the activity is complete, the aesthetics would be similar to that which currently exist. The activity is not of a scale where the bulk, scale and size of the proposed development would affect the high scenic and/or landscape values and views/vistas are unlikely to be impacted once the activity is complete. There is a risk of community complaints during the construction period due to the loss of views and scenic and landscape values.	Medium scale	Short term	Direct and indirect	Moderate: Activity will have temporary moderate impacts on a passive or active recreation area with temporary displacement of activities and complaints likely.	Minor: Activity will have minor impacts on a passive or active recreation area with no displacement of activities or displacement impacts that can be effectively mitigated.
5.8.3	Activity is located within a high tourist activity area and/or on a tourist route.	☒ Yes ☐ No	The activity is occurring within a heavily utilised locality. The activity has the potential to cause harm due to increased vehicular movements, operation of plant, equipment and machinery onsite, open excavations and a reduction in car parking facilities available for visitors to the area. Works are expected to take 12-14 weeks to complete. To minimise impacts, the activity is being conducted outside of peak holiday and visitation times i.e. summer period and notification of works will be provided to surrounding receivers potentially impacted by the activity, the activity notification will be included on Council's website and socials and site signage altering of the upcoming activity. Standard procedures such as exclusion fencing and signage will also be implemented during construction to alert visitors of the dangers and exclude access.	Medium scale	Short term	Direct, indirect and cumulative	Moderate: Activity will have temporary moderate impacts on a high tourist activity area and/ or tourist route with temporary displacement or restriction of activities with complaints likely.	Moderate: Activity will have moderate temporary impacts on a high tourist acivity area and/ or tourist route with displacement of activities and little opportunity to effectively mitigate impacts.
5.8.4	Activity is located along a major pedestrian route (e.g. shopping centre, foreshore, sporting venue etc.).	☒ Yes ☐ No	The activity is occurring adjacent to a pedestrian route. These pedestrian and shared paths will remain accessible to the public for the duration of the works. The activity has the potential to cause harm due to increased vehicular movements, operation of plant, equipment and machinery onsite and open excavations. A Traffic and Pedestrian Management Plan will be provided and managed by the construction contractor. Works are expected to take 12-14 weeks to complete. To minimise impacts, the activity is being conducted outside of peak holiday and visitation times i.e. summer period and notification of works will be provided to surrounding receivers potentially impacted by the activity, the activity notification will be included on Council's website and socials and site signage altering of the upcoming activity. Standard procedures such as exclusion fencing and signage will also be implemented during construction to alert visitors of the dangers and exclude access.	Medium scale	Short term	Direct, indirect and cumulative	Minor: Activity will have minor impacts on a major pedestrian route with minimal or partial restriction of access or complaints possible but unlikely.	Minor: Activity will have minor impacts on a major pedestrian route with minimal or only partial restriction of access which is effectivly mitigated or moderate impacts that can be effectively mitigated. Complaints unlikely.
5.8.5	Activity is likely to affect existing community infrastructure such as roads, power, water, drainage, waste management, educational, medical or social services.	☒ Yes ☐ No	The activity may affect roads due to increased vehicular movements to and from site, as well as workers parking vehicles. Whilst the works involve drainage, the drainage infrastructure will be kept offline until completed, and current drainage conditions would persist for the construction period. The activity will also temporarily restrict access to the site, reducing access to car parking facilities for surrounding social services and medical facilities.	Negligible / small scale	Short term	Direct and indirect	Moderate: Activity will have temporary moderate impacts on community infrastructure with with complaints likely.	Minor: Activity will have temporary moderate impacts on community infrastructure with complaints unlikely.

			Once complete, an improvement in drainage would result due to the upgrade in drainage infrastructure.					
5.8.6	Activity likely to affect economic factors such as decrease or increase in employment, industry and property values, whether there will be short term or long term costs to the community or individuals or if there may be impacts on the community's economic stability.	☒ Yes ☐ No	The activity will temporarily limit access to the use of the site, reducing the number of carpark spaces available in the local area. This may result in a lack of opportunity causing an economic impact on surrounding businesses. Businesses were consulted during the development and implementation of the Shoal Bay Place Plan. Additionally, businesses will be consulted with prior to commencement of activities on site. Conversely, the activity will increase local employment within the locality for the duration of the activity. Once complete, there will be a greater number of spaces available, including disabled parking, creating a greater opportunity that which currently exists for visitors to visit impacted businesses. The activity in the longer term due to the small scope, short duration and limited extent is unlikely to decrease or increase in employment, industry or property values and there is unlikely to be any long term costs to the community or individuals or the community's economic stability.	Medium scale	Short term	Direct and indirect	Minor: Activity will have minor impacts on economic factors.	Minor: Activity will have minor impacts on economic factors or moderate impacts that can be effectivly mitigated or managed.
5.8.7	Activity is likely to have an impact on the safety of the community.	☒ Yes ☐ No	The activity is occurring within the road environment with a high pedestrian presence. The activity has the potential to cause harm due to increased vehicular movements, operation of plant, equipment and machinery onsite and open excavations. Temporary pedestrian diversions will be implemented for the duration of the works. Once completed access will be restored. Standard procedures such as exclusion fencing and signage will be implemented during construction to alert visitors of the dangers and exclude access. The site is a low pedestrian activity area and traffic control will help reduce the safety risks to other vehicles traversing the site.	Medium scale	Long term/ permanent	Direct	Moderate: Activity will have moderate impacts on community safety.	Minor: Activity will have minor impacts on community safety or moderate impacts that can be effectively mitigated.
Level of confidence in predicting impacts *Select appropriate response*			Low adverse: High confidence/ knowledge and past experience.					
Level of reversibility of impacts *Select appropriate response*			Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.					
Ability to manage or mitigate the impacts *Select appropriate response*			Low adverse: Effective mitigation measures available.					
Requirement for further information *Select appropriate response*			Low adverse: High level of understanding and information on the impacts.					

Mitigation Measures *Amend as appropriate*

See Section 5.5, 5.6 and 5.7. Additional mitigation measures include:

Prior to construction

- Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and 'toolbox talks' and by providing a summary of relevant project requirements for quick reference (such as noticeboard). Emphasise the following:
  - Exclusion fencing requirements
  - Public access and safety requirements.
  - Emergency response procedures.
- Install exclusion fencing that includes to temporary fencing, bunting tape, stake rope and fluro tags or similar and signage that is clearly visible from a distance of at least 20m that is general in nature e.g. 'Exclusion Zone' to delineate the construction footprint to protect public safety. If exclusion fencing that may impede fauna access is used, mesh wire fencing or other climbable fencing must be used and a 300mm gap provided at the base of the fencing to allow fauna to escape.

During construction

- Leave all controls in place during works, undertake daily and weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls include exclusion fencing.

Upon completion of construction

- Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.

5.9. Hazards & coastal matters

Consideration		App.	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.9.1	Site or entrance and exit roads to the site are mapped as bushfire prone.	☒ Yes ☐ No	The southern boundary of the site and site access is mapped as bushfire prone and bushfire has the potential to cause harm to human health and the environment.	Negligible/ small scale	Short term	Direct and indirect	Major: The site is bushfire prone and access to and from the site is bushfire prone with the potential to cause harm to humans and the environment.	Minor: The site or site access is bushfire prone and has the potential to cause harm to humans and the environment but the impacts can be effectively mitigated.
5.9.2	Site or entrance and exit roads to the site are mapped as flood prone.	☒ Yes ☐ No	The site and site access is mapped as flood prone. There is a risk of isolation during flooding and safety risk of personnel operating onsite that flooding may cause personal harm.	Negligible/ small scale	Short term	Direct and indirect	Major: The site is flood prone and access to and from the site is flood prone with the potential to cause harm to humans and the environment.	Minor: The site or site access is flood prone and has the potential to cause harm to humans and the environment but the impacts can be effectively mitigated.

