

FLORA and FAUNA

Biodiversity Assessment

Myuna Bay Sport Recreation Centre - Demolition and Make Good

Part Lot 2 DP 614183, 21A Wangi Road, Myuna Bay,
NSW

MARCH 2023



Cover photographs:

Left: Existing character of the swimming pool within the north-eastern portion of the site.
Right: Character of the boatshed and surrounding vegetation on western foreshore of the site.

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on behalf of

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Disclaimer

This document has been prepared in accordance with the brief provided by NSW Public Works ('the client') on behalf of NSW Office of Sport. This survey has relied upon information collected during the course of a field investigation, and as available in current known literature and data sources. All findings, conclusions or recommendations contained within this document are based upon the abovementioned circumstances. The study has been prepared for use by the client, and no responsibility for its use by other parties is accepted by Lesryk Environmental Pty Ltd.

Please note that, given the dynamic nature of the relevant pieces of environmental legislation considered in this report, the authors consider that this report only has a 'shelf life' of six months. If a development application, review of environmental factors or statement of environmental effect is not submitted to a determining authority for consideration within this time frame, it is recommended that this report be reviewed and revised where required in light of any relevant legislative listings or changes.

This report is prepared in accordance with both the 6th Edition of the Commonwealth of Australia (2002) Style Manual.

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Acronyms & Abbreviations

Abbreviation	Definition
°C	Degrees Celsius
AOBV	Areas of Outstanding Biodiversity Value
ASL	Above sea level
BAM	Biodiversity Assessment Method
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Scheme
BVMTT	Biodiversity Values Map and Threshold Tool
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DE	Commonwealth Department of the Environment
DEC	NSW Department of Environment and Conservation
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
EPA	NSW Environmental Protection Authority
EPA Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
GDE	Groundwater Dependent Ecosystems
ha	Hectares
KFH	Key Fish Habitat
KTP	Key Threatening Process
LEP	Local Environment Plan
Lesryk	Lesryk Environmental Pty Ltd
LGA	Local Government Area
mm/cm/m/m ² /km	Millimetres, centimetres, metres, square metres, kilometres, hectares
MNES	Matters of National Environmental Significance
NSW	New South Wales
NSW Public Works	PW
NSW Office of Sport	OOS
OEH	NSW Office of Environment and Heritage
PCB	Polychlorinated biphenyls
PCT	Plant Community Type
PMST	Protected Matters Search Tool
RAMSAR	The Convention on Wetlands of International Importance
SEED	The Central Resource for Sharing and Enabling Environmental Data in NSW
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
SVMT	NSW State Vegetation Type Map
TEC	Threatened Ecological Community
WoNS	Weeds of National Significance

Glossary

Proposal/proposed works	Scope of works as defined within the Development Application submission.
Subject site	Means the area directly affected by the proposal. The subject site includes the footprint of the development and any ancillary works, facilities, accesses or hazard reduction zones that support the construction or operation of the development or activity (State of NSW and OEH 2018).
Study area	Means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly (State of NSW and OEH 2018). Refers to the area specified for the ecological and landscape desktop assessment only.
Study region	Is specified as a 10 km polygon around the outer edge of the defined construction activity footprint.
Impact footprint	Refers to the area of direct impacts associated with the proposal.
Direct impacts	Are those that directly affect the habitat of species and ecological communities and of individuals using the study area. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat (State of NSW and OEH 2018).
Indirect impacts	Occur when project-related activities affect species or ecological communities in a manner other than direct loss within the subject site. Indirect impacts may sterilise or reduce the habitability of adjacent or connected habitats. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, noise, light spill, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas (State of NSW and OEH 2018).
Areas of outstanding biodiversity	An area of outstanding biodiversity value is: ○ an area important at a State, national or global scale, and ○ an area that makes a significant contribution to the persistence of at least one of the following: i. multiple species or at least one threatened species or ecological community ii. irreplaceable biological distinctiveness iii. ecological processes or ecological integrity iv. outstanding ecological value for education or scientific research. ○ The declaration of an area may relate, but is not limited, to protecting threatened species or ecological communities, connectivity, climate refuges and migratory species (BC Act 2016).
Important population	Is a population that is necessary for a species' long-term survival and recovery; this may include populations identified as such in recovery plans, and/or that are: • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity, and/or • populations that are near the limit of the species range (DE 2013).
Local population	The population that occurs in the study area. The assessment of the local population may be extended to include individuals beyond the study area if it can be clearly demonstrated that contiguous or interconnecting parts of the population continue beyond the study area (State of NSW through NW DPI 2006).
Invasive species	Is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

Executive summary

NSW Office of Sport are proposing to demolish the existing Myuna Bay Sport and Recreation Centre ('the centre') (part Lot 2 DP 614183), 21A Wangi Road, Myuna Bay, and make good the site.

The Myuna Bay Sport and Recreation Centre has been permanently closed since March 2019 due to the risk associated with a potential collapse for the nearby Eraring Power Station Ash Dam Wall. The Government determined that the risk to life in the event of a collapse of the Ash Dam Wall is unacceptable and has committed to discontinue operation of the centre and re-establish the location to an open space/bushland area. The Office of Sport has been compensated for the closure, and as part of the compensation arrangements will demolish and make good the Myuna Bay Sport and Recreation Centre site. The works proposed will include demolition of structures, decommissioning of services, minor site regrading and stabilisation, removal of hazardous materials, and general site make good.

The Biodiversity Assessment has been prepared to support a Development Application to Lake Macquarie City Council, for the proposed work.

The total Lot size is 18.87 hectares, with the investigated area subject to the Development Application about 15.83 hectares. Based on a worst-case estimate, about seven hectares of mostly non-native vegetation (this composed of lawns, landscaped gardens, planted, horticulturally available, trees and shrubs and possibly some naturally regenerating saplings on those mounds of deposited material) will be disturbed and/or removed.

To assess the work proposed, a terrestrial ecological investigation was conducted within, and adjacent to, those areas to be disturbed. By the completion of the investigation, two fauna species of ecological conservation concern were detected:

- White-bellied Sea-eagle (*Haliaeetus leucogaster*), listed as Marine under the *Environment Protection and Biodiversity Conservation Act 1999*, and Vulnerable under the *Biodiversity Conservation Act 2016*.
- Eastern Osprey (*Pandion cristatus*), listed as Migratory and Marine under the *Environment Protection and Biodiversity Conservation Act 1999*, and Vulnerable under the *Biodiversity Conservation Act 2016*.

No listed threatened flora species were recorded during the site investigation; however, the following four species of threatened plant, or their habitat, were considered likely to occur within the study area:

- Bynoe's Wattle (*Acacia bynoeana*), listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*, and Endangered under the *Biodiversity Conservation Act 2016*
- Charmhaven Apple (*Angophora inopina*), Vulnerable under both Acts
- Small-flower Grevillea (*Grevillea parviflora* subsp. *parviflora*), Vulnerable under both Acts
- Black-eyed Susan (*Tetradlea juncea*), Vulnerable under both Acts.

Assessments referencing the *Matters of National Environmental Significance: Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999* and the criteria provided under Part 7 Division 1 Section 7.3 of the *Biodiversity Conservation Act 2016* were conducted on the potentially occurring threatened flora species. These concluded that the proposal is unlikely to significantly affect these threatened flora species, or their habitat. It is considered that the proposal is not a controlled action requiring referral to the Federal Minister for the Environment for further consideration or approval, nor is the preparation of a Species Impact Statement (or alternatively, a Biodiversity Development Assessment Report) required.

As the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by the White-bellied Sea-eagle or Eastern Osprey, and given the retention *in situ* of the identified light pole within the site (hosting an Osprey's nest), no assessments were considered necessary for these recorded fauna species.

No threatened ecological communities were recorded during the investigation, or considered likely to

occur or be adversely affected by the proposal.

The Biodiversity Offset Scheme applies to development requiring consent under Part 4 of the EP&A Act that is likely to significantly affect threatened species or ecological communities, or their habitats. An approximate 2.42 hectares along the western boundary of the part Lot is mapped on the Biodiversity Values Map, with about 0.54 hectares of this within the boundary of the proposed terrestrial work footprint. However, clearing of vegetation as defined in section 60C of the *Local Land Service Act 2013* is not expected in this area, nor is the proposed work expected to have an adverse effect on the mapped biodiversity. As such, the Biodiversity Offset Scheme is not triggered based on the BV Map or clearing threshold, and a Biodiversity Development Assessment Report is not required.

City of Lake Macquarie Local Government Area is subject to Chapter 4 'Koala habitat protection 2021' of State Environmental Planning Policy (Biodiversity and Conservation) 2021; however, in accordance with Section 4.2 of the policy, the study area is not considered to constitute Core Koala habitat.

Within and adjacent to the proposal's footprint, Whiteheads Lagoon and Crooked Creek are mapped as Key Fish Habitat; with components of the proposed work (i.e., demolition/removal of boat shed, ramps, jetties, ski jump and video poles etc.) occurring in and adjacent to Whiteheads Lagoon. It is acknowledged Lesryk's investigation and biodiversity assessment was concerned only with the terrestrial aspect of the proposal, with an aquatic report to be prepared by Advisian (Newcastle NSW). As such, legislative considerations of the New South Wales *Fisheries Management Act 1994* are not relevant to this report.

Pursuant to Chapter 2 'Coastal management' of State Environment Planning Policy (Resilience and Hazards) 2021, and Sections 2.7, 2.8, 2.10 and 2.11, about 0.37 ha of the western work boundary is mapped as Coastal Wetland, with about 0.52 ha of the proposed work area mapped as Coastal Wetland proximity area; while the entire study area is mapped as Coastal Environment and Coastal Use Areas. These matters have been considered and assessed within this report. Adoption of those mitigation measures recommended within Section 7 of this report will ensure the proposal does not cause an adverse impact on these environments.

With adherence to those recommendations provided in this report, no ecological constraints to the proposal proceeding as planned were identified or considered likely to occur.

1. Introduction

At the request of NSW Public Works (PW), on behalf of the NSW Office of Sport (OOS), Lesryk has conducted a terrestrial ecological investigation of the Myuna Bay Sport and Recreation Centre, this being located within part Lot 2 DP 614183, 21A Wangi Road, Myuna Bay (this are hereafter being referred to as either 'the centre' or 'the site') (Figure 1). The investigation has been conducted as OOS are proposing to demolish the existing infrastructure and make good the site.

It is acknowledged the investigated site is subject to a Licence (RI 565440) (Appendix 1) pursuant to the provisions of Section 34A of the *Crown Lands Act 1989*, granted to OOS in respect of land identified as part Lot 2 DP 614183, and a 376.8 m² area in several parts above and below the mean high-water mark being all adjacent to part Lot 2 as shown on Figure 2.

This Biodiversity Assessment has been prepared to support a Development Application (DA) to Lake Macquarie City Council; assessing the terrestrial biodiversity impacts of the proposal in compliance with the requirements of Part 4 of the EP&A Act.

The Myuna Bay Sport and Recreation Centre has been permanently closed since March 2019 due to the risk associated with a potential collapse for the nearby Eraring Power Station Ash Dam Wall (located about 400 m north of the site). An independent review of the Eraring Ash Dam (prepared by SMEC 2019) found that the dam wall had a high probability of failure and posed an unacceptable risk to users of the sport and recreation facility. Determined by the Government that risk to life (in the event of a collapse of the Ash Dam Wall) is unacceptable, operation of the centre was discontinued, with the location to be returned to an open space/bushland area. The proposal will facilitate this.

The assessment of possible ecological impacts associated with the proposal is based on a field investigation of the study area, a literature review of previous studies conducted in both the region and this portion of the City of Lake Macquarie LGA, a review of standard databases and a consideration of the objectives of the EPBC Act, EP&A Act, BC Act and any relevant SEPP.

2. Activity scope

The proposed demolition and make good work include:

Demolition

- Demolition/removal of above ground structures, free standing equipment and tanks, hardstands, parking areas and in/underground structures (including swimming pool) to 1 m below the surface, and fill in. Internal access road from the Wangi Road entry to parking area adjacent to the four cottages is to be retained.
- Demolition/removal of structures in or adjacent to Whiteheads Lagoon as listed in Crown Land Licence 656440 (i.e., boat shed, ramps, jetties, ski jump, light, video poles etc.)
- Removal of furniture, fixtures and equipment within above ground structures or located within native vegetation area.
- Inground and above ground services capped, made safe and abandoned in-situ.
- Incoming power and water supplies to be terminated.

Make Good

- Minor site regrading to install stormwater controls, as necessary.
- Contamination removal and remediation and make good because of the occupation and operation of the Existing Facility as required. Encapsulate waste on site, where practicable.
- Stabilisation of demolition areas of the Site, where required, with hydromulch or equivalent; and minor weed removal to be undertaken. No work proposed to other parcels outside the Existing Facility.
- Fencing and signage installation.

Figure 1 Myuna Bay Sport and Recreation Centre site

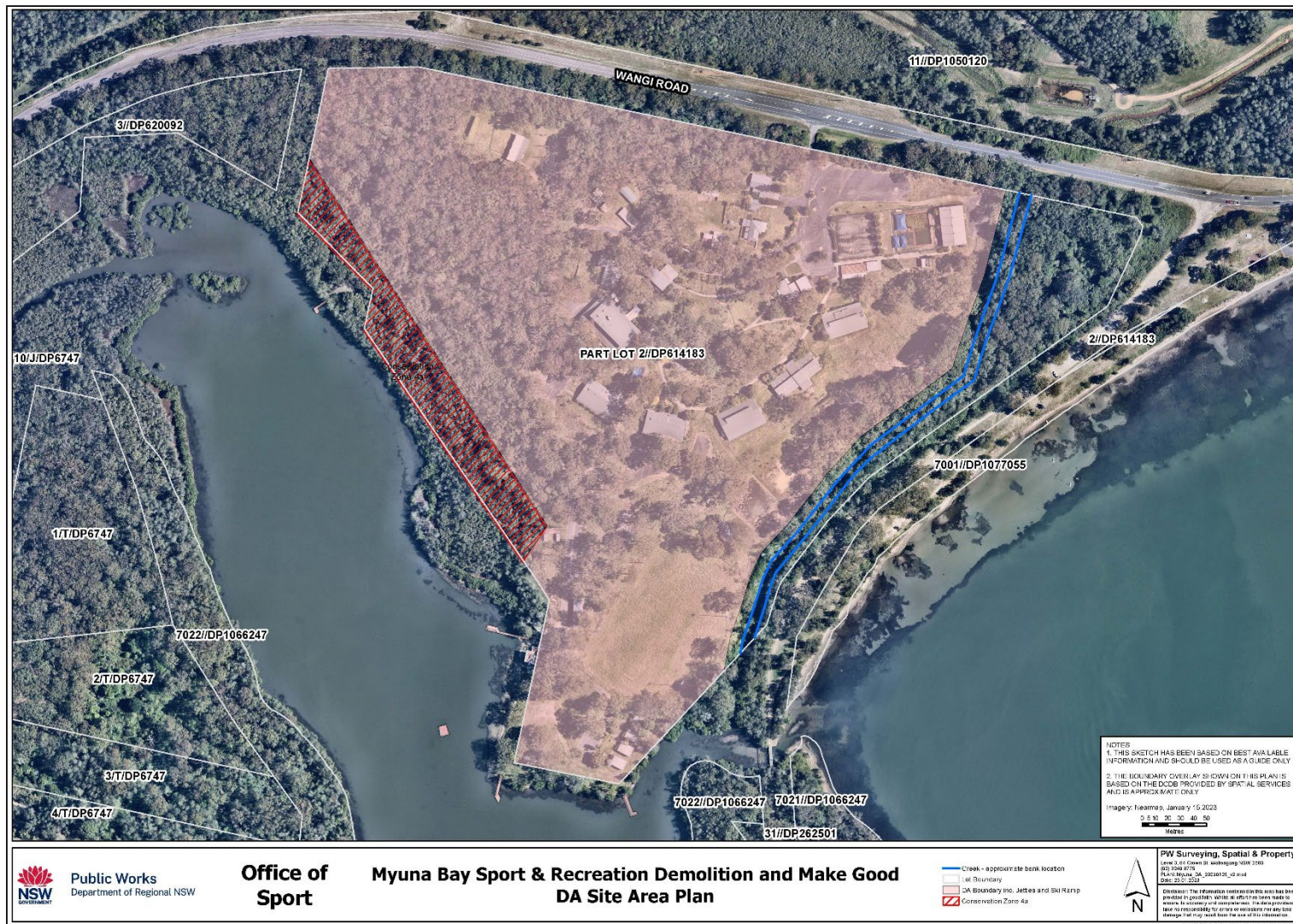


Figure 2 Crown Land subject to Licence RI 565440



The total Lot size is 18.87 ha, with the investigated area subject to the Development Application about 15.83 ha. A base map of the site is provided in Appendix 2.

Unless a specific aspect is referred to, the work would hereafter be referred to as 'the proposed work' or 'the proposal'.

3. Legislative requirements

A number of Commonwealth, State and local Acts, policies and/or documents are relevant to the proposal and its possible impact on the ecology of both the subject site and its locality. The most relevant of these are listed in Table 1.

4. Natural values assessment

4.1. Desktop analysis

4.1.1 Literature review and field guides

Prior to carrying out fieldwork, known databases and/or previous studies conducted in the surrounding region were reviewed to identify matters such as the diversity of ecological communities, flora and fauna species known for, or potentially occurring in, the study region, significant habitat, areas of outstanding biodiversity value, and so forth.

The identification of those known or potentially occurring native species and communities within this portion of the City of Lake Macquarie LGA, particularly those listed under the Schedules to the EPBC and BC Acts, thereby permits the tailoring of field survey strategies to the detection of these plants and animals, their vegetation associations and/or necessary habitat requirements. By identifying likely species, particularly any threatened plants and animals, either the most appropriate species-specific survey techniques may be selected [should their associated vegetation communities/habitat requirements be present] or a precautionary approach adopted.

The conducting of a literature search also ensures that the results from surveys conducted during different climatic, seasonal and date periods are considered and drawn upon as required. This approach therefore increases the probability of considering the presence of, and possible impacts on, all known and likely native species, particularly any plants and animals that are of regional, State and/or national conservation concern. This approach also avoids issues inherent with a one off 'snap shot' study.

A list of prominent databases, dates these were accessed, and the search area employed is provided in Table 2. Additional databases, reports and documents referred to as provided within the Reference section of this report.

All these databases and reports were reviewed and drawn upon where relevant. Whilst reviewing these documents, particular attention was paid to identifying relevant ecological matters listed under the Schedules of the EPBC and BC Acts, plants, animals and ecological communities that have been recorded in the region and which may occur within, or in the vicinity of, the study area.

Nomenclature follows that within the EPBC and BC Acts, or texts provided within Section 8 of this report. It is noted that the current accepted scientific names for some of the threatened fauna species previously recorded in this locality are not consistent with the names used/provided under either the EPBC or BC Acts. In these instances, nomenclature used within this report follows the current approved scientific conventions.