5.9.3	Site is subject to severe weather events.	☒ Yes ☐ No	There is a risk of a severe weather event occurring during the activity period. During a severe weather event, there is a safety risk to personnel operating onsite that weather may cause personal harm. Severe weather may also cause damage to plant, vehicles and equipment onsite. Severe weather also has the potential to cause environmental harm, particularly if the site not appropriately secured appropriately leading to erosion and sedimentation, leaching of fuels, oils and other harmful chemicals from plant, vehicles and equipment stored onsite that have the potential to cause water pollution and harm to the sensitive marine life in the adjacent waters. During a severe weather event, items left onsite also have the potential to cause damage to structures and the local environment due to impact.		Negligible/ small scale	Short term	Direct and indirect	Major: Site access is subject to severe weather events which has potential to cause harm to humans and the environment.	Minor: The site or site access is subject to severe weather events and the risks can be effectively managed in accordance with standard procedures.
5.9.4	Site is located within, within the proximity area or drains to a Coastal Wetland or Littoral Rainforest within 200m of the site.	☐ Yes ☒ No	Adverse impact on the biophysical, hydrological or ecological integrity of the coastal wetland or littoral rainforest. Quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest	No coastal wetland or littoral rainforest or proximity area onsite and site does not drain to a coastal wetland or littoral rainforest.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.9.5	Site is located within Coastal Environment Area. For adverse impact on the biophysical, hydrological and ecological environments see Sections 5.1, 5.2, 5.3, 5.6 and 5.7. For adverse impact on marine estate marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms and see Section 5.1, 5.2 and 5.3. For adverse impact on Aboriginal cultural heritage, practices and place SEE Section 5.4/	☒ Yes ☐ No	Adverse impact on coastal environmental values and natural coastal processes	See Sections 5.1, 5.2, 5.3, 5.6, 5.7, 5.10.2 and 5.11 for potential impacts on environmental values. See Section 5.9.7 for active coastal processes onsite.	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: The activity is ilkely to have temporary moderate impacts on the coastal environment area.	Minor: The activity is ilkely to have minor or temporary moderate impacts on the coastal environment area that can be effectively mitigated.
			Adverse impact on existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	See Section 5.8.3.					
			Adverse impact on the use of the surf zone	See Section 5.9.7.					
5.9.6	Site is located within Coastal Use Area. For adverse impact on Aboriginal cultural heritage, practices and places and/ or cultural and built environment heritage see Section 5.4.	☒ Yes ☐ No	Adverse impact on existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	See Section 5.8.3.	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: The activity is ilkely to have temporary moderate impacts on the coastal use area.	Minor: The activity is ilkely to have minor or temporary moderate impacts on the coastal use area that can be effectively mitigated.
			Adverse impact on overshadowing, wind funnelling and the loss of views from public places to foreshores	See Section 5.8.1 for potential impact on loss of views.					
			Adverse impact on the visual amenity and scenic qualities of the coast, including coastal headlands	See Section 5.8.1 for potential impact on loss of views.					
			The development is designed, sited and will be managed to avoid adverse impacts, or if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or if that impact cannot be minimised—the development will be managed to mitigate that impact	The impact will contribute to improved accessibility within the Shoal Bay locality, the footprint and construction impacts of the works cannot be fully avoided or minimised, however the works will be managed through the environmental controls to mitigate that impact.					
			The development takes into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development	The works once complete are of a similar scale and bulk to the existing carpark. The works will formalise the site improving the aesthetics and site functionality which will provide a better fit with the surrounding coastal and built environment.					
5.9.7	Site is located within an area that fulfils the definition of a Coastal Vulnerability Area and coastal processes are active onsite.	☒ Yes ☐ No	Erosion and sediment deposition caused by waves and tidal action Shoreline recession. Coastal/ Tidal inundation. Coastal winds and sand drift. Coastal cliff or slope instability. Future sea level rise.	Site would be subject to coastal winds and potentially some sand drift and also possibly future sea level rise. This has the potential to cause damage to infrastructure and increase maintenance, however, conditions and risk would exist under current conditions. The works are not expected to increase this threat.	Negligible/ small scale	Long term/ permanent	Direct, indirect and cumulative	Minor: The activity is unlikely to have an impact on how coastal processes operate onsite and coastal processes have the potential to cause minor impacts to the activity and/ or asset.	Minor: The activity is unlikely to have an impact on how coastal processes operate onsite and coastal processes have the potential to cause minor or temporary moderate impacts to the activity and/ or asset that can be effectively mitigated.
Level of confidence in predicting impacts *Select appropriate response*			Low adverse: High confidence/ knowledge and past experience.						
Level of reversibility of impacts *Select appropriate response*			Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.						
Ability to manage or mitigate the impacts *Select appropriate response*			Low adverse: Effective mitigation measures available.						
Requirement for further information *Select appropriate response*			Low adverse: High level of understanding and information on the impacts.						
Mitigation Measures *Amend as appropriate*									
See Sections 5.1, 5.2, 5.3, 5.6 and 5.7, additional provisions include:									

Prior to construction

- Include emergency management for bushfire, flooding and severe weather events in the Safe Work Method Statement(s) relevant to/ prepared for the proposed works.

5.10. Land & natural resource use

Consideration		Applicable	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.10.1	Alteration of existing land use post construction	☐ Yes ☒ No		Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.10.2	Restriction of access/activity is likely to affect the use of, or the community's ability to use natural resources	☒ Yes ☐ No	The activity will temporarily restrict access to the site, reducing access to car parking facilities and the use and enjoyment of the natural resources of the site for the duration of the construction period. To minimise impacts, the activity is being conducted outside of peak holiday and visitation times i.e. summer period. Once the activity is complete, the aesthetics would be similar to that which currently exist. See Section 5.8.	Negligible/ small scale	Short term	Direct and indirect	See Section 5.5.1	See Section 5.5.1
5.10.3	Use/ destruction of natural resources including use, wastage, destruction or depletion of natural resources including water, fuels, timber or extractive materials	☒ Yes ☐ No	Minor use of natural resources such as materials, fuel, water and energy during construction.	Negligible/ small scale	Short term	Cumulative	Minor: The activity will result in the neglible/ minor use/ destruction of natural resources.	Minor: The activity will result in the neglible/ minor use/ destruction of natural resources.
5.10.4	Activity is likely to result in the degradation of park or any other area reserved for conservation purposes.	☒ Yes ☐ No	The site drains to the Port Stephens and Great Lakes Marine Park approximately 50m downstream and are of a scale that may impact the marine park. Impacts may include: • Air pollution including dust, odours and emissions. See Section 5.11.1. • Noise and vibration disturbance. See Section 5.11.3 and 5.11.4. • Water pollution from dust, erosion and sedimentation and chemical usage. See Section 5.11.5. • Soil and land contamination. See Section 5.11.6. • Visual pollution. See Section 5.11.7. • Plastic pollution. See Section 5.11.8. • Physical damage. See Section 5.11.10.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: The activity has the potential for temporary moderate impacts to an area reserved for conservation purposes.	Minor: The activity has the potential for minor impacts or temporary moderate impacts to an area reserved for conservation purposes that can be effectively mitigated.
5.10.4	Adjacent to NSW NPWS Lands	☐ Yes ☒ No		Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5.10.5	Adjacent to Commonwealth Lands	☐ Yes ☒ No		Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.