Table 1 Summary of legislative and policy requirements

Level	Relevant Legislation/Policy	Relevance to study area
Commonwealth	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Under this Act an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance. Matters of national environmental significance include listed threatened species and ecological communities, and those migratory species protected under international agreements. Where found, the assessment criteria relevant to this Act will be drawn upon to determine whether there would be a significant effect on these species and communities and hence whether referral to the Federal Environment Minister is required.
State	<i>NSW Environmental Planning and Assessment Act 1979</i>	Part 4 of this Act requires that a determination be made as to whether a proposed action is likely to significantly affect threatened species or ecological communities, or their habitats listed on Schedule 1 and 2 of the BC Act. Where found, the assessment criteria under Part 7 Section 7.3 of the BC Act (the 'Assessment of Significance') will be drawn upon to determine whether there would be a significant effect on these species and, hence, whether a Species Impact Statement [or alternatively, a Biodiversity Development Assessment Report (BDAR)] is required.
	<i>NSW Biodiversity Conservation Act 2016</i>	The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. This Act defines those species listed as protected in NSW. Part 7.2 of this Act requires assessment of whether a development or activity is "likely to significantly affect threatened species."
	<i>NSW Biosecurity Act 2015</i>	Part 3, Clause 22 of this Act states 'any person who deals with biosecurity matter or a carrier and who knows, or ought reasonably to know, the biosecurity risk posed or likely to be posed by the biosecurity matter, carrier or dealing has a biosecurity duty to ensure that, so far as is reasonably practicable, the biosecurity risk is prevented, eliminated or minimised'. This includes pest animal and plants species as defined under Clause 15 of the Act and anything declared by the regulations to be a pest for the purposes of this Act.
	State Environmental Planning Policy (Biodiversity Conservation) 2021	Chapter 4 of this SEPP requires consideration of whether a proposal will affect Core Koala habitat as defined in the SEPP. If so, a plan of management for the Koala must be prepared in accordance with Part 4.3 of the SEPP.
	State Environmental Planning Policy (Resilience and Hazards) 2021	The objectives of Chapter 2 Coastal Management of the SEPP include: (a) managing development in the coastal zone and protecting the environmental assets of the coast, (b) establishing a framework for land use planning to guide decision-making in the coastal zone (c) mapping the 4 coastal management areas which comprise the NSW coastal zone, in accordance with the definitions in the <i>Coastal Management Act 2016</i> .

Level	Relevant Legislation/Policy	Relevance to study area
		Division 1 Coastal wetlands and littoral rainforest area, Division 2 Coastal vulnerability area, Division 3 Coastal environment area and Division 4 Coastal use area requires consideration of whether a proposal on land that is within/in proximity to these four coastal management areas is likely to cause an adverse impact.
Local	Lake Macquarie Local Environmental Plan (LMLEP) 2014	This plan aims to make local environmental planning provisions for land in Lake Macquarie City in accordance with the relevant standard environmental planning instrument under Section 3.20 of the EPA Act. The proposed work is within land zoned SP3 Tourist, RE1 Public Recreation and W1 Natural Waterways. The particular aims of this Plan relevant to the proposal are as follows: (a) to recognise the importance of Lake Macquarie and its waterways, including the coast, as an environmental, social, recreational and economic asset to Lake Macquarie City and the Hunter and Central Coast regions (b) to implement a planning framework that protects areas of significant conservation importance, while facilitating development and public facilities in appropriate areas, that are accessible to a range of population groups, to accommodate Lake Macquarie City's social and economic needs (c) to apply the principles of ecologically sustainable development. The Biodiversity Assessment has been prepared to support a DA to Lake Macquarie City Council. The proposal is permissible with development consent.

Table 2 Database searches

Database/information source	Date accessed	Search area
Protected Matters Search Tool (PMST) (DCCEEW 2023a)	20 January 2023	10 km buffer on study area
Register of Critical Habitat (DCCEEW 2023c)	January 2023	Study area
BioNet Atlas database (DPE 2023a)	20 January 2023	10 km buffer on study area
Areas of Outstanding Biodiversity Value register (DPE 2023b)	January 2023	Study area
Biodiversity Vales Map and Threshold Tool (BVMTT) (NSW Government 2023b)	January 2023	Study area
NSW WeedWise: Priority weeds for the Hunter (including LM LGA) (DPI 2023a)	January 2023	Hunter region
State Vegetation Type Map (NSW Government & DPE 2022)	January 2023	Study area
BioNet Vegetation Classification database (NSW Government 2023c)	January 2023	N/A

4.1.2 Vegetation mapping

The PCT's in the study area were reviewed with reference to the SVMT (release C1.1.M1) (State Government of NSW and DPE 2022). Three PCTs are mapped within the activity footprint, these expected to be impacted by the proposed work. Refer to s.4.3.3.2 of this report.

4.1.3 Biodiversity Values Map

With reference to the BVMTT (NSW Government 2023b), it has been identified that:

- An approximate 0.54 ha of bushland that occurs along the western boundary of the proposed terrestrial work footprint is mapped as having biodiversity value (Appendix 3).
- The area threshold for clearing of native vegetation is 0.5 ha.

Clearing of vegetation (with the exception of weed management) is not expected to extend into the mapped biodiversity area, nor is the proposed activity expected to have an adverse effect on the mapped biodiversity. Given that proposed vegetation removal is not expected to exceed the clearing threshold, the proposed work does not need to be assessed in accordance with Part 6 (the Biodiversity Offsets Scheme) of the BC Act. Therefore, the application of the BAM (as per Division 2, Part 6 of the BC Act) is not required, and the preparation of a BDAR does not need to be conducted as part of the proposal.

4.1.4 Threatened species

A review of the DCCEEW's PMST and DPE's BioNet Atlas databases (DCCEEW 2023a, DPE 2023a) identified 25 threatened flora and 72 threatened fauna species listed under the Schedules of the EPBC and/or BC Acts that have been previously recorded, or are considered to have habitat, within a 10 km radius of the study area (Appendix 4). Figures 3 and 4 presents those species, previously recorded within 10 km radius per BioNet Atlas, proximate to the proposal area [note: some species' locations overlap due to having the same GPS coordinate on the BioNet where one 'record' may account for several animals/plants). Records for pelagic or estuarine species were not considered as the area investigated does not support the necessary foraging and breeding habitats for these animals.

Based on a consideration of the habitat needs of those threatened species listed in Appendix 4 (as provided in standard texts/online profiles – refer to the bibliography section for those used), combined with the identification of those habitats present within the study area, there is the potential for some of the species in Appendix 4 to occur in the vicinity of the study area. As such, during the course of the field investigation, consideration was given to identifying the presence of these species, or occurrences of their necessary vegetation associations/habitats, within the study area.

It is acknowledged that targeted surveys for hollow-dependent species were not conducted during the

investigation; therefore, their presence is assumed based on the adoption of the precautionary approach. Several threatened hollow-dependent Yangochiroptera (insectivorous bats [hereafter referred to as microbats]) have been previously recorded within 10 km of the site surveyed (DPE 2023a) (Appendix 4); however, as no tree (including hollow-bearing) removal is required to achieve the objectives of the proposal, this group of animals is not considered to be directly or indirectly impacted by the proposed work.

Whilst previously recorded within and/or predicted as having habitat within 10 km of the study area, the majority of species listed in Appendix 4 would not occur within, or be reliant upon, the habitats observed within the impact footprint. Some individuals may traverse, fly over, forage or occur within the site on occasion (e.g., the Grey-headed Flying-fox¹ *Pteropus poliocephalus*); however, within the proposal impact footprint, no significant resources for the animals listed in Appendix 4 [such as hollow-bearing trees, developed woodland, suitable cave-substitutes and so forth] are present or would be adversely impacted by the proposal.

The scale of work proposed is not considered to have an adverse impact on any of these species or their lifecycle requirements. The proposed work would not cause the local extinction of these species, nor would it present any significant barriers to their movement patterns. Beyond the existing conditions presented within the site, the work will not fragment or isolate any of their habitat areas. These animals are expected to be tolerant of the current nature of the fire trails and, post-work, are expected to be present within, and disperse across, both the subject site and surrounding area.

Figure 3 Threatened fauna species (previously recorded within 10 km) in the vicinity of the site



¹ Reference to the National Flying-fox monitoring viewer (DCCEEW 2023d), did not indicate the presence of any active or historic flying-fox camps within 7 km of the surveyed site.

Figure 4 Threatened flora species (previously recorded within 10 km) in the vicinity of the site

4.1.5 Critical habitat

Through reference to the Australian Government's Register of Critical Habitat (DCCEEW 2023c), and the AOBV register (DPE 2023c) (in conjunction with Part 3 of the Biodiversity Conservation Regulation 2017), per listings provided under the EPBC and BC Acts, no gazetted areas of critical habitat or AOBV for any flora, terrestrial fauna species, populations or communities occur within or near to the scope of work proposed.

4.2. Landscape values

4.2.1 Existing environment

The site is located proximate to the Myuna Bay inlet of Lake Macquarie. Site frontage is to Wangi Road to the north, from which site access occurs; an internal bitumen road continuing in a general southern direction through the property to the boat ramp, and a parking area adjacent to four cottages, in the southern extent of the site.

The total Lot size is 18.87 ha, with the investigated area subject to the Development Application about 15.83 ha. The proposal footprint primarily supports a modified, disturbed/cleared environment, encompassing the existing sport and recreation centre buildings and assets (consisting of 36 buildings and 10 structures), all of which are to be decommissioned and demolished as part of the proposed work; roads, carparks and maintained green space. Interspersed amongst the disturbed/cleared areas are scattered canopy trees with a highly modified understorey.

To the east of the disturbed/cleared area the vegetation transitions into a moderate to high condition class Eucalypt Forest about 15-20 m in height, which transitions into a Swamp Oak (*Casuarina* sp.) paperbark forest facing Myuna Bay and Whiteheads Lagoon to the south of the site.

West of the disturbed/cleared area, the vegetation broadly consists of Eucalypt Forest which occupies about half of the property. A number of sporting installations (obstacle courses and the like) are located within the vegetation. Further to the west, the vegetation is in a near natural state.

It is acknowledged the band of vegetation around the edge of the property is not maintained, supporting an understorey of Lantana (*Lantana camara*). Native and exotic plantings, including cleared grassland and/or maintained (i.e., mown) lawns occur in the vicinity of existing infrastructure. No caves, rock-cropping (featuring ledges and crevices) or weathered (non-exfoliated) rock was observed on-site.

An environmental 4A Conservation Area is located along the western boundary edge of part Lot 2. This conservation area [within the mapped area of Biodiversity Value – see s.4.1.3 of this report] was developed to offset the development of the archery centre and includes bird and possum refuge boxes. Ongoing management of this land is required into the future.

One mapped waterway, Crooked Creek, traverses the eastern boundary of the area investigated. No further waterways are present within the site; however, Whiteheads Lagoon [within Myuna Bay] adjoins the western and southern boundary of the site, with Myuna Bay to the east of the property (refer to Section 4.2.3 of this report for further details).

In a broader context, the investigated site is situated within a locality occupied by rural landscapes and residential areas; intact, vegetated areas occur to the east, west and north, with residential properties primarily located along proximate foreshore areas, while Eraring Power Station and Eraring Ash Dam are located from 1.7 km west and 400 m north, respectively. Additional land uses include infrastructure, and transport routes.

The study area is not part of any conservation area; the nearest, Lake Macquarie Conservation Area, is located from about 6 km south-east of the area investigated.

According to monthly rainfall figures from Newcastle Nobbys Signal Station AWS², the mean annual rainfall experienced by the study region is 1118.6 millimetres (mm), with the greatest falls of 119.7 mm being encountered during the month of March (Bureau of Meteorology 2022a). January has a mean maximum summer temperature of 25.6°C, while July is the coldest month with a mean minimum of 8.5°C.

For reference, a photographic record of the area investigated has been provided (Appendix 5).

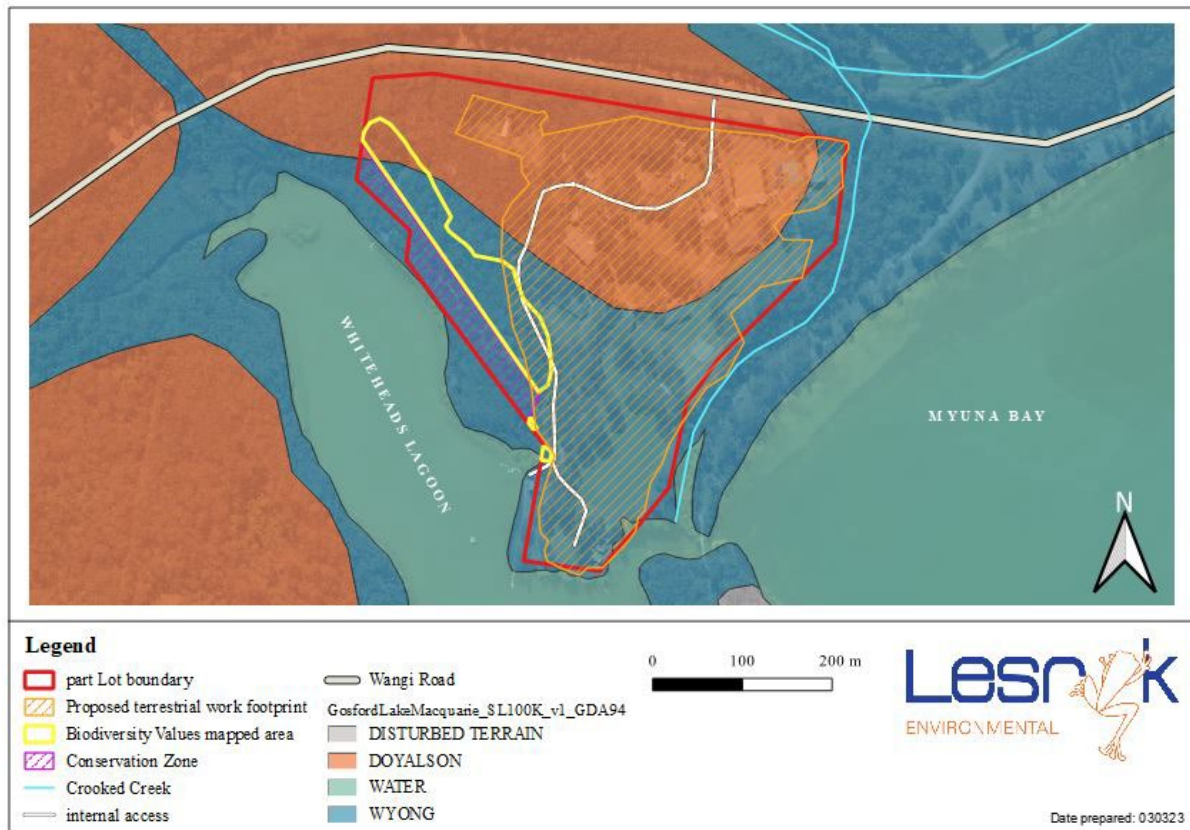
4.2.2 Geology and soil (including contamination)

The Gosford-Lake Macquarie 1:100,000 Soil Landscape map sheet (Murphy and Tille 1993), and with reference to the SEED Dataset mapping (State Government and DPE 1993), identifies that the investigated area is located within the following two soil landscapes (Figure 5):

- Doyalson
- Wyong.

The Doyalson geology is of the Narrabeen Group–Clifton Subgroup–Munmorah Conglomerate Formation: conglomerate, pebbly sandstone, grey green and grey siltstone and claystone (Murphy 1993). Some small areas of coarse quartz sandstone at the base of the Tuggerah Formation may be included. Moderately deep Yellow Earths, Yellow Podzolic Soils and Soloths occur on sandstones and conglomerates; moderately deep yellow Podzolic Soils, Soloths and some Red Podzolic Soils occur on fine-grained siltstones and claystone; moderately deep to deep Yellow Leached Earths, Grey Earths, Soloths and Gleyed Podzolic Soils occur along drainage lines. Limitations are high erosion, foundation (localised) hazards; high run-on (localised); mine subsidence district; seasonal waterlogging (localised); hardsetting, stoniness, strongly acid soils of low fertility.

² This is the nearest operating weather station to the study area.

Figure 5 Soil landscape

Wyong geology is Quaternary sediments-sand, silt, gravel and clay. Soils are deep Yellow Podzolic, Brown Podzolic and Soloths with some Humus Podzols around lake edges. Limitations are flooding; seasonal waterlogging; foundation hazard; permanent waterlogging (localised); stream bank erosion (localised); acid sulphate potential (localised); strongly acid, poorly drained, impermeable soils of very low fertility with saline subsoils.

Doyalson topography is generally undulating rises with local relief to 30 m and slope gradients <10 percent. Broad crests, ridges and long gently inclined slopes are the major landform elements; drainage lines are broad, with rock outcrop usually absent. Wyong topography is generally broad (2 km), poorly drained, deltaic floodplains and alluvial flats. Slope gradients are <3 percent and local relief <10 m. Levees, meander scrolls, oxbows and swamps are common; low lying, slightly elevated terraces are occasionally present.

Natural elevations within the area investigated range from 0 m to 14 m ASL.

The proposed work will include some earthwork activities in order to facilitate the demolition of infrastructure, and minor site regrading to install stormwater controls as necessary. If this was to coincide with a wet weather event, erosion may occur where surface runoff is concentrated.

Environmental safeguards and mitigation measures are identified in Section 5.3 of this report, including the establishment of sediment fencing/structures where required in accordance with Landcom's (2004) 'Managing Urban Stormwater: Soils and Construction' (the Blue Book).

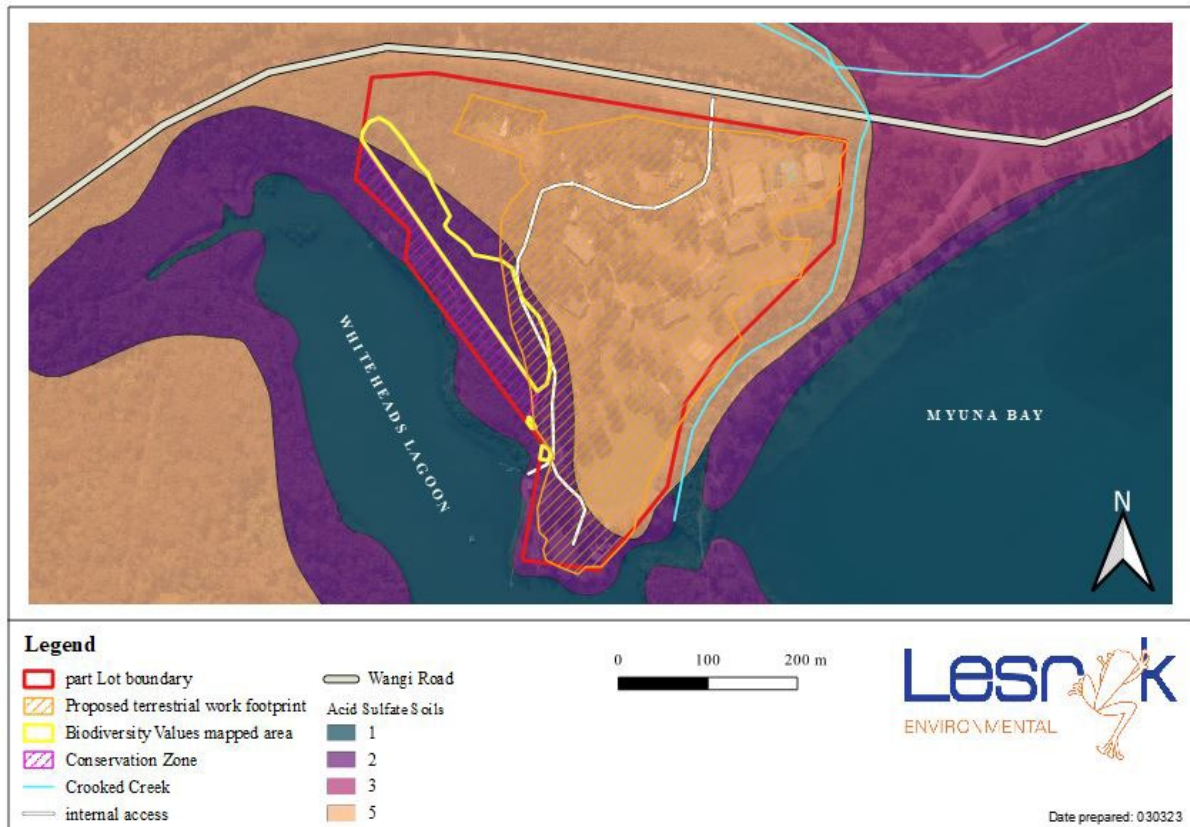
With regard to the EPA Contaminated Land Record [search area: Lake Macquarie City Council] (EPA 2023), the investigated site is not identified as supporting any land that is contaminated. However, the scope of work will entail localised contamination removal and remediation of site related infrastructure (i.e., general waste dump, underground fuel tanks, minor asbestos, lpg tanks, fire pit, grease traps, PCB's). It is expected demolition and removal, or encapsulation of waste on site, will be conducted by an appropriately licensed contractor under appropriate controlled conditions.

Acid Sulfate Soil

It is acknowledged a Site Analysis Plan is being developed internally by PW to support the DA. A component of this is to identify where excavation is proposed, and the location of any Acid Sulfate Soils or Potential Acid Sulfate Soils on the site. Qualtest Laboratory Pty Ltd have been engaged to undertake site sampling and prepare an Acid Sulphate Soil Management Plan for material to be potentially excavated for the proposed demolition and make good works.

A cursory reference to Acid Sulfate Soil SEED Dataset mapping (State Government of NSW and DPE 2023c) identifies that the site is mapped as Class 2, 3 and 5 (Figure 6). In accordance with Clause 7.1 of the LMLEP, the objective is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage.

Figure 6 Acid Sulfate Soil



Clause 7.1(2) states development consent is required for the carrying out of the following work on Class 2, 3 and 5 land:

Class of land	Work
2	Works below the natural ground surface. Works by which the watertable is likely to be lowered
3	Works more than 1 m below the natural ground surface. Works by which the watertable is likely to be lowered more than 1 m below the natural ground surface
5	Works within 500 m of adjacent Class 1, 2, 3 or 4 land that is below 5 m Australian Height Datum and by which the watertable is likely to be lowered below 1 m Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

However, clause 7.1(6) states, 'despite subclause (2), development consent is not required under this clause to carry out any works if—

- (a) the works involve the disturbance of less than 1 tonne of soil, and
- (b) the works are not likely to lower the watertable'.

The proposed work will involve minor earthwork, primarily site regrading to install stormwater controls as necessary; however, considerably less than 1 tonne of soil would be disturbed. Similarly, the work would not lower the watertable. The proposed work is primarily located within Class 5 land, within which, typically, acid sulfate soils are not found.

4.2.3 Watercourse, waterbodies and wetlands

One mapped waterway, Crooked Creek, traverses the eastern boundary of the area investigated. No further waterways are present within the site; however, Whiteheads Lagoon [within Myuna Bay] adjoins the western and southern boundary of the site, with Myuna Bay to the east of the property.

The proposed terrestrial demolition and revegetation work is not expected to exceed the western boundary of Crooked Creek.

A cursory reference to the DPI's Fisheries NSW Spatial Data Portal [layer: Central Rivers] (DPI 2023b) identifies that Crooked Creek, Whiteheads Lagoon and Myuna Bay are mapped as KFH (Figure 7); with limited sections of the southern and eastern work boundary part of the mapping.

It is acknowledged Lesryk's investigation and biodiversity assessment of the site was concerned only with the terrestrial aspect of the proposal; as such, no aquatic investigation or legislative considerations pursuant to the FM Act, are referred to in this report.

It is noted that an Aquatic report is being prepared by Advisian (Newcastle NSW).

Figure 7 Key Fish Habitat



In reference to s.2.7 and 2.8 of SEPP (Resilience and Hazards) 2021, utilising the [repealed] SEPP (Coastal Management) 2018 SEED Dataset mapping (State Government of NSW and DPE 2023b), about 0.37 ha of the western work boundary is mapped as Coastal Wetland, with about 0.52 ha of the proposed work area mapped as Coastal Wetland proximity area (Figure 8). It is acknowledged the mapping extends beyond the proposed terrestrial work footprint within the site. Refer to Section 5.5.5 of this report for the relevant legislative considerations.

Figure 8 Coastal Wetland and Proximity Area



No nationally important RAMSAR wetlands are identified within, or near to, the study area (DCCEEW 2023a). The nearest RAMSAR wetland, Hunter Estuary Wetlands, is located well beyond the study area from 29 km to the north-east. The area is not mapped as an NSW Marine Protected Area.

Reference to the Bureau of Meteorology GDE Atlas (Bureau of Meteorology 2023b) identified mapped areas of High, Moderate and Low potential Terrestrial GDE³ within the study area (Figure 9; red ellipse indicative of study area). Beyond the study area, Whitehead Lagoon and Myuna Bay are mapped as High and Moderate potential Aquatic GDE, respectively; however, no Aquatic GDE occurs within the site.

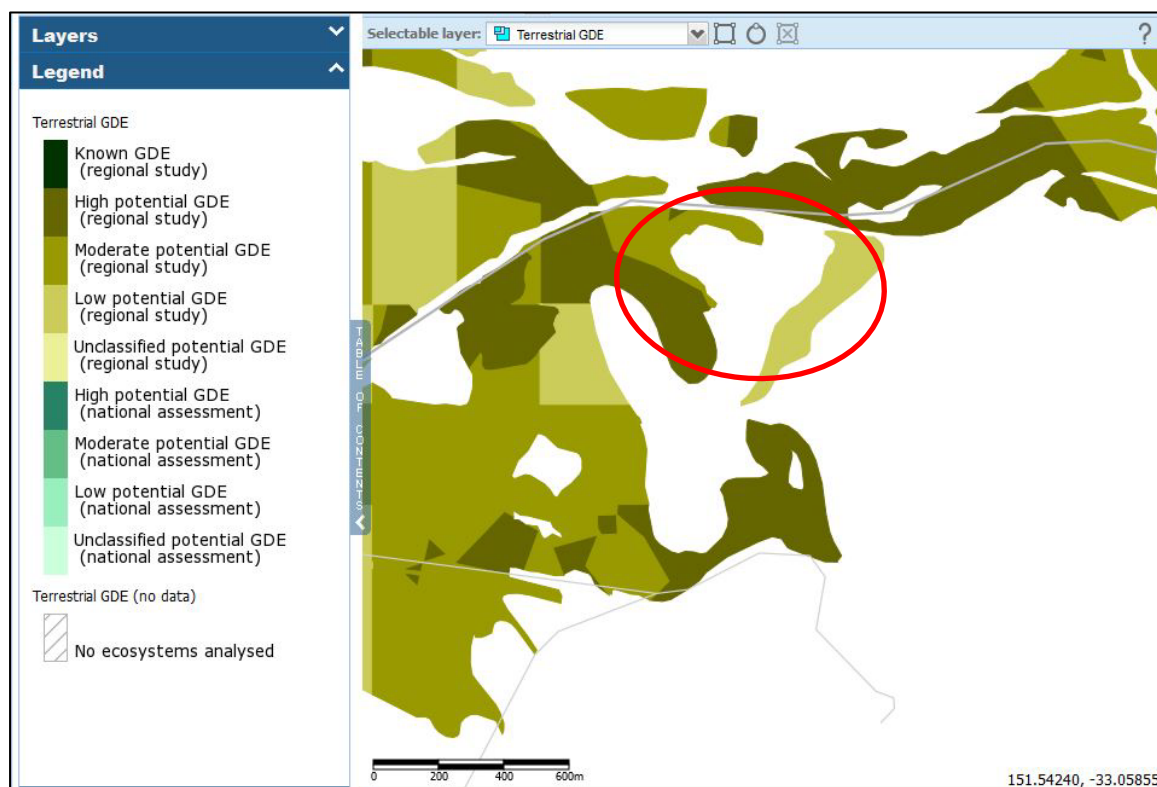
GDE's are communities of plants, animals and other organisms whose extent and life processes are dependent on groundwater. In reference to the DPI's (Office of Water) Risk Assessment guidelines for GDE (Serov *et al.* 2012), the proposed demolition and revegetation work would not have any direct or indirect impact on a water source or aquifer structure, nor would it involve groundwater extraction.

With the adoption of mitigation measures, the proposed work would not contribute to the off-site movement of sediment.

³ It is acknowledged that, at the time of the desktop survey, the GDE Atlas was not displaying a base layer to aid in detailed site identification.

Standard Erosion Sediment Control measures would be carried out and supervised by engaged contractors to ensure negligible impact on nearby waterways. Sedimentation fencing/structures (e.g., sandbags) would be erected/installed where ground disturbance is predicted, prior to the commencement, and kept in place for the duration, of the proposed work. During the works, these would be inspected and maintained (e.g., sediment build up cleared) as required.

Figure 9 Terrestrial Groundwater Dependent Ecosystem mapping



4.2.4 Coasts and estuaries

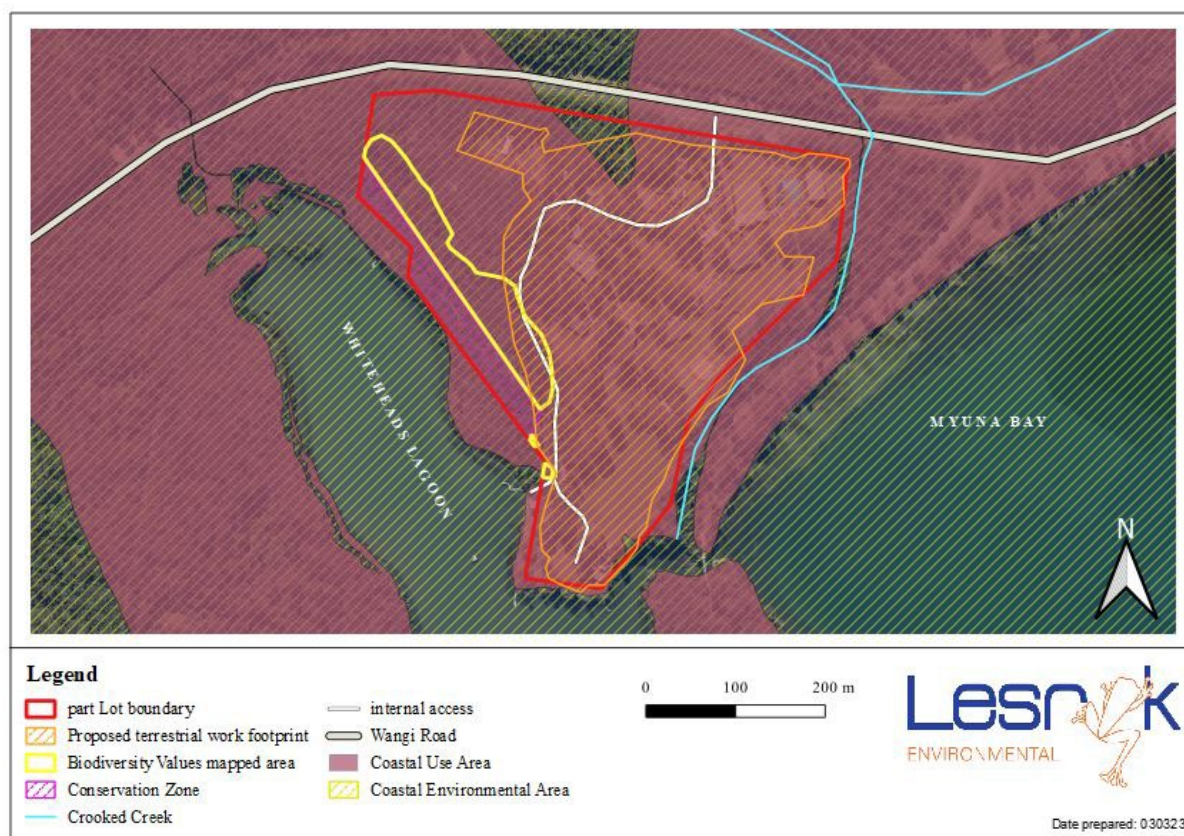
Reference to s.2.10 and s.2.11 of SEPP (Resilience and Hazards) 2021, utilising the [repealed] SEPP (Coastal Management) 2018 SEED Dataset mapping (State Government of NSW and DPE 2023b), identifies that the entire study area is mapped as Coastal Environment and Coastal Use Areas (Figure 10). Refer to Section 5.5.5 of this report for the relevant legislative considerations.

No estuaries are present within the study area.

4.3. Ecological values

4.3.1 Field survey methods

The site was investigated on 1 December 2022 by Deryk Engel (B.Env.Sc.[Hons]) [Director and Senior Ecologist], Peter Monsted (B.Sc.M.Sc) [Botanist] and Liam McDonagh (B.Env.Sc, Cert III Land Conservation Mng) [Botanist]. Generally, the weather conditions experienced during the field investigations were warm temperatures (~21°C), overcast skies (100%), with a slight breeze.

Figure 10 Coastal Environment and Coastal Use Areas

The purpose of the site investigation was to:

- identify any plants, animals, fauna habitats or vegetation communities that are of regional, State and/or national conservation significance as listed under the Schedules to the EPBC and BC Acts
- assess the structure of fauna habitats and vegetation communities present within, and adjacent to, the site.

Whilst conducting the habitat assessments, efforts were made to identify features such as known vegetation associations, geological features, feed trees, mature trees with hollows, connectivity of fauna corridors, aquatic environments, caves or suitable cave-substitutes and other habitat features important to the lifecycle requirements of those threatened plants and animals previously recorded within 10 km of the study area (as listed in Appendix 4).

The survey methods employed during the field investigation were:

- the identification of those plants within the area of likely disturbance, including both direct and indirect impact
- the identification of the structure of those vegetation communities and fauna habitats present
- the direct observation of those fauna species present within, or adjacent to, the area investigated
- diurnal call identifications of any vocal fauna species present within, or adjacent to, the subject site; with all calls being identified in the field
- inspections of any potential cave-substitutes (i.e., abandoned buildings) to detect the presence of microbats (or evidence to suggest their presence i.e., guano or staining), a hand-held torch being used to assist this method
- the identification of any indirect evidence such as tracks, scats, diggings and scratchings that would suggest the presence of any fauna species

- leaf litter and ground debris searches for any sheltering reptiles, amphibians
- targeted searches for species of State and national conservation concern, or their likely habitat areas, that were identified during the literature review stage of the project.

The investigations lasted for approximately 15 person hours. Given the size of the study area, the scale of the proposed work, the extent of disturbance and considering the condition of those fauna habitats and vegetation communities likely to be disturbed, this level of survey effort is considered more than adequate when endeavoring to determine the species and ecological communities present, and their conservation status.

When surveying the proposal area, the 'Random Meander Method' (Cropper 1993) was employed. This method involves conducting foot traverses through those sites that require investigation, during which time notes are made on the structure and floristic composition of the native vegetation present.

The 'Random Meander Method' is consistent with the stratified random sampling design as specified in section 5.1 (Stratification, sampling and replication) of the publication titled, *Threatened biodiversity survey and assessment: Guidelines for development and activities (working draft)* (DEC 2004). This method is also mentioned under sections 5.2.1 (Sampling techniques) and 5.2.7 (Targeting threatened plants) of this publication. The Random Meander Method is suitable for covering large areas and for locating any rare species (and their associated vegetation communities/habitat types) that may occur within a particular site.

The 'Random Meander Method' is employed until no new species have been recorded for at least 30 minutes, or where threatened flora species were recorded until the extent of the threatened species within the study area had been defined.

The survey methods employed, and level of effort required, were generally based on the descriptions provided in:

- *Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method* (State of NSW and DPIE 2020)
- *Threatened Species Survey and Assessment: Guidelines for developments and activities [Working draft]* (DEC 2004)
- The DEWHA survey guidelines for Australia's threatened bats, bird and frogs (DEWHA 2010a, DEWHA 2010b, DEWHA 2010c)
- The DSEWPC survey guidelines for Australia's threatened mammals and reptiles (DSEWPC 2011a, DSEWPC 2011b).

4.3.2 Limitations and assumptions

Access to all parts of the site requiring investigation was possible, thereby ensuring that all portions being treated were sampled. Site visibility was generally good, with limited hindrance due to vegetation density being encountered. Similarly, no adverse weather conditions or seasonal constraint were encountered during the field investigation.

While not considered to compromise the scientific rigour of the field assessment, given the predominantly modified and highly disturbed nature of the area investigated, and as no hollow-bearing trees are to be cleared, targeted species-specific surveys (e.g., echolocation detection, call playbacks and so forth) were not a component of this ecological study.

Within the impact footprint, no significant habitat features for those nocturnal species known to occur within this portion of the City of Lake Macquarie LGA, particularly those listed under the EPBC and/or BC Acts, were observed. Hollow-bearing trees were noted during the course of the diurnal survey, none being adversely affected by the scope of work proposed.

In order to overcome any of the 'limitations' encountered:

- database searches were conducted for threatened species, populations and ecological communities known to occur within the region

- the precautionary approach was adopted where necessary (i.e., suitable habitat for those threatened species known to occur, or that have been previously recorded within the surrounding locality, was identified).

Not all animals and plants can be fully accounted for within any given study area. The presence of threatened species is not static; it changes over time, often in response to longer term natural forces that can, at any time, be dramatically influenced by human-made disturbances.

This report is based upon data acquired from the current investigation; however, it should be recognised that the data gathered is indicative of the environmental conditions of the site at the time the field work was conducted.

4.3.3 Results

For the purpose of this assessment, the focus was to identify threatened species and confirm the PCTs present. It was not considered appropriate to provide an exhaustive list of all plants present in proximity to the site surveyed.

4.3.3.1 Vegetation communities recorded

Two PCTs are mapped within the footprint which will be impacted by the proposed work (Table 3; Figure 11). Existing PCT distribution is based on the refined PCT mapping within the DA area only.

Table 3. Plant Community Types

Vegetation Formation	Vegetation Class	PCT	Existing PCT distribution (ha)	Area of PCT to be modified
Dry Sclerophyll Forests (Shrubby sub-formation)	Sydney Coastal Dry Sclerophyll Forests	3583 Hunter Coast Lowland Scribbly Gum Forest	3.71	0.00
Forested Wetlands	Coastal Floodplain Wetlands	4036 Hunter Coast Lake Flats Apple Forest	2.18	0.00
Not native vegetation	Not native vegetation	Not classified	9.70	9.70
Total			15.59	9.70

During the site inspection, the vegetation communities were confirmed to align with the new SVTM PCT descriptions. No changes to the SVTM PCTs were proposed for this assessment. The extent of mapped vegetation around the clear/disturbed area, however, was refined to remove areas that were not representative of the PCT.

Descriptions of the PCT's present are provided below.

PCT 3583 Hunter Coast Lowland Scribbly Gum Forest

PCT 3583 is a Dry Sclerophyll Forest dominated by Narrow-leaved Scribbly Gum (*Eucalyptus racemose*) with Sydney Red Gum (*Angophora costata*), Red Mahogany (*Eucalyptus resinifera*) and Red Bloodwood (*Corymbia gummifera*). This PCT occurred on the higher elevation within the site above the influence of Whiteheads Lagoon and Myuna Bay.

Figure 11 Plant Community Types



The understorey was dominated by shrub species including Narrow-leaved Geebung (*Persoonia linearis*), Sweet Pittosporum (*Pittosporum undulatum*), Elderberry Panax (*Polyscias sambucifolia*), White Dogwood (*Ozothamnus diosmifolius*) and Coffee bush (*Breynia oblongifolia*). Areas of PCT 3583 interspersed with the sporting facilities had a modified ground cover that consisted of a mix of native and exotic grasses and forbs.

To the north of the buildings/structures and sporting facilities the understorey was dominated by Lantana and other weeds.

PCT 4036 Hunter Coast Lake Flats Apple Forest

PCT 4036 is classified as Forested Wetlands, and dominated by Forest Red Gum (*Eucalyptus tereticornis*) with Sydney Red Gum and Bangalay (*Eucalyptus botryoides*). This PCT occurred on the lower elevation within the site where the groundwater is influenced by Whiteheads Lagoon and Myuna Bay.