Mitigation measures

See Sections 5.5.1 for mitigation measures.

Prior to construction

- Personnel onsite are to be trained and proficient in the operation of plant, equipment and vehicular procedures for the required tasks and ways to reduce impacts such as odours, noise, dust and emissions.
- Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. For equipment fitted with enclosures, check that acoustic doors and seals are in good working order and that doors close properly against the seals. Ensure that air lines on pneumatic equipment do not leak. Where atypically high noise levels and/or annoying characteristics occur because of inappropriate use, or due to faults or poor maintenance, the equipment should not be operated until repaired or replaced.
- Fit and maintain plant and equipment with approved exhaust systems to maintain exhaust emissions within acceptable standards and with manufacture approved reversing alarms and lights to ensure onsite safety.

During construction

- Minimise the number of vehicular and/or truck movements to and from the site through amalgamation of loads and schedule arrivals and departures to minimise the number arriving at any one time.
- Where possible avoid, reuse and recycle spoil and waste generated. Manage waste that cannot be avoided, reused or recycled in accordance with the NSW Waste Avoidance and Recovery Act 2011, and classify the waste in accordance with the NSW Waste Classification Guidelines and only dispose of the waste at a facility licenced to accept such waste(s) with supporting documentation.
- Provide a sufficient number of suitable and labelled receptacles for generated waste and recyclable materials and clean receptacle as required to avoid overflows.
- Where possible wash equipment, machinery or works vehicles offsite at an approved facility. Dispose of any containment material and water in accordance with the Waste Management requirements for the works.

Upon completion of construction

- Wherever possible any remaining waste will be reused or recycled where possible, be managed in accordance with the principles of the NSW Waste Avoidance and Recovery Act 2011, be classified in accordance with the NSW Waste Classification Guidelines and only disposed of at a facility licenced to accept such waste(s) with supporting documentation.

5.11. Pollution

Consideration			Applicable	Extent	Size	Duration	Type	Impact before MM	Impact after MM
5.11.1	Air pollution	Dust	☒ Yes ☐ No	See Section 5.7.1	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Dust generated during construction only that has the potential to leave the site and cause harm to humans and the environment.	Minor: Dust generated during construction only that is confined to the site and is unlikely to cause harm to humans and the environment.
		Odours	☒ Yes ☐ No	See Section 5.7.1	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: Odours detectable during construction which could cause complaints.	Minor: Odours detectable during construction with complaints unlikely.
		Emissions	☒ Yes ☐ No	See Section 5.7.1	Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: Moderate emissions release during construction only.	Minor: Minor emissions release short-term during construction only.
5.11.2	Light pollution		☒ Yes ☐ No	See Section 5.7.1	Negligible/ small scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Threatened biodiversity habitat is present with possible moderate non-significant impacts from light.	Minor: Threatened biodiversity habitat is present with possible minor non-significant impacts from light or moderate non-significant impact from light that can be effectively mitigated.
5.11.3	Noise disturbance		☒ Yes ☐ No	See Section 5.7.1	Medium scale	Short term	Direct, indirect and cumulative	Moderate: Offensive noise generated during construction only which could cause complaints.	Minor: Minor noise detectable during construction only with complaints unlikely.
5.11.4	Activity includes vibration generating activities		☒ Yes ☐ No	See Section 5.7.1	Negligible/ small scale	Short term	Direct, indirect and cumulative	Minor: Minor vibration detectable during construction only with complaints and asset damage unlikely.	Minor: Minor vibration detectable during construction only with complaints and asset damage unlikely.

5.11.5	Water	Dust, erosion and sedimentation	☒ Yes ☐ No	• Increased erosion and sedimentation through exposure of soil onsite, tracking of dirt onto sealed roadways and rainfall washing dirt into the location drainage system or receiving waterbodies contributing to sediment plumes and:
				  ○ Smothering of habitats.
				  ○ Damaging the health of aquatic fauna.
				  ○ Increasing the turbidity levels and decreasing the amount of light available for aquatic plants.
				  ○ Increased nitrification of waterways due to increased sedimentation of nutrient laden sediment.
				• The impacts of erosion and sediment on the terrestrial areas onsite are expected to be minimum as the majority of the biodiversity values of the site are uphill of the activity area.
				• Minor increase in impervious area through construction of concreted areas. Due to a minor increase in relation to imperviousness of the surrounding catchment, and location within the existing shore rock environment, the activity is unlikely to increase stormwater runoff volumes and velocity such that an increase in sedimentation and erosion impacts would occur.
					Medium scale	Short term	Direct, indirect and cumulative	Moderate: Dust, erosion and sedimentation which may cause temporary pollution and environmental harm offsite.	Minor: Dust, erosion and sedimentation contained to the site with risk can managed in accordance with a site specific erosion and sediment control plan.

		Mircobiological	☐ Yes ☒ No	Existing facilities adjacent to site will be utilised which are connected to the sewerage system.	Choose an item.	Choose an item.	Choose an item.		

5.11. Pollution									

		Chemical	☒ Yes ☐ No	• Chemical pollution including:
				  ○ Poor storage, use and management of chemicals and oils, grease etc. leading to leakages of substances.
				  ○ Poorly maintained vehicles, plant and equipment leading to leakages of substances.
				  ○ Use of vehicles, plant and equipment leading to heavy metal pollution through runoff.
				  ○ Incomplete site clean-up leaving hazardous materials onsite with the potential to leak.
				  ○ Use of pesticides onsite leading to increased toxicity in aquatic marine life in the adjacent waters.
				• The chemical water pollution produced by the activity, would be minor in comparison to the existing pollutant sources such as the local marina operations and boat usage, pollutants from stormwater runoff from local roads and use of pesticides and herbicides for weed control in local reserves, commercial premises and local residential premises for garden maintenance.
					Negligible/ small scale	Short term	Direct, indirect and cumulative	Moderate: chemical pollution has the potential to occur which may cause environmental harm offsite.	Minor: Chemical pollution contained onsite with risk managed in accordance with standard procedures.

		Thermal	☐ Yes ☒ No		Choose an item.	Choose an item.	Choose an item.		
		Oxygen depletion	☒ Yes ☐ No	Increased erosion and sedimentation through exposure of soil onsite, tracking of dirt onto sealed roadways and rainfall washing dirt into the location drainage system or receiving waterbodies contributing to sediment plumes and smothering of habitats, increasing turbidity levels and nitrification of waterways depleting the waterway of oxygen and impacting the health of aquatic fauna.	Medium scale	Short term	Direct, indirect and cumulative	Moderate: Dust, erosion and sedimentation may cause a temporary depletion of oxygen is receiving waterways.	Minor: Oxygen depletion can be minimised with the implementation of a site specific erosion and sediment control plan.
5.11.6	Soil/ Land Contamination		☒ Yes ☐ No	• Gross pollutants from littering with the potential to cause unsightly aesthetics and water pollution and environmental harm. • Release of chemicals, oils or heavy metals or other similar pollutants/contaminants into soil, drainage systems, channels or watercourses through accidental leaks and spills with the potential to cause unsightly aesthetics and water pollution and environmental harm. • Increase in impervious area through construction of sealing carpark. Due to an increase in relation to imperviousness of the surrounding catchment, and location within the existing shore rock environment, the activity is unlikely to increase stormwater runoff volumes and velocity such that an increase in sedimentation and erosion impacts would occur.	Medium scale	Short term	Direct and indirect	Moderate: Waste produced, chemical usage, erosion and sedimentation which may cause temporary pollution and environmental harm offsite.	Minor: Dust, erosion and sedimentation contained to the site with risk can managed in accordance with a site specific erosion and sediment control plan.
5.11.7	Visual pollution		☒ Yes ☐ No	• Illegal dumping resulting in environmental damage and harm. • Littering and inappropriate disposal of waste by personnel onsite resulting in environmental damage and harm. • Environmental footprint and/ or inappropriate disposal of construction waste. • Waste left behind from construction such as erosion and sediment fencing or exclusion fencing, tree tags, litter etc. resulting in environmental damage and harm. • Increased patronage of the activity will increase the waste generation of the site increasing the potential for environmental harm due to inappropriate disposal and environmental footprint for disposal and/or recycling. • Incomplete removal of stockpiles leaving visual change to the landscape.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Activity will have temporary moderate impacts on visual amenity with complaints likely.	Minor: Activity will have temporary or permanent minor impacts on visual amenity that can be effectively mitigate. Complaints unlikely.
5.11.8	Plastic pollution		☒ Yes ☐ No	• Plastics from gross pollutants produced onsite e.g. littering with the potential to cause unsightly aesthetics and water pollution.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Plastic pollution produced and/ or used which may cause pollution and environmental harm offsite.	Minor: Plastic used and/ or produced with risk contained to the site and managed in accordance with a standard procedures.
5.11.9	Ozone and greenhouse gas emissions		☒ Yes ☐ No	• The works include the removal of 27 established trees from site. These will be replaced with eight small, mature trees. • Greenhouse gas emissions from production of materials such as steel and cement and transport of materials, plant, machinery and equipment to and from the site. • Greenhouse gas emissions from fuel combustion from vehicles, plant, machinery and equipment used onsite.	Negligible/ small scale	Short term	Cumulative	Negligible/ Minor: Activity may contribute to greenhouse gas emissions, however, due to the small scope, short duration and limited extent of the activity there would be minimal contribution to global warming and climate change.	Negligible/ Minor: Activity may contribute to greenhouse gas emissions, however, due to the small scope, short duration and limited extent of the activity there would be minimal contribution to global warming and climate change.

5.11. Pollution

5.11.10	Physical damage	☒ Yes ☐ No	• Tree pruning may occur which has the potential to decrease the viability of the tree and potential habitat or food source it provides. Tree pruning would occur in accordance with AS4373-2007. • Unauthorised vehicle or plant movements, storage of equipment and materials or rubbish dumping causing damage to or destruction of habitat. • Potential impacts of noise and vibration that may disrupt the roosting or breeding of, or have other impacts on native fauna. • Damage to existing built or natural elements onsite, outside the approved plans. • Physical damage of the marine environment from working within the waterway. • Potential harm to fauna.	Medium scale	Long term/ permanent	Direct, indirect and cumulative	Moderate: Risk of physical damage affecting environmental or human health and safety is moderate.	Minor: Risk of physical damage affecting environmental or human health and safety is minor to moderate and can be managed in accordance with standard procedures.

Level of confidence in predicting impacts *Select appropriate response*	Low adverse: High confidence/ knowledge and past experience.
Level of reversibility of impacts *Select appropriate response*	Low adverse: Impacts are reversible and rehabilitation likely to be sucessful.
Ability to manage or mitigate the impacts *Select appropriate response*	Low adverse: Effective mitigation measures available.
Requirement for further information *Select appropriate response*	Low adverse: High level of understanding and information on the impacts.
Mitigation measures *Amend as appropriate*	
See Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9 and 5.10.	

6. Consideration of Clause 171(2) Factors

Consideration	Section	Summary Comments	Impacts	
			Short	Long
Any environmental impact on a community?	Sections 5.5, 5.7, 5.8, 5.10 & 5.11	Environmental impacts on the community will include a temporary reduction in access to parking and restriction of access for pedestrian movement, reduction in air quality, minor odours, noise and minor vibration impacts and a decline in aesthetic value. These impacts would persist for the construction period only. Additional constructed elements will be present onsite.	Negative short-term	Neutral long-term
Any transformation of a locality	Sections 5.8 & 5.10	The activity will improve the quality and life of the carpark pavement, improving accessibility and safety for carpark users within the locality.	Negative short-term	Positive long-term
Any environmental impact on the ecosystems of the locality?	Sections 5.1, 5.2, 5.3, 5.6, 5.7, 5.9, 5.10 & 5.11	Potential impacts include reduction in air quality, minor odours, noise and minor vibration impacts, and water pollution that would be restricted to the construction period only. There would be a minor risk of pollution impacts during operation and maintenance activities however; this would be low risk provided appropriate mitigation measures are implemented. There will be no significant impacts to threatened biodiversity as a result of the activity.	Negative short-term	Neutral long-term
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	All sections	Potential impacts include temporary reduction in access to parking and restriction of access for pedestrian movement, decline in aesthetic values, reduction in air quality, minor odours, noise and vibration impacts and water pollution that would be restricted to the construction period only. There would be a minor risk of pollution impacts during operation and maintenance activities however; this would be low risk provided appropriate mitigation measures are implemented. There will be no significant impacts to threatened biodiversity as a result of the activity.	Negative short-term	Neutral long-term
Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	Sections 5.4 & 5.10	Heritage Now Pty Ltd undertook an ADDA in January 2024 for the proposed upgrade of Shoal Bay Carpark. The findings of the ADDA concluded that the study area held archaeological potential. While there has been past disturbances in the study area due to the development of the car park, there remains potential for in-situ or redeposited archaeological deposits to be present beneath the current carpark surface (Biosis, 2024). During subsurface testing it was determined that a very low density of artefacts (AHIMS Pending/ Shoal Bay Carpark AS1) exist within the study area. The proposed works have the potential to impact AHIMS Pending/ Shoal Bay Carpark AS1 through site preparation activities (Biosis, 2024).	Neutral short-term	Neutral long-term
Any impact on the habitat of any protected animals (within the meaning of the BC Act)	Sections 5.3, 5.7, 5.11 & Attachments, 8, 9 and 17	The works will remove 27 trees, including three hollow bearing trees. There is the potential for accidental harm of native flora and fauna, disturbance of breeding and nesting habitats due to noise. There is a risk for the potential spread of weeds. An impact assessment of threatened fauna concluded that any impacts are unlikely to be significant, see Attachment 9. Provided the mitigation measures are implemented the impacts on habitats of native flora and fauna in the locality will not be significant.	Negative short-term	Neutral long-term
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air	Sections 5.3, 5.7, 5.11 & Attachments, 8, 9 and 17	The works will remove 27 trees, including three hollow bearing trees. There is the potential for accidental harm of native flora and fauna, disturbance of breeding and nesting habitats due to noise. The site is largely cleared and there are no threatened plant species on or near the site. An impact assessment of threatened fauna concluded no significant impacts to threatened biodiversity is likely as a result of the works. The site drains to the Port Stephens and Great Lakes Marine Park	Negative short-term	Neutral long-term