This community had a dense large shrub / small tree understorey to about 6 m high consisting of *Melaleuca sieberi* (a paperbark) and Prickly-leaved Paperbark (*Melaleuca nodosa*). A lower shrub stratum to about 2 m was dominated by Green Wattle (*Acacia irrorate*), Blunt-leaf Wattle (*Acacia obtusifolia*), White Dogwood (*Ozothamnus diosmifolius*), Coffee bush (*Breynia oblongifolia*) and Cherry Ballart (*Exocarpos cupressiformis*).

Similar to PCT 3583, areas of PCT 4036 interspersed with the sporting facilities had a modified ground cover that consisted of a mix of native and exotic grasses and forbs.

Non-native vegetation

The non-native vegetation that was not comprising the footprint of the building/structures, road, carparks, pool and oval, consisted of turfed areas with scattered landscape plantings that included Lemon-scented Gum (*Corymbia citriodora*, a species not endemic to NSW) and Tuckeroo (*Cupaniopsis anacardioides*, a small native tree) in windrow plantation. Areas that were mapped as PCT 3583 or PCT 4036 that were dominated by Lemon-scented Gum or other landscape plantings with a turf or weed dominated understorey were reclassified as non-native vegetation.

4.3.3.1 Threatened Ecological Communities

Neither PCT 3583 nor PCT 4036 are associated with any TEC listed, or currently being considered for listing, under the EPBC or BC Acts. Therefore, no assessments on TECs were considered necessary.

PCT 4036 may be associated with NSW Subtropical Coastal Floodplain Forest TEC where it occurs in the NSW North Coast bioregion (IBRA Version 4.0) (north of Newcastle); however, as the subject site is located within the Sydney Basin bioregion, PCT 4036 at the site does not form part of the TEC.

4.3.3.2 Flora species recorded

A total of 78 species of plant were recorded within the site, consisting of 55 native, and 23 exotic, species (Appendix 6).

Though considered and targeted, no threatened plants listed under the EPBC and/or BC Acts were recorded in within the site.

As they have been previously recorded and/or as suitable habitat is present, it is considered necessary to adopt the precautionary approach to the potential presence of the following flora species:

- Bynoe's Wattle (*Acacia bynoeana*) – Vulnerable, EPBC Act; Endangered, BC Act
- Charmhaven Apple (*Angophora inopina*) – Vulnerable, EPBC and BC Acts
- Small-flower Grevillea (*Grevillea parviflora* subsp. *parviflora*) – Vulnerable, EPBC and BC Acts
- Black-eyed Susan (*Tetratheca juncea*) – Vulnerable, EPBC and BC Acts.

To consider the impact the proposal may have on these potentially occurring threatened flora species, assessments drawing on the EPBC Act's Significant Impact Guidelines (DE 2013) and the criteria provided under Section 7.3 of the BC Act have been conducted (Appendix 7); these concluding that the proposal would not have a significant impact on these species. As such, the preparation of a SIS [or BDAR should OOS pursue that option] is not required.

Weeds of significance

Under the *Biosecurity Act 2015* 'all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.'

The following Priority Weeds or other weeds of regional concern (DPI 2023a), under Schedule 3 of the NSW Biosecurity Regulation 2017 and weeds listed as WoNS (WA 2023) were recorded at the site:

State Priority Weed / WONS

- Lantana (*Lantana camara*)
- Bitou Bush / Boneseed (*Chrysanthemoides monilifera*)

Regional priority weeds:

- Pampas Grass (*Cortaderia selloana*)

Other weed of regional concern

- Crofton Weed (*Ageratina Adenophora*)
- Fireweed (*Senecio madagascariensis*)
- Whiskey Grass (*Andropogon virginicus*)
- Blackberry (*Rubus fruticosus* sp. agg.)
- Wild Tobacco Bush (*Solanum mauritianum*).

Preparation of a Weed Management Plan that addresses these species has been recommended.

4.3.3.3 Fauna species recorded

By the completion of the field investigation, of the 42 native birds and one reptile detected (Appendix 8), two of the birds were listed under the EPBC and BC Acts:

- White-bellied Sea-eagle (*Haliaeetus leucogaster*) (Marine, EPBC Act; Vulnerable, BC Act)
- Eastern Osprey (*Pandion cristatus*) (Migratory and Marine, EPBC Act; Vulnerable, BC Act).

Two White-bellied Sea-eagles (an adult with its young) and an Eastern Osprey were observed flying over the southern extent of the site; while an Eastern Osprey nest was observed atop a light pole on the eastern side of the oval (Table 4, Figure 12). Though the nest was not being attended to at the time of the investigation, it is considered 'active', with fresh white-wash noted. It is recommended that this light pole be retained *in situ*.

Excluding this nest, no large stick nests were observed in any other part of the area investigated.

Table 4 GPS coordinates for recorded threatened fauna species

Species	Easting	Northing
White-bellied Sea-eagle <i>Haliaeetus leucogaster</i>	364082	6340572
Eastern Osprey <i>Pandion cristatus</i>	364109	6340592
Eastern Osprey nest	364220	6340602

Figure 12 Locations of threatened fauna species recorded



The proposal would not affect any aquatic environments over which these birds would forage.

In addition to evidence of the Eastern Osprey nesting within the site, these two species may perch and traverse over the study area on occasion; however, with the recommendation that the identified light pole be retained, the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by these species such that their local presence would be compromised, nor will it present any barriers to their movement patterns.

As the proposed work is not located within the Commonwealth marine area, this being from 3 to 200 nautical miles from the coast, no assessment referencing the EPBC Significant Impact Guidelines that are relevant to the Commonwealth marine environment, with regard to these species, is considered necessary. No further legislative consideration [under the EPBC Act] with regard to the Marine listing for the White-bellied Sea-eagle or Eastern Osprey has been provided within this report.

The review of the BioNet Atlas identified that the Green Turtle (*Chelonia mydas*), listed as Vulnerable under the EPBC and BC Acts, has been previously recorded within the site (refer to Figure 3). In this instance, the observed detection of the Green Turtle in 2003 was noted as a “stranding/beaching”. This species is ocean-dwelling, and, although it occurs in coastal waters of NSW, it is not considered to rely on habitats within or proximate to the proposed work.

Several threatened cave-dependent microbats have been previously recorded within 10 km of the proposal area, listed as Vulnerable under either the EPBC or BC Acts (Appendix 4). As suitable substitute habitat (i.e., buildings) that could potentially be used by this group of animals for roosting on occasion are to be demolished, external inspections of the buildings (i.e., structural voids), were conducted with a hand-held torch; however, this group of animals or evidence of their occupation (i.e., accumulation of guano) were not recorded.

As the proposed work is not considered likely to have a significant effect on the White-bellied Sea-eagle or Eastern Osprey, or any other potentially occurring threatened fauna species, assessments

referencing the EPBC Significant Impact Guidelines, nor the criteria provided under Section 7.3 of the BC Act (the Assessment of Significance or as they are commonly referred to, the '5-part' test), are not considered necessary. Referral of the proposal as a controlled action to the Federal Minister of the Environment is not required, nor is the preparation of a SIS.

The remaining non-threatened native species recorded are all protected, as defined by the BC Act, but considered to be common to abundant throughout, and well conserved within, the surrounding region. Within the surrounding areas these non-threatened species have been recorded in association with a range of woodland habitats, as well as urban environments. These species would not be solely reliant upon the habitats that are present within the footprint of the proposed work such that the further permanent/temporary disturbance of these would threaten the local or regional occurrence of these animals. The animals recorded are all expected to be present within both the subject site and surrounding area post-work.

4.3.3.4 Habitat types for terrestrial native fauna species

Two habitat types available to native fauna were recorded within the area surveyed, these being:

- Modified/disturbed/cleared environment
- Eucalypt Forest transitioning into Swamp Oak (*casuarina*) paperbark forest.

For reference, a description of these is provided below. It is recommended these descriptions be read in conjunction with reference to the photographic record provided (Appendix 5).

Modified/disturbed/cleared environment

This environment includes the existing buildings, ancillary infrastructure, access road, pathways and grasslands; sites that have been modified, and areas previously disturbed and cleared.

A variety of native and exotic planted shrubs (2 – 3 m high) are present in the vicinity of this environment, either in garden beds or as isolated individuals, where they have been initially maintained above mulched garden beds or mown lawns. Unmaintained lawns, garden plantings and both planted and remnant trees (including non-endemic native species) were observed in the vicinity of the former staff housing. Linear plantings of exotic pines were also observed on-site.

Rank grasslands support exotic species and weeds to 0.5 m high, with the occasional isolated regenerating eucalypt sapling and exotic pines (to 1 m) are present. A 10-50 m wide band of *Lantana* (*Lantana Camara*) was noted near the unformed track on the eastern side of the facilities in the understorey of the Eucalypt woodland fronting Myuna Bay.

The bitumen road is 3-4 m wide. Existing pathways/tracks are paved or earthen.

The modified/disturbed/cleared environment is generally devoid of significant native vegetation and of little to no ecological value. This habitat type dominates the proposal footprint and would be the main one affected by the works.

Eucalypt Forest transitioning into Swamp Oak (*casuarina*) paperbark forest

This habitat type is present east of the disturbed/cleared area, supporting a continuous canopy with trees 15-20 m high. Some of the mature eucalypts were observed to be hollow-bearing (hollow diameter up to 100 mm). The middle-storey features a sparse to medium density of isolated individuals to 8 m in height, and a high-density understorey of exotic weeds to 2 m high. The ground cover layer is comprised of grasses and ferns to about 50 cm tall, with leaf litter and ground debris common.

Mangroves were observed along the foreshore.

As identified in s. 4.1.4 of this report, the recorded hollow-bearing trees are available for occupation by a number of those species previously recorded within this portion of the Lake Macquarie Local Government Area, such as the hollow-dependent microbats and hollow-utilising birds. Whilst these species could be present within these plants (it is noted no birds were observed entering or exiting the

hollow-bearing trees at the time of the field survey), none of the hollow-bearing trees will be cleared to permit the works. Recommendation have been presented to negate the effect of any indirect impacts, such as compaction and disturbance of their root balls.

4.3.3.5 Wildlife corridors and vegetation links

Reference to SEED Dataset mapping does not identify the study area as part of Fauna Key Habitats or Fauna Corridor for North East NSW (State Government of NSW and DPIE 2010a, 2010b) (Figure 13).

Figure 13 Key fauna habitat and corridors



The key habitats map layer is a regional representation displaying the likelihood of occurrence of key habitats for fauna consolidated at the regional scale. Regional corridors are primary landscape connections between larger important areas of habitat; generally substantial in width (> 500 m) and provide not only for dispersal of individual species but act as habitat in their own right for a range of species, and should be at least twice the width of the average home range area of the animal species identified as potential users of the corridor (DEC 2004).

The investigated site is situated within a locality supporting vegetated areas to the east, west and north. With reference to Council's Native Vegetation Corridors Map (Plate A), within the investigated site, corridors less than 200 m wide of remnant native vegetation that contribute to movement and viability of flora and fauna are present along the eastern and northern boundary of the part Lot, and within the western portion. Partially cleared remnant vegetation provides tenuous links through the centre of the site to the more established corridors.

The presence of Wangi Road and its road reserve (up to 24 m wide within the study area) currently presents an adverse impact on north-south movement patterns of ground traversing species recorded or expected to occur within the investigated area.



Plate A. Lake Macquarie City Council's Native Vegetation Corridors Map extract

Temporary measures incorporated as part of the proposed work (i.e., erosion and sediment controls, exclusion fencing) would be established in accordance with applicable guidelines to prevent direct or indirect impact on fauna.

The proposed work, including the removal or disturbance of up to 7 ha of predominantly exotic vegetation (9.7 ha minus approximately 2.7 ha comprising building and pavement footprints), is not considered to isolate or further fragment any habitat areas or erect any additional barriers to the movement and dispersal patterns of fauna species currently negotiating the proposal area. No mature tree (including hollow-bearing) removal is required to permit the proposal.

In the operational phase of the proposal, given the scope of work proposed, all of the flying, ground-traversing or gliding animals currently negotiating the site are considered to continue to do so post-work. No migration of fauna species would be adversely impacted by the proposal. The proposed work is not considered to erect any additional barriers to the movement patterns of native animals (including both terrestrial and aquatic species), such that it is considered to isolate or further fragment any of their habitat areas.

4.4. Constraints

An approximate 0.54 ha along the western boundary of the proposed terrestrial work footprint is mapped on the BVMTT as having biodiversity value (NSW Government 2023b) (Appendix 3). Clearing of vegetation (with the exception of weed management) is not expected to extend into the mapped biodiversity area, nor is the proposed work expected to have an adverse effect on the mapped biodiversity.

The mapped Biodiversity Values extend beyond the proposed work footprint within the western portion of part Lot 2, comprising an environmental 4A Conservation Area (refer to Figure 1). This conservation area was developed to offset the development of the archery centre and includes bird and possum refuge boxes. Ongoing management of this land is required into the future. It is acknowledged the Conservation Zone is outside the proposed work footprint.

Given the presence of the active Eastern Osprey nest atop a light pole within the site (E364220; N6340602), it is recommended that the light pole be retained *in situ*. No disturbance to this light pole is to occur.

With the exception of these locations, no other ecological constraints that would prevent the proposed work proceeding as planned were identified. Though threatened species and habitat for threatened species were recorded or indicated as occurring adjacent to/in the wider locality during the course of the investigation, considering the proposed scope of work, none were assessed to be significantly affected, such that the viability of their local populations would be placed at risk of extinction.

Beyond the current situation, the work will not present any barriers to fauna movements and dispersal, or isolate/fragment any habitat areas.

5. Impact Assessment

5.1. Application of avoid and minimise principles

By virtue that the proposed demolition work is primarily set in an existing modified, disturbed/cleared environment, vegetation clearing requirements associated with the proposal have been minimised.

Given the primary objective of the proposed work is to demolish all existing infrastructure, it is not possible to avoid the removal/disturbance of about 7 ha of predominantly exotic vegetation [this primarily composed of groundcover species, shrubs and horticulturally produced landscape plantings]; however, stabilisation (through grass seeding where necessary) work of these actively used and disturbed areas will be implemented.

An active Eastern Osprey nest was observed atop a light pole on the eastern side of the oval within the southern extent of the site (Figure 12). Recommendations have been provided to retain the light pole *in situ* and avoid its disturbance.

No clearing of mature trees, including those that are hollow-bearing, will be conducted as part of the proposed work. To avoid further vegetation removal, vehicles are to drive over existing vegetated tracks as opposed to clearing these; while any temporary stockpiles are to be located in existing disturbed/cleared areas.

5.2. Application of mitigation measures

Impact On	Reasons	Impact Level	Safeguards/Mitigation Measures	Responsibility
General				
All environmental factors	Noncompliance with mitigation measures below	–	- A CEMP is to be prepared for the proposal. - As part of the 'site induction' all personnel are to be briefed of site sensitivities (e.g., areas of mapped biodiversity and the presence of the Osprey nest) prior to entering the work area.	Principal Contractor
Soil and Erosion				
Soil and landscape	Limit impact of soil disturbing activities on the landscape.	Low	- Sediment fencing/structures (e.g., sandbags) will be established as required prior to the commencement, and kept in place for the duration, of the proposed work in accordance with Landcom (2004) 'Soils and Construction: Managing Urban Stormwater' (the Blue Book). These are to be maintained and will not be removed until the work is complete or the area is stabilised. - Where applicable, scheduled inspections of these will be made to ensure compliance. - Work will be programmed to coincide with those periods when dry weather is predicted. - A water cart would be made available for dust suppression. - Restrict the location of any temporary stockpile site to existing cleared areas located at least 50 m away from waterways, roads, slopes steeper than 10 percent, and areas of concentrated water flow. - Avoid unnecessary soil disturbance. - Disturbed surfaces would be compacted prior to the end of the work day or before rainfall to minimise potential for erosion and sedimentation during construction. - Uncontaminated surplus spoil will be retained and used on-site where applicable.	Principal Contractor
Water				
Water quality	Limit impact on water quality of nearby drainage lines	Low	- Damage to existing native riparian vegetation is to be avoided or minimised, and any damage caused is to be restored. - If required, refuelling of machinery is to occur within an impervious bunded area located more than 50 m from any drainage line to prevent the escape of substances into the surrounding environment.	Principal Contractor

Impact On	Reasons	Impact Level	Safeguards/Mitigation Measures	Responsibility
Biodiversity				
Flora and fauna	Reduce impact to flora and fauna	Low	- The light pole hosting the active Eastern Osprey nest (@E364220; N6340602) is to be retained <i>in situ</i>. No disturbance to this light pole is to occur. - During the course of the works a temporary buffer (e.g., star pickets/bunting) should be established around the light pole to prevent the parking of vehicles and machinery in proximity to this. - A Weed Management Plan should be prepared to address the presence of those WoNS and other significant weeds present. - Clearing of native vegetation/plants would not be more than that required to permit the scope of work. - The 4A Conservation Area, land mapped as Biodiversity Values, and limits of clearing and weed management are to be identified both on site maps/plans and on-site through the erection of temporary fencing, bunting or similar; and identified as 'no-go zones'. - No vehicles/machinery are to be parked/stored within 'no-go zones'. - Removed native vegetation will be mulched and used on-site as brush matting, to encourage natural regeneration where required. - Retained trees within the subject site would be either fenced off, with exclusion zones being established around each tree, or clearly identified to avoid disturbance. The 'no-go' exclusion zones would be located at an appropriate distance from the trunk of the plant, this generally corresponding to its dripline. - No mature or hollow-bearing trees will be removed or indirectly disturbed. - Vegetation removal work is not to be conducted during periods of high winds. - All vehicles/machinery would enter the site via the existing road network and stabilised access areas to prevent the introduction and spread of weed seeds and/or pathogens. - Drive over existing vegetated tracks as opposed to clearing these. - Refrain from parking any vehicle/storing machinery near tree trunks. - Construction machinery will be washed prior to entering and leaving site to ensure weed propagules are not transported. - Vehicles transporting any exotic vegetation off site should ensure that their loads are covered. - Where possible, relocate locally any pruned limbs as opposed to mulching, to provide habitat for native species.	Principal Contractor Qualified botanist Qualified ecologist

Impact On	Reasons	Impact Level	Safeguards/Mitigation Measures	Responsibility
			- The proposed activity has the potential to introduce these pathogens (<i>Phytophthora cinnamomi</i>, Myrtle Rust) that live in soils and plant roots and is the key organism associated with the dieback of native plant species in Australia. Work must therefore avoid the potential spread of these organism as far as possible, with contractors adhering to the following hygiene protocols: - Before entering and leaving the work site, workers are to remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant supplied by the contractor (70% Methylated spirits / 30% Water) until runoff is clear. - Avoid unnecessary soil disturbance. - Inadvertent disturbed areas not part of the proposed scope of work will be permitted to naturally revegetate. - Any animals injured during the proposed work would be collected and taken to a local veterinarian or wildlife carer for treatment - Once rehabilitated, native animals must be released at their point of capture. - It is expected injured exotic species would be ethically treated.	
Waste Management and Minimisation				
Waste management	Minimise waste during construction and dispose of waste responsibly	Low	- Weed contaminated green waste and any surplus spoil and other materials would be disposed of appropriately at a licensed landfill facility. - Recycling methods will be enacted where applicable. - Personal rubbish is to be collected and deposited into a Council serviced bin. - Visual inspections of the site are to be made at the completion of the work to ensure no urban refuse remains.	Principal Contractor

5.3. Impact assessment

Based on a worst-case estimate, the proposed work is expected to result in a total direct and indirect impact of 9.7 ha, inclusive of disturbance/removal of about 7 ha of non-native vegetation (this composed of lawns, landscaped gardens, planted, horticulturally available, trees and shrubs and possibly some naturally regenerating saplings on those mounds of deposited material). The immediate vicinity of the proposed demolition work is generally already modified, cleared/disturbed, comprising mostly planted native and exotic plants. Thus, only minimal vegetation impact would occur.