Consideration	Section	Summary Comments	Impacts	
			Short	Long
		approximately 50m downstream and are of a scale that may impact the marine park. Due to the short duration and small scale of the activity and provided the mitigation measures are implemented, the activity is unlikely to endanger any species.		
Any long-term effects on the environment	Section 5	Impacts relating to reduction in air quality, minor odours, noise impacts, minor vibration, interruption of pedestrian use and access for parking, aesthetic values restricted to construction period only. Once the activity is complete the site will be formalised based on the existing use and the activity will ensure improved safety. There will be a minor increase in operation and maintenance activities in comparison to prior to the activities being undertaken.	N/A	Neutral long-term
Any degradation of the quality of the environment?	Section 5	There is a risk of pollution impacts during the activity and to a lesser extent when operation and maintenance activities are occurring that present a risk to the safety of the environment. Provided the mitigation measures are implemented the environmental risks of the activity is low. Due to the small scale of the activity and short duration and minimal operational and maintenance activity requirements, the activity is unlikely to lead to any long-term degradation of the quality of the environment.	Negative short-term	Neutral long-term
Any risk to the safety of the environment?	Sections 5.1, 5.2, 5.3, 5.6, 5.7. 5.9, 5.10 & 5.11	There is a risk of pollution impacts during the activity and to a lesser extent when operation and maintenance activities are occurring that present a risk to the safety of the environment. Provided the environmental mitigation measures are implemented during construction activities and operation and maintenance activities the environmental risks of the activity is low.	Negative short-term	Neutral long-term
Any reduction of the range of beneficial uses of the environment?	All sections	During the construction period there is likely to be a reduction in the range of beneficial uses of the environment such as accessibility, visual amenity/impacts, traffic impacts etc. Once the activity is complete the environment will be similar to that which existed prior to the activity commencing and there is unlikely to be any long term reduction in the range of beneficial uses of the environment.	Negative short-term	Positive long-term
Any pollution of the environment?	Section 5.11	There is a risk of pollution impacts during the activity and to a lesser extent when operation and maintenance activities are occurring that present a risk to the safety of the environment. Provided the environmental mitigation measures are implemented the environmental risk of the activity is low.	Negative short-term	Neutral long-term
Any environmental problems associated with the disposal of waste?	Section 5.6	There is the potential for the disposal of waste if waste is left onsite or inappropriately disposed of. Provided the mitigation measures are implemented environmental problems associated with the disposal of waste are low.	Negative short-term	Neutral long-term
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?	Section 5.10	The activity will include the use, wastage, destruction of natural resources with fuel and other resources during the activity. In particular, raw and manufactured materials will be used. There will also be additional water use onsite and use of grease, fuels and oils in the operation of plant, vehicles, machinery and other equipment. Operation and maintenance will also use natural resources, however to less extent.	Negative short-term	Neutral long-term
Any cumulative environmental effect with other existing or likely future activities?	Section 1.6 & Section 5	Due to the small scope and short duration of the activity and provided the mitigation measures are implemented there is likely to be little cumulative effect with existing or future activities.	Negative short-term	Neutral long-term

Consideration	Section	Summary Comments	Impacts	
			Short	Long
Any impact on coastal processes and coastal hazards including those under projected climate change conditions	Section 5.9	Due to the small scope and short duration of the activity, the activity is unlikely to have an impact on coastal processes or increase the impacts of coastal hazards.	Not applicable	Not applicable
Any applicable local strategic planning statements, regional strategic plans or district plans made under the Act, Division 3.1	Section 1.6 & Section 5	The activity will assist in the delivery of the objectives of the local strategic planning statement.	Negative short-term	Positive long-term

7. Supporting Documentation

Matter for consideration	Required	Section	Attachment
Database/ Web Searches			
Commonwealth Protected Matters Search Tool	☒	4.2, 4.3 & 4.5	Attachment 11
NSW BioNet	☒	4.3	Attachment 12
NSW Aboriginal Heritage Information Management System	☒	4.4	Attachment 4, 5
NSW State Heritage Register	☒	4.4	
NSW Contaminated Lands Register	☒	5.1	
ESpade (Soils, Landscape and Geology and acid sulfate soil characteristics)	☒	4.2 & 5.1	
NSW Geological Survey of NSW (Site geology)	☒	4.2	
NSW Fisheries Spatial Portal (Key Fish Habitat, Estuarine Macrophytes)	☒	4.4 & 5.3	
Port Stephens and Great Lakes Marine Park Zoning Map	☒	4.3 & 5.2	
Assessments			
Geotechnical Investigation	☒	5.1	Attachment 6
Material Classification Report	☒	5.1	Attachment 7
Acid Sulfate Soils Investigation	☐		
Biodiversity Survey	☐		
Matters of National Significance Impact Assessment (excluding biodiversity)	☒	5.2, 5.3 & 5.4	
Threatened Biodiversity Impact Assessment (including endangered ecological communities, threatened species and migratory birds)	☒	5.3	Attachment 9, 10
Aboriginal Cultural Heritage Report	☒	5.4	Attachment 5
Drainage Investigations	☐		

Parking Assessment Report	☒	N/A	Attachment 13
Arboricultural Impact Assessment	☒	N/A	Attachment 3
Invasive Species	☒	N/A	Attachment 2
Environmental Assessment – Shoal Bay Mobile Library Relocation	☒	N/A	Attachment 14
Plans			
Site Specific Acid Sulfate Soils Management Plan	☐	N/A	CEMP
Dewatering Management Plan	☐	N/A	CEMP
Traffic Guidance Scheme	☒	N/A	CEMP
Pedestrian management plan	☒	N/A	CEMP
Erosion and Sediment Control Plan with staging	☒	N/A	CEMP
Detailed Design Issued for Construction	☒	N/A	CEMP
Permits, licences & approvals			
Water Access Licence of Water Supply Works Approval under NSW Water Management Act 20000	☐	N/A	
NSW Fisheries Permit	☐	N/A	
NSW Marine Parks Permit	☐	N/A	
Aboriginal Heritage Impact Permit	☒	N/A	CEMP
Section 60 Heritage Works Approval	☐	N/A	
Other, specify	☐	N/A	

8. Summary of mitigation measures

Environmental Mitigation Measures – At All Times
Drive to conditions on unsealed roads and/ or onsite.
Handle enquiries and complaints in accordance with Council's complaints handling procedures and eliminate or reduce the source where practical.
Use, maintain, service and store vehicles, plant, equipment and materials in accordance with all relevant Council, manufacturing and Australian standards and procedures and regularly inspect for leaks. Repair leaks immediately or remove the leaky equipment from site and have it replaced.
Monitor weather conditions for adverse weather that may increase impacts such as dust, noise, vibration, emissions, odour and where possible schedule works to avoid these periods. Do not undertake works during inclement weather to minimise the risk of damage to assets and ensure there is no compromise of site safety. Where severe weather is forecast, undertake all reasonable precautions to prepare and secure the site for a storm event and help minimise the potential for damage. If heavy rain is forecasted in the next 24 hours delay commencement or cease works until such time a suitable dry period of weather is forecast.
Maintain a clean site that is free of litter and unnecessary debris with all wastes stored securely to avoid/ minimise the risk of pollutants escaping.
Avoid the use of radios, stereos, open two-way radios and public address systems outdoors where they are likely to be audible at sensitive receivers beyond the site boundary and no swearing or unnecessary shouting, loud talking, dropping materials from height, slamming of doors or making any other unnecessary noise.
Environmental Mitigation Measures – Prior to construction commencing
Documentation
Prepare a CEMP that includes all the mitigation measures and environmental safeguards identified in the Environmental Assessment including any licensing requirements and permit/ conditions/ approvals.
Include emergency management for bushfire, flooding and severe weather events in the Safe Work Method Statement(s) relevant to/ prepared for the proposed works.
Prepare a traffic guidance scheme and implement traffic controls as appropriate. Traffic controls, if using barrier devices such as concrete jersey kerbs or water filled barriers, must have provision for fauna escape with a 2-300mm gap for every 2 barriers or climbable fauna structures secured to the barrier devices.
Prepare an erosion and sediment control plan (ESCP) in accordance with Soils and Construction Volume 1: Managing Urban Stormwater and Soils and Construction Volume 2: Managing Urban Stormwater.
Application for an Aboriginal Heritage Impact Permit (AHIP) covering the entirety of the development footprint be obtained. AHIPs should be prepared by a qualified archaeologist and lodged with Heritage NSW.
Include appropriate clauses and conditions within tenders, employment contracts, subcontractor agreements and work method statements that require all workers and contractors to observe the Environmental Safeguards and directions from the site manager.

Notification of activities & consultation
Notification of works should occur to provide advance warning of the works and potential disruptions for all sensitive land uses. Notification may consist of or use variable message signage, letterbox drop (or equivalent), website/ social media or a combination to distribute information detailing the work activities, dates and hours, impacts and mitigation measures and complaints handling contact. Notification should include the likely noise impact of the work without understating its effect and any work activities or equipment that will be particularly noisy or noticeable. Notification should be provided a minimum of 10 working days prior to the start of works. Where works are likely to affect businesses or driveway entrances or night works are proposed specific notification letterbox dropped (or equivalent) shall be provided no later than 5 working days ahead of construction activities. The specific notification must provide additional information specific to the period driveway or business access may be restricted and out of standard hours works being completed. Notification must be provided to residences, commercial businesses, educational institutions, medical facilities, places of worship, active and passive recreational areas, industrial premises and offices that are operational or likely have persons present at the time works are occurring. For larger projects or projects that have a potential impact on health and safety of individuals or may be of particular interest to the community should include the use of social media and/or provision of a regular newsletter and/or community liaison officer and/or community liaison group should be considered. Development of a project specific engagement plan should be considered.
Notify emergency and waste services, utilities, local bus companies and/ or haulage companies via letter or phone call or as appropriate of the intention to carry out works. Notification should detail the work activities, dates and hours, impacts and mitigation measures and complaints handling contact. Notification should include the likely noise impact of the work without understating its effect and any work activities or equipment that will be particularly noisy or noticeable. Notification should be provided a minimum of 10 working days prior to the start of works.
Advise Worimi Land Council of the proposed works and arrange if required supervision of works.
Induction

Induct all personnel working onsite including workers and contractors are aware of the mitigation measures and environmental safeguards for example through site inductions and ‘toolbox talks’ and by providing a summary of relevant project requirements for quick reference (such as a noticeboard). Emphasize the following:
• Permissible hours of work (including for deliveries).
• Site sensitivities and their relevance to the proposal including
  • Surrounding residences, commercial or industrial or any other sensitive land uses e.g. hospitals, retirement homes, schools etc.
  • High public use areas.
  • Community access and interest.
  • Possibility of threatened species onsite and/ or adjacent to the site and hollow bearing trees onsite and adjacent to the site.
  • Sensitive downstream receiving environment; Port Stephens and Great Lakes Marine Park.
• Community access and interest.
• QF-ENV-008 Unexpected Finds Procedures (CAP WKS).
• Erosion and sediment control requirements.
• Noise and vibration management requirements including any site specific and relevant mitigation measures, any limitations on high noise generation activities, the location of the nearest sensitive receivers.
• Exclusion fencing requirements.
• Tree protection fencing requirements.
• Statutory obligations in relation to Aboriginal and non-Indigenous heritage in relation to the *NSW National Parks and Wildlife Act 1974* and *NSW Heritage Act 1977* and associated

regulations, policies and procedures. • Traffic management and onsite plant, vehicle and equipment management requirements in accordance with the Traffic Guidance Scheme prepared for the works and identifying cparking areas and designated load/unload areas and procedures. • Weed management. • Public access and safety requirements. • Emergency response procedures. • Site compound areas and construction employee parking areas and designated loading/ unloading areas and procedures. • Waste management requirements.
Equipment, plant, vehicles and machinery
Personnel onsite are to be trained and proficient in the operation of plant, equipment and vehicular procedures for the required tasks and ways to reduce impacts such as odours, noise, dust and emissions.
Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site for any out of hours work. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.
Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Equipment due to inappropriate use, or due to faults or poor maintenance should not be operated until repaired or replaced.
Planning and staging of works
Plan and stage works and design the site where feasible and reasonable to: • Reduce open excavations. • Balance the inconvenience to road users. • Minimise disruption to traffic especially at peak times, nights, weekends, holiday periods or special events. • Reduce the need for reversing or movement alarms by managing access and movement around the site e.g. by planning traffic flow, parking and loading/ unloading areas. • Prioritise work during the least sensitive time period and where possible and schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active). • Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity. • Plan to optimise the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads. • Locate compounds away from sensitive receivers. • Locate the site compound and anything within the compound outside of the drip line or tree protection fencing of any trees.
Installation of physical measures
Install erosion and sediment controls in accordance with Managing Urban Stormwater: Soils and Construction (Landcom Vol 1, 4th Ed, 2004) and the approved plans.

Demarcate the extent of works with the installation of stake rope and fluro tags or similar with fluro tape attached to the stakes and rope between the stakes or mesh fencing where in a high activity area. If exclusion fencing that may impede fauna access is used, mesh wire fencing or other climbable fencing must be used and a 300m gap provided at the base of the fencing to allow fauna to escape.
Install exclusion fencing that includes temporary fencing, bunting tape, stake rope and fluro tags or similar and signage that is clearly visible from a distance of at least 20m that is general in nature e.g. 'Exclusion Zone' to delineate the construction footprint to protect public safety. If exclusion fencing that may impede fauna access is used, mesh wire fencing or other climbable fencing must be used and a 300mm gap provided at the base of the fencing to allow fauna to escape.
Install tree protection fencing for all habitat trees within the construction works footprint that are to remain in accordance with QF-ENV-012 Tree Protection Fencing Rqmts (CAP WKS) and/or approved Aboricultural Report.
Clearly demarcate all trees to be removed in accordance with QF-ENV-001 Tree Tagging Standards.
A preclearance survey using a suitably qualified and experienced fauna ecologist must be conducted for all hollow bearing trees to be removed within 48hours prior to tree removal in accordance with contract specifications provided by the Project Support Environmental Officer. The consultant must provide a report prepared by the supervising ecologist and in accordance with the QF-ENV-010 Preclearance Survey with Habitat Trees Report (CAP WKS) to the Council's Project Manager, Environmental Risk Officer and Project Support Environmental Officer within 7 days of completion of clearing activities.
Compensatory fauna habitat in the form of nest boxes, augmented hollows, salvaged hollows mounted in alternate trees will be provided with 2 nest boxes/ 1 augmented hollow/ 1 salvaged hollow for every hollow lost. The nest boxes shall be offset, constructed and installed in accordance with the Port Stephens Council Biodiversity Technical Specification 2024. Documentary evidence of installation of the nest box/ augmented hollow/ salvaged hollow must be provided in accordance with the Bushland Schedule of Rates Tender and to the Environmental Operations Team Leader or nominated representative for approval.
Environmental Mitigation Measures – During Works
General
Complete all works in accordance with the Environmental Assessment, approved plans, Construction Environmental Management Plan, approvals or permits and relevant Safe Work Method Statement(s).
Conduct all activities between the daylight hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. No work on Sundays, public holidays or night works are permitted.
Plan and stage works and design the site where feasible and reasonable to: • Reduce the exposure of soils or open excavations. • Balance the inconvenience to road users. • Minimise disruption to traffic especially at peak times, nights, weekends, holiday periods or special events. • Reduce the need for reversing or movement alarms and manage access and movement around the site to reduce disturbance. • Reduce noise as much as practically possible by prioritising work during the least sensitive time period and where possible schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) to make the most of opportunities to reduce construction noise intruding above background noise. Where possible, schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) to make the most of the opportunities to reduce construction noise intruding above background noise.