Table 5 presents the level of native vegetation disturbance/modification related to the recorded PCTs. The extent of vegetation to be modified represents potential disturbance that may occur in the entire areas of PCTs during the demolition of the sporting installation and areas of pavement. However, given the sporting installation and areas of pavement do not occupy the entire PCT area, it is likely that 5.89 ha represents an over-estimation. Further, following the removal of the sporting installation and other facilities, the affected area is likely to naturally regenerate towards a higher vegetation integrity.

Table 6 presents those threatened species recorded or potentially occurring, and whether assessments have been conducted.

Table 5 Level of native vegetation disturbance/modification

PCT	Conservation status	Vegetation to be removed (ha)	Vegetation to be modified	Total area impacted
3583	Protected	0.0	3.71	0.0
4036	Protected	0.0	2.18	0.0
Total		0.0	5.89	5.89

Table 6 Threatened species recorded and/or potentially occurring

Species	Detection	EPBC Act	BC Act	Assessment
Bynoe's Wattle	Presence assumed	Vulnerable	Endangered	Yes
Charmhaven Apple	Presence assumed	Vulnerable	Vulnerable	Yes
Small-flower Grevillea	Presence assumed	Vulnerable	Vulnerable	Yes
Black-eyed Susan	Presence assumed	Vulnerable	Vulnerable	Yes
White-bellied Sea-eagle	Recorded	Marine	Vulnerable	No
Eastern Osprey	Recorded	Migratory, Marine	Vulnerable	No

Impact to the recorded EPBC and BC Act listed Eastern Osprey's nest will be avoided through the retention of the light pole *in situ*.

As the proposed work is not considered likely to have a significant effect on the recorded White-bellied Sea-eagle or Eastern Osprey, or any other potentially occurring threatened fauna species, assessments referencing the EPBC Significant Impact Guidelines, or the criteria provided under Section 7.3 of the BC Act, are not considered necessary for these fauna species. Assessments to consider further impact of the proposal on the potentially occurring threatened flora species are provided in Appendix 7.

5.3.1 Key Threatening Processes

Of the KTP listed under the EPBC and/or BC Acts, those that are relevant to the proposal are identified below. Based on the adherence of those recommendations provided in Section 5.2 and 7 of this report, the proposal can proceed as planned without contributing to, or increasing the impact of, the following KTPs:

- *Clearing of native vegetation* (BC Act)

Based on a worst-case estimate, the proposed work would require total direct/indirect impact of 9.7 ha, involving an expected disturbance/removal of up to about 7 ha of non-native vegetation. Given the extent of similar and better-quality resources within the study area and beyond, and the revegetation work to be implemented, the loss of this amount of vegetation is not considered to significantly contribute to this KTP.

- *Infection of native plants by *Phytophthora cinnamomi** (BC Act)
- *Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)* (EPBC Act)
- *Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae (Myrtle Rust)* (BC Act).

The proposed activity has the potential to introduce these pathogens that live in soils and plant roots and is the key organism associated with the dieback of native plant species in Australia. Work must therefore avoid the potential spread of these organism as far as possible, with contractors adhering to the following hygiene protocols:

- Before entering and leaving the work site, workers are to remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant supplied by the contractor (70% Methylated spirits / 30% Water) until runoff is clear.
- Avoid unnecessary soil disturbance.

5.4. Legislative consideration

5.4.1 Commonwealth – *Environment Protection and Biodiversity Conservation Act 1999*

By the completion of the field investigation, the following threatened fauna species listed under this Act, were recorded within the study area:

- White-bellied Sea-eagle (Marine listing not relevant to the proposal)
- Eastern Osprey – listed as Migratory.

As the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by the White-bellied Sea-eagle or Eastern Osprey, and given the recommended retention of the identified light pole *in situ* (hosting the Osprey's nest), no assessment on the Eastern Osprey referencing the EPBC Significant Impact Guidelines was considered necessary.

No threatened flora species listed under this Act were recorded within the study area during the site investigation for this assessment, or previously. The following four species of threatened plant or their habitat, however, were considered likely to occur within the study area:

- Bynoe's Wattle – Vulnerable
- Charmhaven Apple – Vulnerable
- Small-flower Grevillea – Vulnerable
- Black-eyed Susan – Vulnerable.

Impacts to these listed species have been assessed against the EPBC Act's Significant impact guidelines which concluded that the proposal is unlikely to have a significant impact on the species (Appendix 7). It is considered that the proposal is not a controlled action requiring referral to the Federal Minister for the Environment for further consideration or approval.

No TECs listed under this Act were recorded during the investigation, or considered likely to occur.

5.4.2 State – *Biodiversity Conservation Act 2016*

The BOS applies to development requiring consent under Part 4 of the EP&A Act that is likely to significantly affect threatened species or ecological communities, or their habitats. A proposal is 'likely to significantly affect threatened species, ecological communities or their habitats' if it:

- is carried out in a declared AOBV, or
- it involves clearing of native vegetation or a prescribed impact on land included in the Biodiversity Values Map, or
- it involves clearing of native vegetation that exceeds the relevant area clearing threshold, or
- it is likely to significantly affect threatened species, ecological communities or their habitats according to the Test of Significance.

No gazetted areas of critical habitat or AOBV for any flora, terrestrial fauna species, populations or communities occur within or near to the scope of work proposed.

An approximate 2.42 ha along the western boundary of the part Lot is mapped on the Biodiversity Values Map, with about 0.54 ha of this within the boundary of the proposed terrestrial work footprint. However, the activity in the BV mapped area will not involve clearing of native vegetation as defined in section 60C of the *Local Land Service Act 2013*, as follows.

Clearing native vegetation means any one or more of the following—
(a) cutting down, felling, uprooting, thinning or otherwise removing native vegetation,
(b) killing, destroying, poisoning, ringbarking or burning native vegetation.

Clearing of vegetation (with the exception of weed management) is not expected to extend into this area, nor is the proposed work expected to have an adverse effect on the mapped biodiversity. As such, proposed vegetation removal is not expected to exceed the clearing threshold.

By the completion of the field investigation, the following threatened fauna species listed as Vulnerable under this Act, were recorded within the study area:

- White-bellied Sea-eagle
- Eastern Osprey.

As the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by the White-bellied Sea-eagle or Eastern Osprey, and given the recommended retention *in situ* of the identified light pole (hosting the Osprey's nest), no assessment referencing the criteria of s.7.3 of the BC Act was considered necessary on these recorded fauna species.

No threatened flora species listed under this Act were recorded within the study area during the site investigation for this assessment, or previously. The following four species of threatened plant or their habitat, however, were considered likely to occur within the study area:

- Bynoe's Wattle – Endangered
- Charmhaven Apple – Vulnerable
- Small-flower Grevillea – Vulnerable
- Black-eyed Susan – Vulnerable.

Impact assessments for these potentially occurring listed flora species against the criteria provided under s.7.3 of the BC Act (significance assessment) concluded that the proposal is unlikely to significantly affect these species or their habitat (Appendix 7). As such, the preparation of a SIS/BDAR that further considers the impact of the proposal on these entities is not required, and the BOS is not triggered.

No TECs listed under this Act were recorded during the investigation, or considered likely to occur.

5.4.3 SEPP (Biodiversity and Conservation) 2021

In accordance with Chapter 4 'Koala habitat protection 2021' of the BCSEPP, City of Lake Macquarie LGA is identified under Schedule 2 of this SEPP as land to which this chapter applies, and part of the

- b) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable Koala habitat and where Koalas have been recorded as being present in the previous 18 years.

The proposal would not require the preparation of a Plan of Management for the conservation and management of areas of Koala habitat. The work will not require the adoption of any mitigation measures relevant to this species.

5.4.5 SEPP (Resilience and Hazards) 2021 (RHSEPP)

In reference to s.2.7 and 2.8 of SEPP (Resilience and Hazards) 2021, utilising the [repealed] SEPP (Coastal Management) 2018 SEED Dataset mapping (State Government of NSW and DPE 2023b), about 0.37 ha of the western work boundary is mapped as Coastal Wetland, with about 0.52 ha of the proposed work area mapped as Coastal Wetland proximity area.

Additionally, utilising the mapping, and in reference to s.2.10 and s.2.11 of RHSEPP, the entire study area is mapped as Coastal Environment and Coastal Use Areas.

Section 2.7(1) of RHSEPP states that the following may be carried out on land identified as 'coastal wetlands' only with development consent—

- (a) the clearing of native vegetation within the meaning of Part 5A of the *Local Land Services Act 2013*,
- (b) the harm of marine vegetation within the meaning of Division 4 of Part 7 of the *Fisheries Management Act 1994*,
- (c) the carrying out of any of the following—
 - (i) earthworks (including the depositing of material on land),
 - (ii) constructing a levee,
 - (iii) draining the land,
 - (iv) environmental protection works,
- (d) any other development.

In accordance with s.2.7(2), development for which consent is required by subsection (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act. While s.2.7(4) states a consent authority must not grant consent for development referred to in subsection (1) unless the consent authority is satisfied that sufficient measures have been, or will be, taken to protect, and where possible enhance, the biophysical, hydrological and ecological integrity of the coastal wetland [or littoral rainforest].

Section 2.8(1) of RHSEPP requires that 'Development consent must not be granted to development on land identified as "proximity area for coastal wetlands"... on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on'—

- a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or
- b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

Section 2.10 'Development on land within the coastal environment area' of RHSEPP requires:

- 1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—
 - (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,
 - (b) coastal environmental values and natural coastal processes,
 - (c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development

- on any of the sensitive coastal lakes identified in Schedule 1,
 - (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
 - (e) 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,
 - (f) Aboriginal cultural heritage, practices and places,
 - (g) the use of the surf zone.
- 2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—
- (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or
 - (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
 - (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Section 2.11 ‘Development on land within the coastal use area’ of RHSEPP requires:

- 1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—
- (a) has considered whether the proposed development is likely to cause an adverse impact on the following—
 - (i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
 - (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,
 - (iii) the visual amenity and scenic qualities of the coast, including coastal headlands,
 - (iv) Aboriginal cultural heritage, practices and places,
 - (v) cultural and built environment heritage.
 - (b) is satisfied that—
 - (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or
 - (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
 - (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and
 - (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.

It is acknowledged that Lake Macquarie City Council is the consent authority.

Aspects of the proposed work demolition and revegetation work include:

- Demolition/removal of all above ground structures, hardstands, pathways, parking areas and in/underground structures (including swimming pool) to 1 m below ground level
- Demolition/removal of structures in or adjacent to Lake Macquarie (i.e., boat shed, ramps, jetties, ski jump)
- Termination of services; these to be capped, made safe and left *in situ*
- Minor site regrading to install stormwater controls as necessary
- Remediation of potentially contaminated areas including general waste dump, underground fuel tanks, minor asbestos, lpg tanks, fire pit, grease traps, PCB's.

Provided mitigation measures recommended within the report are implemented, the proposed work would not contribute to any direct or indirect adverse effect on the biophysical, hydrological or ecological integrity of the coastal wetland present, or on the quantity and quality of surface and ground water flows

to and from the coastal wetland; nor would it have any adverse impact on those features/items listed under s.2.10(1) and 2.11(1).

6. Conclusion

NSW Office of Sport are proposing to demolish the existing Myuna Bay Sport and Recreation Centre (part Lot 2 DP 614183), Wangi Road, Myuna Bay, removing the existing infrastructure and making good the site. An ecological investigation has been carried out at the above site, with this Biodiversity Assessment prepared to support a DA to Lake Macquarie City Council, for the proposed work.

Based on a worst-case estimate, the total direct/indirect impact is about 9.7 ha, involving an expected disturbance/removal of up to about 7 ha of non-native vegetation (this composed of lawns, landscaped gardens, planted, horticulturally available, trees and shrubs and possibly some naturally regenerating saplings on those mounds of deposited material).

An approximate 2.42 ha along the western boundary of the part Lot is mapped on the Biodiversity Values Map, with about 0.54 ha of this within the boundary of the proposed terrestrial work footprint. However, clearing of vegetation as defined in section 60C of the *Local Land Service Act 2013* is not expected in this area, nor is the proposed work expected to have an adverse effect on the mapped biodiversity. Given that proposed vegetation removal will generally occur within areas of non-native vegetation, this is not expected to exceed the clearing threshold. As such, the BOS is not triggered based on the BV Map or clearing threshold and a BDAR is not required.

By the completion of the field investigation, the following threatened fauna species were recorded within the study area:

- White-bellied Sea-eagle (*Haliaeetus leucogaster*) (Vulnerable, BC Act).
- Eastern Osprey (*Pandion cristatus*) (Migratory, EPBC Act; Vulnerable, BC Act).

The EPBC Act Marine listing of both species is not relevant to the proposal (refer to s.4.3.3.3 of the report).

As the proposed work is not considered likely to have a significant effect on the White-bellied Sea-eagle or Eastern Osprey [and given the retention *in situ* of the identified light pole], or any other potentially occurring threatened fauna species, no assessments referencing the EPBC Significant Impact Guidelines or the criteria provided under Section 7.3 of the BC Act were considered necessary for these threatened fauna species (if Office of Sports proposed to remove the pole on which the nest occurs, an assessment using the applicable State and Federal criteria should be conducted).

No threatened flora species listed under this Act were recorded within the study area during the site investigation for this assessment. Similarly, none have been previously recorded within the study area. The following four species of threatened plant or their habitat, however, were considered likely to occur within the study area:

- Bynoe's Wattle (*Acacia bynoeana*) – Vulnerable, EPBC Act; Endangered, BC Act
- Charmhaven Apple (*Angophora inopina*) – Vulnerable, EPBC and BC Acts
- Small-flower Grevillea (*Grevillea parviflora* subsp. *parviflora*) – Vulnerable, EPBC and BC Acts
- Black-eyed Susan (*Tetradlea juncea*) – Vulnerable, EPBC and BC Acts.

Impact assessments referencing the EPBC Significant Impact Guidelines and the criteria provided under s.7.3 of the BC Act concluded that the proposal is unlikely to significantly affect these flora species, or their habitat. Therefore, it is considered that the proposal is not a controlled action requiring referral to the Federal Minister for the Environment for further consideration or approval. The preparation of a SIS/BDAR is not required, and the BOS is not triggered for significant impacts.

No listed TECs were recorded during the course of the field investigations, or considered likely to occur.

City of Lake Macquarie LGA is subject to Chapter 4 'Koala habitat protection 2021' of SEPP (Biodiversity and Conservation) 2021; however, in accordance with s.4.2 of the policy, the study area is not considered to constitute Core Koala habitat.

Pursuant to Chapter 2 'Coastal management' of SEPP (Resilience and Hazards) 2021, and s.2.7, 2.8, 2.10 and 2.11, about 0.37 ha of the western work boundary is mapped as Coastal Wetland, with about 0.52 ha of the proposed work area mapped as Coastal Wetland proximity area; while the entire study area is mapped as Coastal Environment and Coastal Use Areas. These matters have been considered and assessed within this report. Provided mitigation measures recommended within the report are implemented, the proposed work would not cause an adverse impact on these environments.

The adoption of those mitigation measures provided would ensure that the proposal is conducted in an ecologically sustainable manner and there would be no significant impact to any EPBC or BC Act listed threatened species.

With adherence to those recommendations provided in this report, no ecological constraints to the proposal proceeding as planned were identified or considered likely to occur.

7. Recommendations

In line with the objectives 1.3(b) and 1.3(e) of the EP&A Act, the following recommendations are provided:

- The mitigation measures identified in Section 5.2 of this report should be adopted.
- In addition:
 - The light pole hosting the active Eastern Osprey nest (E364220; N6340602) is to be retained *in situ*. No disturbance to this light pole is to occur.
 - Temporary buffers are to be established around this site to prevent vehicles or machinery being parked near this feature.
 - The 4A Conservation Area, land mapped as Biodiversity Values, and limits of clearing and weed management are to be identified both on site maps/plans and on-site through the erection of temporary fencing, bunting or similar; and identified as 'no-go zones'.
 - No vehicles/machinery are to be parked/stored within 'no-go zones'.
 - Refrain from parking any vehicle/storing machinery near tree trunks.
 - Drive over existing vegetated tracks as opposed to clearing these.
 - Limit vegetation clearing to the minimum required to successfully complete the proposal.
 - Hollow-bearing trees are not to be removed or indirectly disturbed.
 - Limits of clearing would be provided to the construction contractor and, where practical, identified both on site maps/plans and on site through the erection of temporary fencing, bunting or similar.
 - Restrict the location of any temporary stockpile site to existing cleared areas.
 - A Weed Management Plan should be prepared as part of the proposal.
 - To avoid the spread of weeds and pathogens, the following measures would be conducted:
 - Before entering and leaving the work site, workers are to remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant supplied by the contractor (70% Methylated spirits/30% Water) until runoff is clear.
 - Avoid unnecessary soil disturbance.
 - Any animals injured during the course of the proposed work would be collected and taken to a local veterinarian or wildlife carer for treatment. Once rehabilitated, native species must be released at this point of capture. It is expected injured exotic animals would be ethically treated.

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Appendix 1. Crown Land Licence RI 565440

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L I C E N C E

File Reference

16/01995

Crown Lands Act 1989 - Section 34A

Licence Number

RI 565440

MINISTER

The Minister administering the Crown Lands Act 1989, (hereinafter referred to as the Minister)

grants to

LICENSEE
name & address

OFFICE OF SPORT
Level 3 6B Figtree Dr
SYDNEY OLYMPIC PARK NSW 2127
(hereinafter referred to as the Holder)

a Licence pursuant to the provisions of Section 34A of the Crown Lands Act 1989 in respect of the land described hereunder in Parts 1 and 2 and subject to the terms and conditions contained in the following pages and Schedule 1, and in any additional Schedules or documents referred to in Schedule 1.

EXECUTION

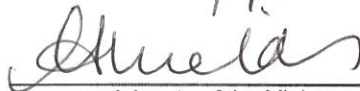
dated this

17th

day of

January 20 17

THE MINISTER


as delegate of the Minister

Corinne Shields
Senior Group Leader - Reserves & Licences Crown Land
name and position

THE HOLDER

In consideration of the grant of this Licence, the ~~Company~~ ^{Holder} agrees to be bound by the terms, conditions and provisions of the Licence.

~~The Common Seal of was affixed in accordance with its articles of association in the presence of (See note below):~~


signature

COLIN ROBINSON
print full name

DIRECTOR, CENTRE PROGRAM
position

16/1/2017
date


signature

Jonathan Arcis
print full name

Legal officer
position

16/1/2017
date

(Note: To be ruled through if executing this licence without seal - Corporations Law s. 127)

DESCRIPTION OF LANDS

PART 1

Local Govt. Area	LAKE MACQUARIE		
County	NORTHUMBERLAND		
Parish	AWABA		
Suburb	MYUNA BAY,WANGI WANGI		
Status:	Lot	Section	DP
Crown land located near	2		DP: 614183

PART 2

Plan/diagram: Schedule 3	Area: 376.8m2
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TEXT DESCRIPTION: Crown land in several parts above and below the mean high water mark being (part Reserve 56146 from sale or lease generally, notified 11 May 1923 and Reserve 1011268 for future public requirements gazetted 3 February 2006) all adjacent to Lot 2 DP614183 at Whiteheads Lagoon, Lake Macquarie as shown by red in schedule 3 diagram.

Note - a Table of Contents appears at the end of this Licence (6.001)

***** **End of Description of Land (Crown Land)** *****

1. Definitions

In this Licence unless the contrary intention appears:

"CLA" means the Crown Lands Act 1989

"Commencement Date" means the date on which this Licence is stated to commence.

"Holder" means the person described as the Holder on the front page of this Licence.

"Improvements" means all buildings structures facilities works and pontoons situated on or in the land or which under the terms of this Licence are to be situated on or in the land.

"Land" means the land specified in Parts 1 and 2 of this Licence under the heading "DESCRIPTION OF LAND" (including any submerged land and waterway) or where the context so admits any part thereof.

"Licence" means this Licence including the Schedules and Annexures hereto.

"Minister" means the Minister referred to on the front page of this Licence as the Minister and where not repugnant to the context includes the Successors of Minister and the servants and agents of the Minister.

"Pontoon" means a floating landing stage.

"Premises" means the Land the Improvements and the Holder's Plant and where the context so permits any part of the foregoing.

"RA" means the Roads Act 1993

"Rent" means the rent provided for in this Licence.

"Term" means the period commencing on the "Commencement Date" and terminating on the "Termination Date".

"Termination Date" means the date on which the Licence is revoked or ceases to have effect in accordance with the provision of this Licence. (6.002)

2. Plurals and Genders

- (a) Words importing the singular number shall include the plural and vice versa.
- (b) Words importing the masculine gender shall include the feminine or neuter and vice versa.
- (c) Any reference to a person shall be deemed to include a reference to a corporation and vice versa. (6.004)

3. Contra Proferentum

No rules of construction shall apply to the disadvantage of a party on the basis that that party was responsible for the preparation of this Licence or any part of it. (6.005)

4. Headings Plans and Code Numbers

- (a) Headings (and subheadings within clauses) marginal notes the matter appearing in Column 1 of Schedule 1 and the Table of Contents have been inserted for guidance only and shall be deemed not to form any part of the Licence.
- (b) Any plan or diagram attached or annexed to this licence, which purports to depict the land shall be deemed not to form any part of the licence unless that plan or diagram is referred to in PART 2 in the DESCRIPTION OF LAND.
- (c) The code number appearing at the end of each clause of the Licence shall be deemed not to form part of the Licence. (6.006)

5. Clauses and Schedules

References to Clauses Parts and Schedules are references to clauses parts and schedules of this Licence. (6.007)

6. Statutes

- (a) A reference to a statute statutory instrument or ordinance includes amendments to that statute statutory instrument or ordinance whether by subsequent statutes statutory instruments or ordinances or otherwise and any statute statutory instrument or ordinance passed in substitution for the statute statutory instrument or ordinance referred to or incorporating any of its provisions.
- (b) A reference to a statute includes a reference to any regulation made thereunder. (6.008)

7. Joint and Several Covenants

Any covenant or agreement on the part of two or more persons shall be deemed to bind them jointly and severally. (6.009)

8. Severability

Any provision of this Licence which is prohibited or unenforceable in any jurisdiction shall as to such jurisdiction be ineffective to the extent of such prohibition or inability to enforce without invalidating the remaining provisions of such provision in any other jurisdiction. (6.010)

9. Applicable Law

This Licence shall be construed and interpreted in accordance with the law of New South Wales. (6.011)

10. Licence a "Holding" for purposes of the CLA

The Holder acknowledges that this Licence is a Holding within the meaning of the CLA and the Holder is a Holder within the meaning of that Act and the provisions of that Act relating to holdings and holders apply to this Licence and the Holder. (6.012)

11. Performance of Functions etc

Any power authority duty or function conferred or imposed upon the Minister under this Licence may be exercised or performed by any person authorised by the Minister. (6.013)

12. Authorised Officer

Where under this Licence the Minister is empowered to authorise any person to perform or exercise any power authority duty or function under this Licence such person shall be validly authorised if he is authorised to exercise any power authority duty or function conferred by any Licence granted by the Minister or any Licence of a specified type or any Licence within a specified locality. (6.014)

13. Minister as Public Authority

The Minister and Holder acknowledge that nothing in this Licence can in any way restrict or otherwise affect the Minister's unfettered discretion as to the use of the Minister's statutory powers as a public authority. (6.015)

14. Approval by the Minister

- (a) In any case where pursuant to this Licence the doing or executing of any act matter or thing by the Holder is dependent upon the approval or consent of the Minister such approval or consent shall not be effective unless given in writing and may be given or withheld by the Minister in the Minister's absolute discretion and may be given subject to such conditions as the Minister may determine unless otherwise herein provided.
- (b) The Holder expressly agrees that any failure to comply with a condition imposed by the Minister will constitute a failure by the Holder to comply with a condition of this Licence. (6.016)

15. Opinion of the Minister

Any opinion to be formed by the Minister for the purposes of this Licence may be formed by the Minister on such grounds and material as the Minister determines to be sufficient after consultation if the Minister deems it necessary with any New South Wales Government Department or other public authority the Standards Association of Australia or any other body whose objects and functions are relevant. In forming any such opinion the Minister shall be deemed to be exercising merely administrative functions. (6.017)

16. Holder to pay Cost of Work

Whenever the Holder is required in this Licence to do or effect any act matter or thing then the doing of such act matter or thing shall unless this Licence otherwise provides be at the sole risk cost and expense of the Holder. (6.018)

17. Notices

- (a) All notices or communications required to be or which may be given or served by the Minister to or upon the Holder under this Licence or which may be convenient to be given or served in connection with this Licence shall be in writing and shall be sufficiently given or served if left at or sent by ordinary post addressed to the Holder at his address specified in Column 2 of Item 1 of Schedule 1 or at the Premises or at such other place as notified in writing by the Holder to the Minister.
- (b) All notices or communications required to be or which may be given or served by the Holder to or upon the Minister under this Licence or which may be convenient to be given or served in

connection with this Licence shall be in writing and shall be sufficiently given or served if signed by the Holder or if the Holder is a corporation by the Secretary of the Holder or the person acting as such for the time being and if left at or sent by ordinary post addressed to the person specified in Column 2 of Item 2 of Schedule 1.

- (c) Any notice or communication given or served by post shall be deemed to have been duly given or served at the time when it would in the ordinary course be delivered. (6.019)

18. Manner of Payment of Rent and Other Moneys

The rent and other moneys payable in accordance with this Licence shall be paid to the Minister at the address specified in Column 2 of Item 3 of Schedule 1 or to such other person or at such other address as the Minister may from time to time direct by notice in writing served on the Holder. (6.020)

19. Time to be of the Essence

The Minister and the Holder expressly agree that where in any provision of this Licence the Holder is given or allowed a specified time within which to undertake or do any act or thing or any power is conferred or any event occurs after the lapsing of a specified time time shall be the essence of the contract in that regard. (6.021)

20. Whole agreement

The conditions covenants and provisions contained in the Licence expressly or by statutory implication and any provision of the CLA which apply to this Licence cover and comprise the whole of the agreement between the parties hereto and it is expressly agreed and declared that no further or other covenants or provisions whether in respect of the Premises or otherwise shall be deemed to be implied herein or to arise between the parties hereto by reason of the invitation by the Minister to the Holder to submit a proposal for the redevelopment of the Premises or any document issued by the Minister prior thereto or by reason of the subsequent negotiations between the parties hereto or by reason or any promise representation warranty or undertaking given or made by any party hereto to another on or prior to the execution hereof or during the Term and the existence of any such implication or collateral or other agreement is hereby negated. (6.022)

21. Permitted Use

- (a) This Licence confers on the Holder a right to occupy the Premises for the purpose specified or referred to in Column 2 of Item 4 in Schedule 1.
- (b) The Holder will not use the Premises or allow them to be used for any purpose other than the purpose specified in Column 2 of Item 4 in Schedule 1. (6.023)

22. No Exclusive Possession

The Holder acknowledges that this licence does not confer exclusive Possession of the Premises upon the Holder. (6.023A)

23. Holder not to Commit Nuisance etc

The Holder will not at any time during the Term of this Licence:

- (a) carry on or permit to be carried on at the premises any noxious nuisance or offensive trade business.

- (b) do or permit to be carried on at the premises any act matter or thing which results in nuisance damage or disturbance to the Minister or owners or occupiers of adjoining or neighbouring lands or buildings.
- (c) use the premises for any illegal activity. (6.024)

24. No Residence on Premises

The Holder will not reside or permit any other person to reside on the Premises other than as may be specified or referred to in Column 2 of Item 4A of Schedule 1. (6.025)

25. Commencement and Revocation of Licence

- (a) This Licence shall commence on the date specified or referred to in Column 2 of Item 5 of Schedule 1 and shall continue in force until it is revoked in accordance with the provisions of this clause.
- (b) The Minister may in his absolute discretion revoke this Licence at any time by serving on the Holder a notice in writing revoking this Licence.
- (c) A revocation made under this clause shall take effect on the date specified in the notice or where no date is specified in the notice on the date on which the notice is served on the Holder.
- (d) Except as may be expressly provided for in this Licence the Holder acknowledges and agrees that the Holder will not be entitled to any compensation costs or damages in respect of the revocation of this Licence. (6.027)

26. Licence subject to Native Title

- (a) In this clause the word "waters" and the expressions "native title rights and interests" and "approved determination of native title" have the same meaning as in the Commonwealth Native Title Act 1993.
- (b) This Licence is granted subject to any native title rights and interests existing in relation to that part of the premises that consist of waters.
- (c) The Holder expressly agrees not to interfere with the exercise or enjoyment of any native title rights and interests in respect of the waters within the premises by any person entitled to exercise or enjoy such rights and interests.
- (d) Notwithstanding any other provision of this Licence the Minister by notice in writing may terminate this Licence in the event that any approved determination of native title is made that native title rights and interests exist in relation to the land or waters within the premises.
- (e) Except as may be expressly provided for in this Licence the Holder acknowledges and agrees that the Holder will not be entitled to any compensation costs or damages in respect of the termination of this Licence under this clause or the loss or benefit of any improvement authorised to be constructed by this Licence. (6.029B)

27. Licence Granted subject to Aboriginal Land Claim

- (a) The Holder is granted this licence subject to a possible Aboriginal Land Claim over this land provided in s36 of the Aboriginal Land Rights Act 1983.

- (b) Notwithstanding any other provision of this Licence, this Licence shall terminate in the event that the Minister determines that the land is claimable Crown land or a Court determines that the land is claimable Crown land.
- (c) Except as may be expressly provided for in this Licence the Holder acknowledges and agrees that the Holder will not be entitled to any compensation costs or damages in respect of the termination of this Licence by operation of this clause. (6.029C)

28. Payment of Rent (CPI)

- (a) For the purposes of this clause:

"*Initial Rent*" means the rent specified in Column 2 of Item 11 of Schedule 1.

"*CPI Review Date*" means each anniversary date of the Commencement Date.

"*CPI Review Period*" means the period between each CPI Review Date.

"*Due Date*" means each anniversary date of the Commencement Date.

"*Market Rent Review Date*" means the date of the expiration of each period of years as specified in Column 2 of Item 12 of Schedule 1 calculated from the Commencement Date.

"*Market Rent Review Period*" means the period between each Market Rent Review Date.

- (b) The Holder covenants with the Minister that the Holder will during the whole of the Term pay to the Minister in accordance with the provisions of this clause without demand free of exchange and without deduction whatsoever the rent hereinafter provided.
- (c) The Holder will pay to the Minister on the commencement Date the Initial Rent and thereafter shall pay on each Due Date rent in advance adjusted as hereinafter provided.

- (d) (i) On the CPI Review Date the rent shall be adjusted in accordance with the following formula:

$$R = B \times \frac{C}{D}$$

where:

R represents the adjusted rent;

B represents the annual rent payable during the year preceding the CPI Review Date;

C represents the Consumer Price Index number for the last quarter for which such a number was published before the CPI Review Date; and

D represents the Consumer Price Index number for the last quarter for which such a number was published before the immediately preceding CPI Review Date (or if there is no immediately preceding CPI Review Date then the Commencement Date).

- (ii) In this clause "Consumer Price Index number" in relation to a quarter means the number for that quarter appearing in the Consumer Price Index (All Groups Index) for Sydney published by the Australian Statistician. In the event that such index be

discontinued or abolished the Minister may at his absolute discretion nominate another Index.

- (iii) If the reference base for the Consumer Price Index is changed regard shall be had only to Index numbers published in terms of the new reference base or to Index numbers converted to the new reference base in accordance with an arithmetical conversion factor specified by the Australian Statistician.
- (iv) Any rent adjusted under this subclause shall be adjusted to the nearest whole dollar.
- (e) In addition to the indexation review provided for in subclause (d) on the first Market Rent Review Date after commencement and thereafter on each Market Rent Review Date the rent may be redetermined by the Minister pursuant to the provisions of Sections 142 and 143 of the CLA.
- (f) A redetermination of rent for the purposes of subclause (e) shall be deemed to have been made on the Market Rent Review Date if it is made at any time within the period of six months before the market Rent Review Date.
- (g) Where the Minister does not redetermine the rent as provided for in subclause (e) he may redetermine the rent pursuant to the provisions of Sections 142 and 143 of the CLA at any time prior to the next Market Rent Review Date and no succeeding Market Rent Review Date shall be postponed by reason of the operation of this subclause.
- (h) Where the Minister does not redetermine the rent on the First Market Rent Review Date or a Market Rent Review Date as provided for in subclause (e) the Holder may by notice in writing served on the Minister require that the Minister redetermine the rent pursuant to the provisions of Sections 142 and 143 of the CLA. Where the Holder requires the Minister to redetermine the rent under this subclause he shall pay on demand the costs of the Minister (or so much of the cost as the Minister may require) in making that determination.
- (i) Subject to the provision of subclause (j) a redetermination of rent as provided for in subclauses (e) (g) and (h) shall take effect and be due and payable from the date of issue of the notice of redetermination under Section 142 of the CLA even if an objection or appeal under that Section has been lodged. On the completion of the objection and appeal process any necessary adjustments shall be made.
- (j) A redetermination of rent made before its relevant Market Rent Review Date as provided for in subclause (f) shall take effect from the relevant Market Rent Review Date even if an objection or appeal under Section 142 of the CLA has been lodged. On the completion of the objection and appeal process any necessary adjustments shall be made.
- (k) The Holder acknowledges that the Minister may make a direction under Section 152 of the CLA in respect of any rent payable under this Licence. (6.031)

29. Continuing Obligation

The obligation of the Holder to pay the Rent shall be a continuing one during the term of this Licence and shall not abate in whole or in part or be affected by any cause whatsoever. (6.037)

30. Holder to Pay Rates etc

The Holder will when the same become due for payment pay all (or in the first and last year of the term of this Licence the appropriate proportionate part) rates taxes (including Land Tax) assessments duties charges and fees whether municipal local government parliamentary or otherwise which are at any time during the currency of this Licence lawfully charged upon imposed or levied in respect of the Premises or on the Minister or the Holder on account thereof and will if required by the Minister

produce to the Minister the receipts for such payments within ten business days after the respective due dates for payment AND in case such rates taxes duties and fees so covenanted to be paid by the Holder are not paid when the same shall become due the Minister may if the Minister thinks fit pay the same and any such sum or sums so paid may be recovered by the Minister as if such sums were rent in arrears. (6.039)

31. Holder to Pay Other Charges

The Holder will pay all other fees charges and impositions which are at any time during the Term payable in respect of the Premises or on account of the use and occupation of the Premises by the Holder. (6.040)

32. Goods and Services Tax

(a) Definitions

In this clause the expressions "GST", "supply", and "taxable supply" have the meanings given to those expressions in the A New Tax System (Goods and Services Tax) Act 1999.

(b) Amounts GST Exclusive

With the exception of any amount payable under this clause, unless otherwise expressly stated all amounts stated to be payable under this Licence are exclusive of GST.

(c) Responsibility for GST

- (i)** Despite any other provision in this Licence, if GST is imposed on any supply made under this Licence, the recipient must pay to the supplier an amount equal to the GST payable on the taxable supply.
- (ii)** The recipient must pay the amount referred to in subclause (c)(i) in addition to and at the time payment for the taxable supply is required to be made under this Licence.

(d) Valuer/Umpire to return GST Exclusive Value

Any valuer or umpire returning a valuation must return a GST exclusive market value for it in any case where the valuation is for the purpose of determining a supply value to which GST is to be added under this Licence. (6.040A)

33. Holder to Pay for Services

The Holder will as and when the same become due for payment pay to the Minister or to any other person or body authorised to supply the same all proper charges for gas electricity water or other services supplied to or consumed in or on the Premises and will also pay all charges in respect of any telephone services connected to the Premises. (6.041)

34. Holder not to Impose Liability on Minister

Subject to any other provision of this Licence the Holder will not without the written consent of the Minister by any act matter or deed or by failure or omission cause or permit to be imposed on the Minister any liability of the Holder under or by virtue of this Licence. (6.042)

35. Holder not to undertake development without consent notwithstanding any other provision of this Licence

The Holder will not undertake any development within the meaning of the Environmental Planning and Assessment Act 1979 contrary to the provisions of that Act or in breach of any restriction condition or prohibition imposed by an Environmental Planning Instrument or condition of a development consent. (6.043)

36. Development Consent

The Holder will not undertake any activity on or within the Premises for which consent is required under the Environmental Planning and Assessment Act 1979 or any Instrument made thereunder without first obtaining such consent and in accordance with any condition or requirement of that consent. (6.044)

37. Compliance with Statutes

- (a) The Holder will comply with the requirements of all statutes regulations or by-laws and requirements of all relevant public and local authorities in so far as they apply in relation to the use and occupation of the premises.
- (b) The Holder will forthwith on being served with a notice by the Minister comply with any notice or direction served on the Minister by a competent authority relating to the destruction of noxious animals or plants or pests or the carrying out of repairs alterations or works on or to the Premises. (6.045)

38. Work Health and Safety

The Holder must comply with the *Work Health and Safety Act 2011* (NSW), the *Work Health and Safety Regulation 2011* (NSW) and all other requirements of any other legislation or statutory authority in this regard whilst on the Premises. (6.046)

39. Holder not to deal with Licence or part with possession of Premises

Subject to any other provision of this Licence the Holder will not during the Term of this Licence transfer or create any interest in the Licence or authorise or permit any person to occupy the Premises. (6.047)

40. Revocation on the Request of the Holder

The Holder may at any time by notice served on the Minister request that this Licence be revoked and the Minister if he is satisfied that the Holder has complied with the conditions and provisions of this Licence or the CLA will as soon as practicable comply with such a request. (6.051)

41. Interest on Overdue Money

The Holder shall pay interest on any money due and payable under this Licence to the Minister at the rate prescribed from time to time under the provisions of Section 148 of the CLA and any such interest shall for the purposes of this Licence be deemed to be Rent in arrears. (6.052)

42. Indemnity

- (a) For the purposes of this clause the term Minister shall include Her Majesty the Queen Her heirs and Successors the State of New South Wales the Minister and the agents servants

employees and contractors of Her Majesty Her Majesty's Heirs and Successors the State of New South Wales and the Minister.