• Avoid times when there are special events (such as sports events, concerts or parades) in the vicinity. • Optimising the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads. • Restrict and schedule deliveries to standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. Where deliveries must be made during the evening or night-time (or on weekends or public holidays), schedule vehicle movements to avoid residential streets where possible and ensure requirements are clearly communicated. Identify a parking area away from noise sensitive receivers for deliveries that arrive prior to the site being open. • Minimise the number of vehicular and/or truck movements to and from the site through amalgamation of loads and schedule arrivals and departures to minimise the number arriving at any one time. • Ensure the loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers and where possible shielded is close to sensitive receivers if possible. • Minimise work during excessively wet or muddy conditions.
Leave all controls in place during works, undertake weekly checks and also conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are on request. Relevant controls include: • Erosion and sediment controls. • Traffic controls. • Exclusion fencing. • Tree protection fencing.
Continued consultation with the registered Aboriginal parties (RAPs). AHIMS Pending/Shoal Bay Carpark AS1 was found to contain low scientific significance and works may proceed in these areas following the approval of an AHIP for the proposed development, and subject to recommendations 3 to 5 below. It was suggested by Mur-Roo-ma that due to the archaeological testing not being able to reach below 900 millimetres in depth, PSC may be willing to have a RAP on site during the limited ground disturbance works that are to extend beneath the 900-millimetre depth and also the length of the electrical trench where it extends outside the area tested during the sub-surface testing program.
Transport & traffic
Keep a record of the Traffic Guidance Scheme onsite at all times. Keep a record of any inspections and/ or corrective actions.
In a serious incident occurs, cease works in the vicinity and immediately notify the Team Leader follow the requirements of the relevant Safe Work Method Statement.
Drivers of vehicles, plant and equipment shall comply with NSW Road Rules and the TMP and take care when entering and exiting the site to avoid incidents.
Signpost designated access points, routes, vehicle manoeuvring areas parking areas and ensure site personnel, contractors and delivery trucks are aware of the requirements to help reduce site disturbance.
Schedule deliveries to defined hours and ensure these requirements are clearly communicated. Where deliveries arrive before the site is open, identify a parking area.
Personnel on site where possible shall not be within 3m of moving vehicles, plant or equipment.
Check traffic management signs and devices regularly to ensure they are: • Still relevant, in good mechanical condition, clean, not faded and if necessary have good night-time visibility.

• Clearly visible to road users and are not obscured by vegetation, vehicles, plant, equipment or other signs and devices. • Displayed in the correct sequence.
Ensure traffic control is conducted by traffic controllers with a traffic controller qualification.
Provide temporary trafficable access to properties for the duration of the works.
Provide temporary trafficable access to the holiday park for the duration of the works. Ensure reasonable efforts are made to maintain vehicle access for residents/ businesses to their properties at the end of each work day. Visually monitor traffic within the holiday park to ensure appropriate provisions for access and safety have been provided for. Notify the Team Leader and appropriate Manager (if required) and amend the controls (if required).
Do not alter designated access and egress. Inform truck drivers of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices, such as minimising use of engine brakes and avoiding engine idling.
Ensure truck drivers are undertaking material tracking recording the source location, destination and volumes and ensure that for any material bought onto site this information is provided to the Team Leader.
Remove, transport and dispose of hazardous and dangerous goods in accordance with the NSW Waste Classification Guidelines and dispose of at a waste facility licenced to accept such waste. Any transport of dangerous goods must occur with a driver possessing a dangerous goods drivers licence and dangerous good vehicle licence. All dangerous goods transport shall be in accordance with *NSW Dangerous Goods (Roads and Rail Transport Act 2008* and *NSW Dangerous Goods (Road and Rail) Transport Regulation 2014*.
Cover all loads of material, soil, fill or other erodible matter transported being transported to or from the work site at all times. Coverage must be maintained for the duration of transportation and until unloaded.
Restrict vehicles and personnel to designated tracks, trails and parking areas. Where possible park and turn-around on hard, well drained surfaces.
Monitoring and unexpected finds
Undertake daily checks of site drainage systems and undertake maintenance when required to ensure site drainage systems are operating at capacity e.g. removal of debris and that there is no increase in turbidity (sediment laden water). Ensure there is no release of dirty water into drainage lines and/ or watercourse.
Visually monitor work sites, general work areas and stockpiles for dust generation and water down with clean water or cover with tarpaulins in the event of dry and/ or windy conditions.
Periodically check the site, nearby residences and other sensitive land uses to proactively identify noise issues and feasible and reasonable mitigation.
Visually monitor for any of the signs of the following: • Acid sulfate soils. • Contamination such as odour, seepage of unusual liquids from soil or rock, unusual metal objects, discolouration or staining of the rick, unusual colours, odours or sheens on groundwater, presence of underground storage tanks, potential asbestos containing material, presence of waste or rubbish or unusual colour of the soil. • Groundwater If suspected, intercepted, identified or located, stop work, cordon off the areas and follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).

Conduct daily fauna checks prior to works commencing. If fauna are encountered during the daily check or during works follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, all works must immediately cease at that location and not further move or disturb the remains and implement QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
Relics are historical archaeological resources of local or State significance and are protected in NSW under the Heritage Act 1977 (Heritage Act). Relics cannot be disturbed except with a permit or exception/exemption notification. Should unanticipated relics be discovered during the project, work in the vicinity must cease and QF-ENV-008 Unexpected Finds Procedure (CAP WKS) implemented.
Pollution prevention
Water and air
Store all chemicals, fuels and oils in suitable bunded areas with the capacity of the bund at least 120 per cent of the volume of the largest container stored within the bunted area. Do not store or collect for disposal any chemicals, fuels and/or waste within or adjacent to watercourse, drainage lines or unsealed surfaces.
Storage of all plant, materials and equipment must not be outside the direct works area nor outside the approved site compound location.
Do not carry out works such as bitumen spraying, the spraying of paint or other materials during strong winds or adverse weather conditions.
Keep an emergency spill response kit onsite at all times and monitor the kit for replenishment of contents. Make all staff aware of the location of the spill kit and ensure that they are trained in its use. If a spill occurs, follow the EMS Incidence Response Procedure and immediately notify the Project Manager and/ or EMS Manager.
Avoid refuelling of equipment or chemical handling activities outside the compound. Conduct the activities offsite where practical. If the activity must occur onsite, conduct the activity on flat ground at least 50 m from any watercourse, drainage line or sensitive area with spill containment measures in place and within a bunded area.
Use and store all hazardous and dangerous goods in accordance with all relevant statutory standards and procedures and manufacturer's MSDS. Retain a copy of all relevant MSDS onsite and ensure hazardous goods are be labelled in accordance with the requirements of the Australian Dangerous Goods Code.
Where possible wash equipment, machinery or works vehicles offsite at an approved facility. Where onsite wash down is required for weed control, use potable water and contain any excess debris from equipment with containment material. Dispose of any containment material and water in accordance with the Waste Management requirements for the works.
Minimise the generation of dust as required through use of a water cart.
Inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Ensure that there are no leaks.
Noise and vibration
Operate, inspect and maintain equipment to ensure it is in good working order and operated in accordance with the manufacturer's instructions. Requirements include: • Checking equipment fitted with enclosures to ensure acoustic doors and seals are in good working order and that doors close properly against the seals. • Ensuring air lines on pneumatic equipment do not leak and plant silencers are well maintained • Monitoring for atypically high noise levels and/or annoying characteristics and removing the equipment from operation until repaired or replaced.