- (b) The Holder agrees that the Holder will indemnify and keep indemnified the Minister from and against all actions suits claims and demands of whatsoever nature and all costs charges and expenses in respect of any accident or injury to any person or property which may arise out of the use of the Premises or the construction or maintenance of works as may be authorised under the Licence notwithstanding that the conditions of this Licence shall in all respects have been observed by the Holder or that any such accident or injury shall arise from any act or thing which he may be authorised or compelled to do hereunder except to the extent that any such claims and demands arise from any negligence or wilful act or omission on the part of the Minister.
- (c) The Holder expressly agrees that the obligations of the Holder under this clause shall continue after the expiration or other determination of this Licence in respect of any act deed matter or thing happening before such expiration or determination except to the extent that any such claims and demands arise from any negligence or wilful act or omission on the part of the Minister. (6.054)

43. Release of the Minister from Liability

- (a) For the purposes of this clause the term Minister shall include Her Majesty The Queen Her Heirs and Successors the State of New South Wales the Minister and the agents servants employees and contractors of the Minister Her Majesty Her Majesty's Heirs and Successors the State of New South Wales and the Minister.
- (b) The holder agrees to occupy use and keep the Premises at the risk of the Holder and hereby releases to the full extent permitted by law the Minister from all claims and demands of every kind resulting from any accident damage or injury occurring therein and the Holder **EXPRESSLY AGREES** that the Minister shall have no responsibility or liability for any loss of or damage to fixtures and/or personal property of the Holder or any agent or servant of the Holder or of any member of the public whilst in or upon the Premises.
- (c) The Holder expressly agrees that the obligations of the Holder under this clause shall continue after the expiration or other determination of this Licence in respect of any act deed matter or thing happening before such expiration or determination. (6.055)

44. Insurance - Public Risk

The Holder will (without in any way limiting the liability of the Holder under any other provision of this Licence) forthwith take out and thereafter during the Term keep current a public risk insurance policy for the amount specified in Column 2 of Item 19 of Schedule 1 for any one claim (or such other reasonable amount as the Minister may from time to time specify in writing to the Holder) whereby the Minister shall during the continuance of this Licence be indemnified against claims and demands of every kind arising from death or bodily injury or damage to property arising out of the Holder's use of the Premises. (6.057)

45. Insurance - Workers Compensation

The Holder will (without in any way limiting the liability of the Holder under any other provision of this Licence) forthwith take out and thereafter during the Term keep current insurance against any liability which may arise at common law or by virtue of any relevant workers compensation legislation in connection with the performance of work or provision of services on or about the Premises and the

operation thereof so that the Minister will be indemnified against all claims for death or bodily injury by any person at all times. (6.058)

46. Insurance - Against Fire and Other Risks

The Holder will (without in any way limiting the liability of the Holder under any other provision of the Licence) forthwith take out and thereafter during the Term keep current insurance against loss damage or destruction by fire lightning riots strike malicious damage sprinkler failure plumbing leakage storm and tempest explosion earthquake impact by vehicles Acts of God and against such other risks (if any) to the Premises as the Minister may from time to time reasonably direct to the full insurable value thereof permitted by the Insurer on a replacement and/or reinstatement basis including extra costs or reinstatement cost of removal of debris and all professional fees incurred in replacing and/or reinstating the Premises. (6.061)

47. Provisions Re Policies

- (a) The following provisions apply to all policies of insurance required to be effected by the Holder under this Licence:
- (i) Where the Minister serves a notice on the Holder directing the Holder to enter into a policy with an insurer approved by the Minister the policy is to be entered into with an insurer approved by the Minister. The Minister shall specify a list of approved insurers in any notice served under this paragraph. Where the Minister does not serve a notice as provided for in this paragraph policies of insurance shall be entered into with an insurer carrying on business in Australia.
 - (ii) Where a provision of this Licence specifies an amount for which a policy is to be entered into for (or makes provision for such an amount to be specified) then the policy shall be entered into for the amount specified. Where a provision does not specify the amount for which a policy is to be entered into for the policy shall be entered into for an amount sufficient to cover the risks likely to be encountered having regard to the type of activity undertaken on the Premises and the nature of the Premises.
 - (iii) All policies are to contain conditions and exclusions commonly effected in relation to the type of activity undertaken on the Premises and the nature of the Premises provided that the Minister may by notice served on the Holder direct the Holder to enter into a policy containing specified provisions or which does not contain specified provisions or exclusions and the Holder shall use his best endeavours to comply with the direction.
 - (iv) All policies are to be taken out in the names of the Minister and the Holder for their respective rights and interests and in the name of such other parties having an insurable interest as the Minister may require.
 - (v) Duplicate or certified copies of the policies and all renewal certificates and endorsement slips are to be lodged by the Holder with the Minister if required by the Minister.
 - (vi) All premiums payable in respect of policies and renewals of policies are to be paid punctually by the Holder and the receipt for each premium payable in respect of each policy (or other proof of payment to the Minister's satisfaction) is to be produced by the Holder to the Minister at the request of the Minister.
 - (vii) Where the Minister has served a notice on the Holder under paragraph (i) the Holder will use all reasonable endeavours to ensure that the insurer which issues a policy advises the Minister of any failure by the Holder to renew any policy or pay any premium in respect thereof.

- (viii) The Holder will not at any time during the Term do or bring upon the Premises anything whereby any insurance relating to the Premises against damage by fire and other risks may be rendered void or voidable. If the Holder does or brings anything upon the Premises whereby the premium on the insurance shall be liable to be increased the Holder will obtain insurance cover for the increased risk and pay all additional premiums (if any) required to be paid.
- (ix) The Holder will use all reasonable endeavours to ensure that full true and particular information is given to the insurer with which the insurances are effected of all matters and things the non-disclosure of which might in any way prejudice or affect any policy of insurance or the payment of all or any moneys thereunder.
- (b) The Minister in his own name or as the attorney of the Holder in the name of the Holder shall be entitled to institute all proceedings against any insurer which issues a policy of insurance required by this Licence to recover from it any amount for loss damage or injury or other money payable under any indemnity in favour of the Minister. The Holder hereby appoints the Minister the attorney of the Holder for the purpose as aforesaid.
- (c) The Holder expressly agrees that the provisions of subclause (b) continue in force after the Termination Date. (6.065)

48. Construction Of Improvements Permitted With Consent

- (a) For the purposes of this clause "Improvement" means any building structure facility work or pontoon.
- (b) The Holder will not construct effect erect or undertake any Improvements on the Premises other than with the prior consent in writing of the Minister. (6.067)

49. Improvements - No demolition without Consent

- (a) For the purposes of this clause "Improvement" means any building structure facility work or pontoon.
- (b) The Holder will not demolish destroy remove take away or pull down any Improvements on the Premises without the written consent of the Minister. (6.070)

50. Ownership of Improvements CLA

The Holder acknowledges that the provisions of section 174 of the CLA apply. (6.074)

51. Premises to be kept in clean and tidy condition

The Holder will at all times during the Term keep the Premises in a clean and tidy condition and will (subject to any other provision of this Licence) on the Termination Date leave the Premises in a clean and tidy condition. (6.088)

52. Holder May Repair Improvements

- (a) For the purpose of this clause "Repair" means to replace part of an Improvement with material of a similar type and size but not so as to enlarge or significantly alter the appearance or structure of the Improvement.
- (b) The Holder may from time to time at the Holder's own expense Repair the Improvement.

- (c) The Holder shall not undertake any work upon an Improvement which does not involve the painting of the Improvement or is not a Repair as defined in this clause. (6.088A)

53. Minister's Right to Enter Inspect and Repair

The Minister and the Minister's agents may at all reasonable times upon giving to the Holder reasonable notice (except in the case of emergency when no notice shall be required) enter upon the Premises and view the state of repair thereof and may serve upon the Holder a notice in writing of any defect (the repair of which is the Holder's obligation hereunder) requiring the Holder within fourteen days to repair the same. (6.090)

54. Holder to erect Barricades etc

Where the Premises or any part of the Premises become unsafe hazardous or dangerous the Holder will forthwith erect such warning signs and barricades as may be necessary until the Premises are rendered safe. (6.093)

55. Notification Of Accident

The Holder will give to the Minister prompt notice in writing of any serious accident to or serious defect or want of repair in any of the Improvements facilities devices contrivances services to or fittings in the Premises or other things or of some or any of them having become seriously defective unsafe weakened out of repair in any way or likely to cause any serious danger risk or hazard to the Premises or any person therein unless such defect unsafeness weakness or want of repair is capable of being and is promptly remedied by the Holder. (6.099)

56. Relics

- (a) Unless authorised to do so by a permit under Section 87 or a consent under Section 90 of the National Parks and Wildlife Act 1974 and subject to observance and compliance with any conditions imposed on the grant of such permit or consent the Holder will not knowingly disturb destroy deface or damage any aboriginal relic or place or other item of archaeological significance within the land and shall take every precaution in drilling excavating or carrying out other operations or works in the Land against any such disturbance destruction defacement or damage.
- (b) If the Holder becomes aware of any aboriginal relic or place or other item of archaeological significance within the Land the Holder will within 24 hours notify the Director General National Parks and Wildlife Service of the existence of such relic place or item.
- (c) The Holder will not continue any operations or works on the Land likely to interfere with or disturb any relic place or item referred to in subclause (b) without the approval of the Director General National Parks and Wildlife Service and the Holder will observe and comply with all reasonable requirements of the Director General in relation to the carrying out of the operations or works. (6.107)

57. Artefacts

All fossils artefacts coins articles of value articles of antiquity structure and other remains or things of geological historical or archaeological interest discovered on or under the surface of the Premises shall as between the Minister and the Holder be deemed to be the absolute property of the Minister and the Holder will as authorised by the Minister watch or examine any excavations and the Holder will take every precaution to prevent such articles or things being removed or damaged and shall immediately upon discovery thereof notify the Minister of such discovery and carry out at the reasonable expense of the Holder the Minister's orders as to the delivery up or disposal of such articles or things. (6.108)

58. Soil Conservation Act

The Holder will comply with the provisions of the Soil Conservation Act 1938. (6.116)

59. Maintenance of Waterways

The Holder will at all times during the Term ensure that the waterways and submerged land forming the whole or part of the Premises are kept clean and free from debris (whether floating or otherwise) and will do all things necessary to ensure that a free-flowing circulation of water is maintained within the waterways forming part of the Premises. (6.125)

60. Mooring of Vessels

The Holder will ensure that any vessel secured at the premises shall be moored or berthed wholly within those Premises or where a "berthing area" is shown on any plan annexed or attached to this Licence wholly within that area. (6.126)

61. Residence Aboard Vessels

The Holder will ensure that no person resides on any vessel or vessels moored or berthed at the Premises. (6.127)

62. Prohibited Use of Vessel

The Holder will not at any time during the Term carry on or permit to be carried on any noxious noisome or offensive trade business calling or activity on any vessel moored or berthed at or on the Premises. (6.128)

63. Anti-Pollution Measures

The Holder will ensure that satisfactory measures are taken to prevent pollution of the waterway adjoining or forming part of the Premises or its foreshores arising out of the use of the Premises or from vessels moored thereat. (6.129)

64. Holder not to Undertake Dredging or Excavation

The Holder will not dredge dig up or excavate the land (except such excavation as may be necessary to sink any pile or post) without the prior written consent of the Minister. (6.130)

65. Public to have Access to Foreshore

The Holder will allow the public to at all times have access over that part of the Land that is situated below Mean High Water Mark and which is commonly known as the foreshore and any structure constructed on the land shall be constructed so as not to unreasonably obstruct access by the public over such lands. (6.131)

66. Holder to Paint Structure

The Holder will cause any building erected on the Land to be painted with two (2) coats of paint at reasonable intervals no interval to exceed five (5) years. (6.132)

67. Holder to Comply with Maritime Authority of NSW Directions

The Holder will at all times comply with any directions given by the Maritime Authority of NSW in the interests of safe navigation equitable use of and conservation of waterways and the prevention of pollution. (6.134)

68. Holder to Give Notice of Removal of Structures

The Holder will forthwith give notice to the Minister of any removal in whole or in part of any structure authorised by this Licence. (6.135)

69. Alterations not to be made without Consent

The Holder will not alter or vary any improvement situated on the said Land (whether in existence at the commencement) or constructed or affected under this Licence without the prior written consent of the Minister. (6.140)

70. Holder not to remove Materials

- (a) The Holder will not mine remove extract dig up or excavate any sand stone gravel clay loam shell or similar substance or permit any other person to undertake any such action without the prior consent in writing of the Minister and subject to such conditions as the Minister may determine.
- (b) Subclause (a) shall not apply to any removal digging up or excavation as may be necessary to construct or undertake any improvement authorised by or under this Licence provided that any such removal digging up or excavation is undertaken in accordance with the requirements of that authority.
- (c) The Minister and the Holder expressly agree that a failure by the Holder to comply with any condition imposed pursuant to subclause (a) shall constitute a failure by the Holder to comply with a provision or covenant of this Licence. (6.194)

71. Holder to Yield Up

The Holder will forthwith upon the revocation of this Licence peaceably surrender and yield up to the Minister the Premises in good condition reasonable wear and tear excepted together with all conveniences amenities and appurtenances relating thereto clear and free from rubbish and in good and substantial repair order and condition in every case having regard to the age of what is being surrendered or yielded up. (6.199)

72. No Right to Purchase etc

The Holder expressly acknowledges that the grant of this Licence does not confer a right to purchase the land or to the grant of a lease or to the grant of a further licence. (6.200)

73. Special Conditions

The special conditions specified or referred to in Column 2 of Item 71 of Schedule 1 shall be deemed to be conditions and provisions of this Licence. (6.201)

***** End of Licence Clauses *****

SCHEDULE 1

Item	Paragraph No	Column 1 (description of variable particulars)	Column 2 - (particulars)
1	17	Holder's Address for service of notices	Level 3 6B Figtree Dr SYDNEY OLYMPIC PARK NSW 2127
2	17	Minister's Address for service of notices	Department of Industry - Lands PO Box 2185 DANGAR NSW 2309
3	18	Address for payment of rent	Department of Industry PO Box 2155 Dangar NSW 2309
4	21	Purpose for which Premises may be used	Boatshed (Deck 33.52m x 3m; Stairs 3.92m x 3m), Jetty (18m x 3.35m), Jetty (13m x 0.9m), Jetty (19m x 3.25m), Jetty (9m x 1m with 4.2m x 1m T end), Ramp (10m x 4m), Ramp (adjacent to Boatshed 10m x 8.5m)
4A	24	No Residence on Premises	No residence
5	25	Commencement Date	5th December 2016
11	28	Initial Rent	\$477.00
12	28	Market Rent Review Period	3 years
19	44	Insurance - Public Risk	\$20 Million
71	73	Special conditions or provisions	Annexed as Schedule 2

***** End of Schedule 1 *****

SCHEDULE 2

74. Special Condition

That before any works are undertaken the NSW Office of Environment and Heritage be referenced to determine any requirements under the NSW Threatened Species Conservation Act 1995.

75. Aboriginal Heritage Impact Permit

An Aboriginal Heritage Impact Permit (AHIP) pursuant to Section 90 of the National Parks and Wildlife Act 1974 must be obtained in relation to new AHIMS site 45-7-0358 located at the following coordinates (364067E, 6340534N) and identified with the Archaeological Survey by Artefact Heritage dated November 2015. No work may commence in relation to the proposed activity until this permit is obtained.

***** End of Schedule 2 *****

SCHEDULE 3

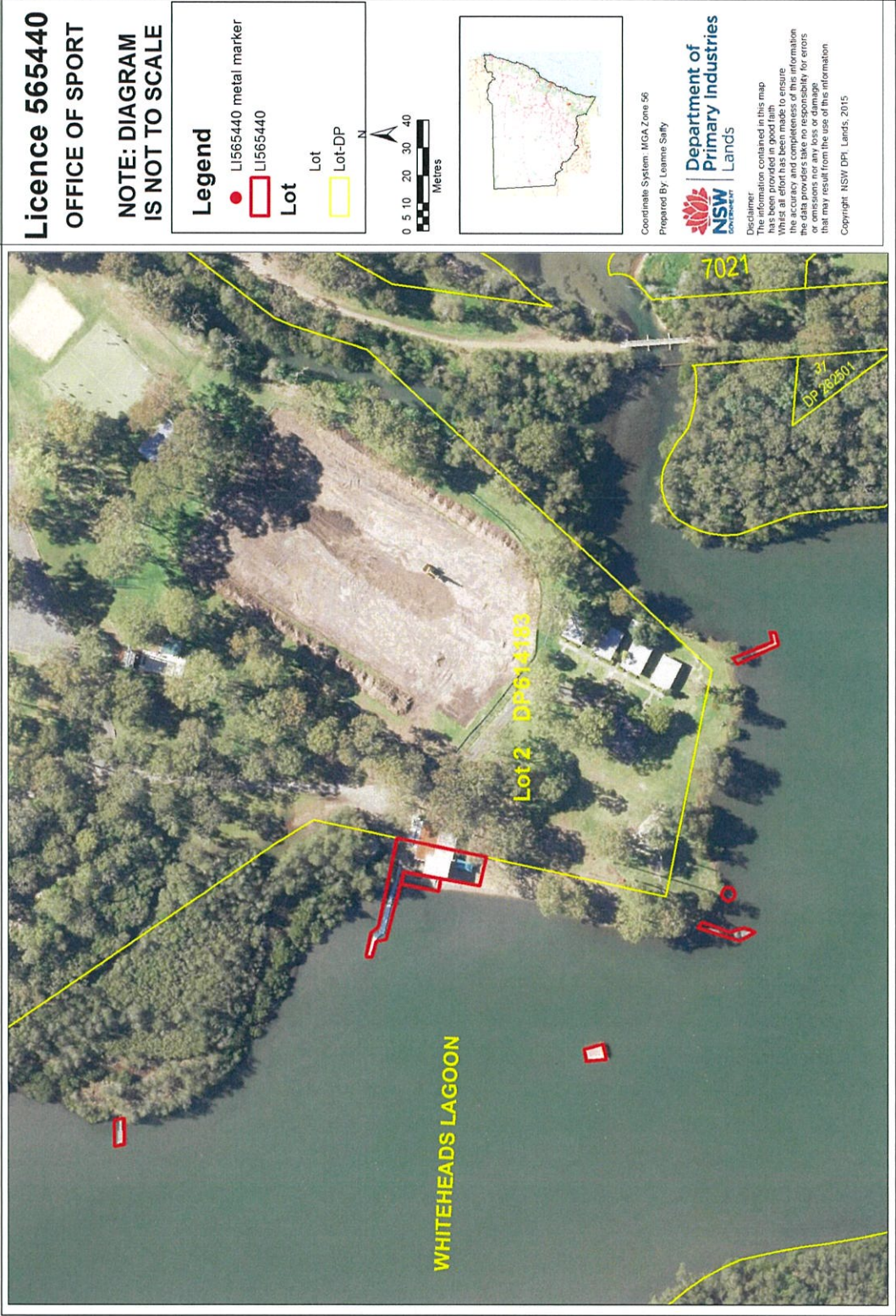


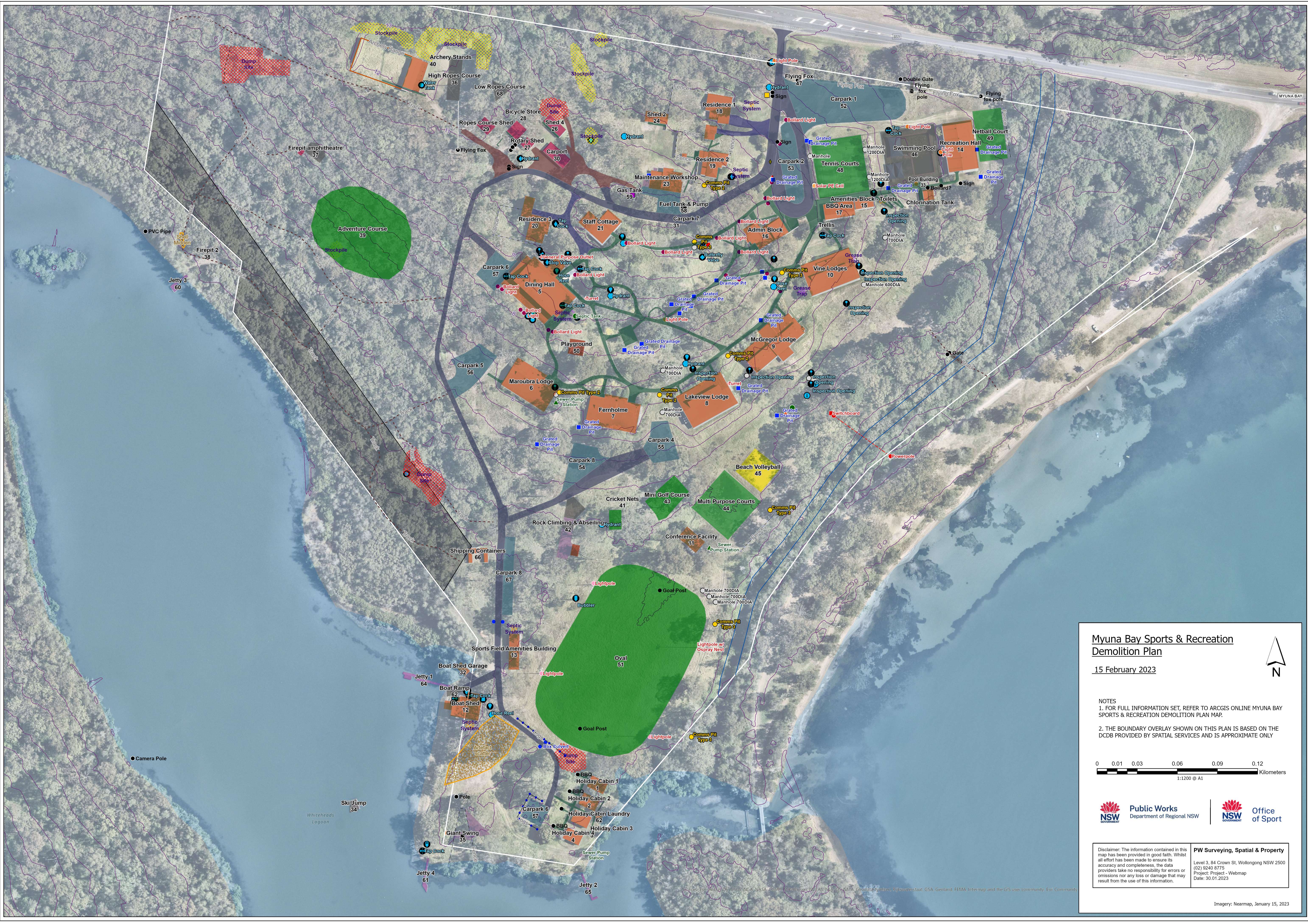
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Appendix 2. Myuna Bay Sport and Recreation Site map