• Ensuring plant and equipment are fitted with approved exhaust systems (to maintain exhaust emissions within acceptable standards) • Ensuring only manufacturer approved reversing alarms and lights are used (to ensure onsite safety). • Operating equipment in a quiet and efficient manner e.g. reduce throttle setting and turn off/ shut down vehicles, plant and equipment when not in use.
Maximise the offset distance between noisy plant and adjacent receivers where feasible and only have necessary equipment on site and working. Where possible, avoid mobile plant and equipment clustering near residences and other sensitive land uses.
To reduce operational noise onsite: • Avoid unnecessary dropping of materials from a height and metal-to-metal contact on equipment. • Avoid the use of equipment that generates impulsive, tonal or irregular noise. Where feasible and reasonable, adopt less-annoying alternatives to 'beeper' alarms, such as smart alarms that adjust their volume to the ambient level of noise and 'broadband' alarms. • Only use the necessary size and power equipment and identify and use equipment with the lowest noise emissions in its class to complete specific tasks e.g. prioritise the use of super-silenced compressors, silenced jackhammers and damped bits and select the most effective mufflers, enclosures and low-noise tool bits and blades. Always seek the manufacturer's advice before modifying plant, equipment or vehicles to reduce noise. • Use portable plant, machinery or equipment with the potential to create high levels of noise that incorporates effective noise control. Where possible locate the plant, machinery or equipment onsite to provide a natural ground barrier between the plant, machinery or equipment and any sensitive receiving environments. • Where feasible and reasonable, implement quiet work methods for diesel and petrol engines and pneumatic units (such as hydraulic or electric-controlled units) and where there is no electricity supply, consider an electrical generator away from residences or within an acoustic enclosure. • Avoid placing noise-producing equipment where surfaces will reflect noise or reduce the effectiveness of mitigation.
Reduce transport noise by: • Encouraging staff to ride-share to minimise traffic • Providing parking and on-site truck waiting areas away from noise sensitive receivers where possible. • Optimising the number of vehicle trips to and from the site. For example to minimise noise and congestion, where possible, organise amalgamated loads rather than using several vehicles with smaller loads. • Use quieter and less vibration emitting work methods where feasible and reasonable.
Stockpile, spoil and waste management
Manage all stockpiles on site in accordance with the NSW Managing Urban Stormwater: Soils and construction – Volume 1 4th edition.
Place stockpiles at strategic locations to mitigate environmental impacts whilst facilitating material handling requirements. Establish access routes around material stockpiles that enable access from adjoining haulage routes.
Where possible avoid, reuse and recycle spoil and waste generated. Manage waste that cannot be avoided, reused or recycled in accordance with the *NSW Waste Avoidance and Recovery Act 2011*, and classify the waste in accordance with the NSW Waste Classification Guidelines. If being removed offsite classify waste in accordance with the NSW Waste Classification Guidelines and dispose of at a facility appropriately licenced to accept such waste. Any material reused onsite shall be compliant with *NSW Protection of the Environment Operations (Waste) Regulation 2014* and associated exemptions such as the *NSW EPRM Exemption 2014*. Only dispose of the waste at a facility licenced to accept such waste(s) with supporting documentation.
Remove, transport and dispose of hazardous and dangerous goods in accordance with the NSW Waste Classification Guidelines and dispose of at a waste facility licenced to accept such waste.

Any transport of dangerous goods must occur with a driver possessing a dangerous goods drivers licence and dangerous good vehicle licence. All dangerous goods transport shall be in accordance with *NSW Dangerous Goods (Roads and Rail Transport) Act 2008* and *NSW Dangerous Goods (Road and Rail) Transport Regulation 2014*.
Any imported fill, whether VENM, ENM or other imported material such as EPRM, must be accompanied by relevant documentation. Where documentation is not provided the source site of the material will be inspected and material sampled at a rate of one sample per 100m^3, with a minimum of 10 samples taken from each product imported.
Store all stockpiled material in a location consistent with the approved plans and a separate area designated for storage of contaminated spoil where required.
The management of concrete washout much be in accordance with the Transport for NSW Concrete washout guideline dated June 2023.
Ensure the provision and regular service of portable self-contained toilets by contractors.
Provide a sufficient number of suitable and labelled receptacles for generated waste and recyclable materials and clean receptacle as required to avoid overflows.
Visually monitor for any of the signs of acid sulfate soils. If suspected, intercepted, identified or located, stop work, cordon off the areas and follow QF-ENV-008 Unexpected Finds Procedure (CAP WKS).
Biodiversity
If damage occurs to vegetation, fauna or their habitat other than that indicated on the approved plans notify the site Team Leader. The Team Leader shall notify the Project Manager and contact Council's EMS Risk Officer or EMS Manager for advice. Any advice, corrective or preventative works must be implemented onsite in a timely and efficient manner.
Complete all activities in accordance with the recommendations and required actions in the approved Arboricultural Assessment Report. Ensure maintenance of all measures implemented in accordance with the approved Arboricultural Assessment Report.
If pruning works are required for example for machinery access, undertake pruning works in accordance with AS4373 Pruning of amenity trees and where required the approved Arboricultural Assessment Report. Retain any limbs bearing hollows if pruning a hollow bearing tree.
Ensure materials, plant, equipment and stockpiles are not be placed in a manner that could result in damage to surrounding vegetation and located outside any exclusion zones.
Locate the site compound and anything within the compound outside the drip line of adjacent trees or tree protection fencing of any trees.
If priority weeds not previously identified are observed, cease works in the vicinity and follow the Unexpected Finds Procedure.
Minimise work during excessively wet or muddy conditions where possible.
All machinery, plant, equipment, vehicles and boots should be clean prior to entry to the site.
Ensure any fill, soil, mulch or plants bought onto site for landscaping purposes is free of priority weeds and/ or weed seeds, cane toads, pathogens or any of the imported pest ant species.
Environmental Mitigation Measures – Upon Completion of Works

Clean out the stormwater systems immediately following completion of all works using a sucker truck and classifying the waste in accordance with the NSW Waste Classification Guidelines and only dispose of the waste at a facility licenced to accept such waste(s) with supporting documentation.
Leave erosion and sediment controls in place until the site is fully stabilized. Undertake weekly checks and conduct checks before and after rainfall and promptly correct any issues. Keep records of any checks and issues onsite and ensure they are available on request.
Remove all physical construction elements from the site included vehicles, plant and equipment, fencing such as tree protection fencing and exclusion fencing and traffic controls.
Wherever possible any remaining waste will be reused or recycled where possible, be managed in accordance with the principles of the NSW Waste Avoidance and Recovery Act 2011, be classified in accordance with the NSW Waste Classification Guidelines and only disposed of at a facility licenced to accept such waste(s) with supporting documentation.
Leave the site clean and free of debris.

9. Conclusion

Matter for consideration	Agreement
This environmental assessment has assessed the proposed activity and any potential impacts. The activity is unlikely to significantly affect the environment, and therefore an EIS is not required.	☒
The activity is unlikely to significantly affect threatened species, populations, ecological communities or their habitats and therefore an SIS and/or BDAR is not required.	☒
The activity is to significantly affect threatened species, populations, ecological communities or their habitats and therefore an SIS and/or BDAR is required (see Attached SIS and/or BDAR).	☐