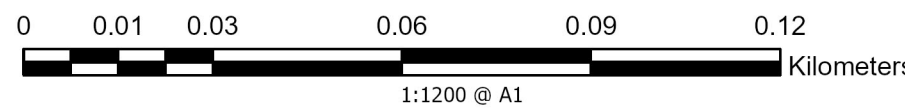
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Myuna Bay Sports & Recreation Demolition Plan

15 February 2023

- NOTES
1. FOR FULL INFORMATION SET, REFER TO ARCGIS ONLINE MYUNA BAY SPORTS & RECREATION DEMOLITION PLAN MAP.
 2. THE BOUNDARY OVERLAY SHOWN ON THIS PLAN IS BASED ON THE DCDB PROVIDED BY SPATIAL SERVICES AND IS APPROXIMATE ONLY



Disclaimer: The information contained in this map has been provided in good faith. Whilst all effort has been made to ensure its accuracy and completeness, the data providers take no responsibility for errors or omissions nor any loss or damage that may result from the use of this information.	PW Surveying, Spatial & Property Level 3, 84 Crown St, Wollongong NSW 2500 (02) 9240 8775 Project: Project - Webmap Date: 30.01.2023
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Appendix 3. Biodiversity Values map

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Biodiversity Values Map



1: 9,682



491.8 0 245.91 491.8 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days

Notes

© NSW Department of Planning and Environment

Biodiversity Values Map and Threshold Report

Results Summary

Date of Calculation	01/03/2023 3:49 PM	BDAR Required*
Total Digitised Area	118,757.6 sqm	
Minimum Lot Size Method	Lot size	
Minimum Lot Size 10,000sqm = 1ha	205,908 sqm	
Area Clearing Threshold 10,000sqm = 1ha	5,000 sqm	
Area clearing trigger Area of native vegetation cleared	Unknown [#]	Unknown [#]
Biodiversity values map trigger Impact on biodiversity values map(not including values added within the last 90 days)?	yes	yes
Date of the 90 day Expiry	N/A	

*If BDAR required has:

- at least one 'Yes': you have exceeded the BOS threshold. You are now required to submit a Biodiversity Development Assessment Report with your development application. Go to <https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor> to access a list of assessors who are accredited to apply the Biodiversity Assessment Method and write a Biodiversity Development Assessment Report
- 'No': you have not exceeded the BOS threshold. You may still require a permit from local council. Review the development control plan and consult with council. You may still be required to assess whether the development is "likely to significantly affect threatened species" as determined under the test in s. 7.3 of the Biodiversity Conservation Act 2016. You may still be required to review the area where no vegetation mapping is available.

Where the area of impact occurs on land with no vegetation mapping available, the tool cannot determine the area of native vegetation cleared and if this exceeds the Area Threshold. You will need to work out the area of native vegetation cleared - refer to the BMAT user guide for how to do this.

On and after the 90 day expiry date a BDAR will be required.

Disclaimer

This results summary and map can be used as guidance material only. This results summary and map is not guaranteed to be free from error or omission. The State of NSW and Department of Planning and Environment and its employees disclaim liability for any act done on the information in the results summary or map and any consequences of such acts or omissions. It remains the responsibility of the proponent to ensure that their development application complies with all aspects of the *Biodiversity Conservation Act 2016*.

The mapping provided in this tool has been done with the best available mapping and knowledge of species habitat requirements. This map is valid for a period of 30 days from the date of calculation (above).

Acknowledgement

I as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature _____ Date: 01/03/2023 03:49 PM

Appendix 4. Threatened species likelihood of occurrence per BioNet Atlas and EPBC PMST

Key

V - vulnerable E - endangered CE - critically endangered M - migratory

A State or nationally listed threatened species is considered to have a:

- **High** likelihood of occurrence if it has been recorded within 10 km of the study area and there is either suitable habitat present or the potential for the species to fly over the site (while species may fly over, it is acknowledged that for some species no suitable habitat will be present within the study area).
- **Moderate** likelihood of occurrence if they have a predicted occurrence (via the PMST or BioNet Atlas geographic search) and there is either suitable habitat present or the potential for the species to fly over the site (while species may fly over, it is acknowledged that for some species no suitable habitat will be present within the study area).
- **Low** likelihood of occurrence if suitable habitat for an animal is not present regardless of whether they have been recorded within 10 km, or have a predicted occurrence.

Note: Species underlined are those which only the EPBC PMST predicted as having habitat in the search area. All other species have been recorded within 10 km of the study area.

As these habitats are not present, no pelagic or estuarine species have been considered in the following table.

Given that the proposed work is not located within the Commonwealth marine area, this being from 3 to 200 nautical miles from the coast, no species listed as marine under the EPBC Act have been considered; nor has the marine status of any species been acknowledged.

* - habitat requirements were generally extracted from DCCEEW (2023b), OEH (2023), Harden (1992-2002), Frith (2007), Churchill (2008), Cogger (2014) and Van Dyck and Strahan (2008) with other references used being identified in the bibliography.

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
PLANTS						
Bynoe's Wattle <i>Acacia bynoeana</i>	V	E	Occurs in heath or dry sclerophyll forest on sandy soils.	High. The species is associated with PCT 3583.	81 (DPE) PMST	Precautionary assessment conducted. Refer to Appendix 7.
Charmhaven Apple <i>Angophora inopina</i>	V	V	Endemic to the Central Coast region of NSW. This species is a member of the <i>A. bakeri</i> complex, which also includes <i>A. crassifolia</i>, <i>A. paludosa</i> and <i>A. exul</i>. It is most similar to <i>A. crassifolia</i> from which it is distinguished by the broader leaves with shorter petioles. None of these related species are known from the same area as <i>A. inopina</i>, although <i>A. bakeri</i> does occur sporadically in the ranges to the west, and near Kurri Kurri. Occurs most frequently in four main vegetation communities: <i>Eucalyptus haemastoma</i>–<i>Corymbia gummifera</i>–<i>Angophora inopina</i> woodland/forest <i>Hakea teretifolia</i>–<i>Banksia oblongifolia</i> wet heath <i>Eucalyptus resinifera</i>–<i>Melaleuca sieberi</i>–<i>Angophora inopina</i> sedge woodland <i>Eucalyptus capitellata</i>–<i>Corymbia gummifera</i>–<i>Angophora inopina</i> woodland/forest.	Moderate. The species is associated with PCT 3583. Previous records are located at Wangi Wangi to the east of the investigated site.	59 (DPE) PMST	Precautionary assessment conducted. Refer to Appendix 7.
Thick-lipped Spider-orchid <i>Caladenia tessellata</i>	V	E	Generally found in grassy sclerophyll woodland on clay loam or sandy soils.	Low. The species is not associated with the PCTs present on-site.	1 (DPE) PMST	No
Netted Bottle Brush <i>Callistemon linearifolius</i>		V	Grows in dry sclerophyll forest on the coast and adjacent ranges.	Moderate. The species is associated with PCT 3583.	7 (DPE)	No

⁴ For the site to support, and be important for the lifecycle requirements of, a locally viable population of this species.

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
Wyong Midge Orchid 1, Variable Midge Orchid <i>Corunastaylis insignis</i> / <i>Genoplesium insigne</i>	CE	CE	Recorded from four localities between Chain Valley Bay and Wyong in Wyong LGA. A small population also occurs within City of Lake Macquarie LGA. Appears to be associated with PCT 1636 Scribbly Gum – Red Bloodwood – <i>Angophora inopina</i> (not always present) heathy woodland on lowlands of the Central Coast and variations containing <i>Angophora costata</i> (Smooth-barked Apple). Flowering period is typically from September to October, but has been recorded flowering in mid to late November to early December. Known locations/populations of plants exhibit dormancy for greater than four years.	Low. The species is not associated with the PCTs present on-site.	49 (DPE) PMST	No
<u>Wyong Midge Orchid 2</u> <u><i>Corunastaylis</i> sp. Charmhaven</u> <u>(NSW 896673)</u>	CE	CE	<i>Corunastaylis</i> sp. Charmhaven (NSW896673) is currently only known from the Wyong Shire of NSW where it is restricted to a few locations in the Charmhaven, Warnervale and Tooheys Road (Bushells Ridge) areas. It occurs within low woodland to heathland with a shrubby understorey and ground layer. Dominants include Black She-oak (<i>Allocasuarina littoralis</i>), Prickly Tea-tree (<i>Leptospermum juniperinum</i>), Prickly-leaved Paperbark (<i>Melaleuca nodosa</i>), Narrow-leaved Bottlebrush (<i>Callistemon linearis</i>) and Zig-zag Bog-rush (<i>Schoenus brevifolius</i>).	As above.	PMST	No
Red Helmut Orchid <i>Corybas dowlingii</i>		E	Restricted to the central coast and Hunter regions of NSW where it is currently known from the Port Stephens, Bulahdelah, Lake Macquarie and Freemans Waterhole areas. It is known from the LGAs of Cessnock, Great Lakes, Lake Macquarie and Port Stephens. Occurs in sheltered areas such as gullies and southerly slopes in tall open forest on well-drained gravelly soil at elevations of 10-200 m.	As above.	2131 (DPE)	No
Leafless Tongue Orchid <i>Cryptostylis hunteriana</i>	V	V	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland.	As above.	3 (DPE) PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
White-flowered Waxplant <i>Cynanchum elegans</i>	E	E	Usually occurs on the edge of dry rainforest vegetation but also in littoral rainforest, coastal scrub and aligned open forest and woodland.	Low. The species is associated with PCT 4036.	PMST	No
Newcastle Doubletail <i>Diuris praecox</i>	V	V	Known from between Bateau Bay and Smiths Lake. Grows on hills and slopes of near-coastal districts in open forests which have a grassy to fairly dense understorey.	Low. Although the species is associated with PCT 3583, there are no previous records in the locality (predicted occurrence only).	PMST	No
Camfield's Stringybark <i>Eucalyptus camfieldii</i>	V	V	Localised and scattered distribution includes sites at Menai, Wattamolla and a few other sites in RNP (among others). Poor coastal country in shallow sandy soils overlying Hawkesbury sandstone. Coastal heath mostly on exposed sandy ridges. Occurs mostly in small scattered stands near the boundary of tall coastal heaths and low open woodland of the slightly more fertile inland areas.	As above.	PMST	No
Earp's Gum <i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	V	V	Generally, occupies deep, low-nutrient sands, often those subject to periodic inundation or where water tables are relatively high. It occurs in dry sclerophyll woodland with dry heath understorey. It also occurs as an emergent in dry or wet heathland. Often where this species occurs, it is a community dominant.	Low. The species is not associated with the PCTs present on-site.	PMST	No
<i>Euphrasia arguta</i>	CE	CE	<i>Euphrasia arguta</i> was rediscovered in the Nundle area of the NSW north western slopes and tablelands in 2008. Prior to this, it had not been collected for 100 years. Historically, <i>Euphrasia arguta</i> has only been recorded from relatively few places within an area extending from Sydney to Bathurst and north to Walcha. Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'.	As above.	PMST	No
Small-flower Grevillea <i>Grevillea parviflora</i> subsp. <i>parviflora</i>	V	V	Occurs in a range of vegetation types from heath and shrubby woodland to open forest.	Moderate. The species is associated with PCT 3583 and there are scattered records between Earing and Wangi Wangi.	94 (DPE) PMST	Precautionary assessment conducted. Refer to Appendix 7.

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
<u>Biconvex Paperbark</u> <i>Melaleuca biconvexa</i>	V	V	Scattered and dispersed populations of this species are found in the Jervis Bay area in the south and the Gosford-Wyong area in the north. Generally, grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Low. The species is not associated with the PCTs present on-site.	PMST	No
<u>Tall Knotweed</u> <i>Persicaria elatior</i>	V	V	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	As above.	PMST	No
<u>Hairy Geenbung</u> <i>Persoonia hirsuta</i>	E	E	Found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone.	As above.	PMST	No
<u>Illawarra Greenhood</u> <i>Pterostylis gibbosa</i>	E	E	All known populations grow in open forest or woodland, on flat or gently sloping land with poor drainage. Near Nowra, the species grows in an open forest of Spotted Gum <i>Corymbia maculata</i> , Forest Red Gum and Grey Ironbark <i>E. paniculata</i> .	As above.	PMST	No
<u>Eastern Underground Orchid</u> <i>Rhizanthella slateri</i>	E	V	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest.	Low. Although the species is associated with PCT 3583 there are no previous records in the locality (predicted occurrence only).	PMST	No
<u>Scrub Turpentine</u> <i>Rhodamnia rubescens</i>	CE	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Low. The species is not associated with the PCTs present on-site.	PMST	No
<u>Native Guava</u> <i>Rhodomyrtus psidioides</i>	CE	CE	Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	As above.	PMST	No
<u>Heath Wrinklewort</u> <i>Rutidosia heterogama</i>	V	V	Grows in heath on sandy soils and moist areas in open forest, and has been recorded along disturbed roadsides.	Low. Although the species is associated with PCT 3583, there are no previous records in the locality and the species can be detected at any time of year.	PMST	No
<u>Magenta Lilly Pilly</u> <i>Syzygium paniculatum</i>	V	E	Found only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest. On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Low. Although the species is associated with PCT 4036, specific habitat requirements for the species were not observed at the site and the nearest records are over 6 km to the south west at Morisset.	2 (DPE) PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
Black-eyed Susan <i>Tetratheca juncea</i>	V	V	Usually found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest.	High. The species is associated with PCT 358 and there are abundant records surrounding the site from Eraring to Wangi Wangi. The survey was completed outside the recommended survey period during peak flowering (Sept – Oct).	2351 (DPE) PMST	Precautionary assessment conducted. Refer to Appendix 7.
Austral Toadflax <i>Thesium australe</i>	V	V	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast.	Low. The species is not associated with the PCTs present on-site.	PMST	No
MAMMALS						
Spotted-tailed Quoll <i>Dasyurus maculatus</i>	E	V	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	3 (DPE) PMST	No
Long-nosed Potoroo <i>Potorous tridactylus</i>	V	V	Inhabits coastal heath and dry and wet sclerophyll forests with dense cover which provides diurnal sheltering sites and protection from predators, while foraging in adjacent, open areas.	Low. No suitable habitat present.	PMST	No
Koala <i>Phascolarctos cinereus</i>	E	V	Open eucalypt forest and woodland, containing a variety of 'preferred' food tree species.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	15 (DPE) PMST	No
Parma Wallaby <i>Macropus parma</i>		V	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest.	Low. No suitable habitat present.	PMST	No
Brush-tailed Rock-wallaby <i>Petrogale penicillata</i>	V	E	Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	As above.	PMST	No
Yellow-bellied Glider <i>Petaurus australis</i>		V	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	As above.	PMST	No
Squirrel Glider <i>Petaurus norfolcensis</i>		V	Inhabits woodlands and dry sclerophyll forests, usually in diverse stands of shrubs and trees. Shelters and breeds in tree hollows, and is primarily	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	59 (DPE)	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
			an insectivorous animal but, has also been known to ingest plant exudates.			
Greater Glider <i>Petauroides volans</i>	V		Largely restricted to eucalypt forests and woodlands, utilising tree hollows.	As above.	PMST	No
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements. No active or historic flying-fox camps occur within 7 km of the surveyed site.	41 (DPE) PMST	No
Large-eared Pied Bat <i>Chalinolobus dwyeri</i>	V	V	Cave-roosting bat that forages in timbered woodland and dry sclerophyll forest.	Moderate. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements. No suitable roosting habitat identified.	1 (DPE) PMST	No
Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i>		V	Prefers moist habitats, with trees taller than 20 m. Generally, roosts in hollow-bearing trees (eucalypts), but has also been found under loose bark on trees or in buildings.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements.	2 (DPE)	No
Southern Myotis <i>Myotis macropus</i>		V	Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	Moderate. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements. No suitable roosting habitat identified.	1 (DPE)	No
Greater Broad-nosed Bat <i>Scoteanax rueppellii</i>		V	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Usually roosts in tree hollows but also in buildings.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements.	2 (DPE)	No
Little Bent-winged Bat <i>Miniopterus australis</i>		V	Generally found in well-timbered areas. Roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements. No suitable roosting habitat identified.	11 (DPE)	No
Large Bent-winged Bat <i>Miniopterus orianae oceanensis</i>		V	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its	11 (DPE)	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
				lifecycle requirements. No suitable roosting habitat identified.		
Eastern Coastal Free-tailed Bat <i>Mormopterus norfolkensis</i>		V	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures.	High. May fly over/forage within the site on occasion; however, would not be reliant on the site for its lifecycle requirements.	6 (DPE)	No
New Holland Mouse <i>Pseudomys novaehollandiae</i>	V		Open heathland, open woodland with a heathland understorey and vegetated sand dunes.	Low. No suitable habitat present.	PMST	No
BIRDS						
Rose-crowned Fruit-Dove <i>Ptilinopus regina</i>		V	Occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful.	Low. No suitable habitat present.	1 (DPE)	No
Black-necked Stork <i>Ephippiorhynchus asiaticus</i>		E	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries.	As above.	2 (DPE)	No
Freckled Duck <i>Stictonetta naevosa</i>		V	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	As above.	1 (DPE)	No
Blue-billed Duck <i>Oxyura australis</i>		V	Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	As above.	1 (DPE)	No
Australasian Bittern <i>Botaurus poiciloptilus</i>	E	E	Occupies shallow, vegetated freshwater or brackish swamps, usually dominated by tall, dense reed beds of <i>Typha</i> sp., <i>Juncus</i> sp. and <i>Phragmites</i> sp. Nests on platforms of reeds and rushes, usually built over water in dense cover.	As above.	PMST	No
Black Bittern <i>Ixobrychus flavicollis</i>		V	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves.	As above.	5 (DPE)	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
<u>Little Tern</u> <u><i>Sternula albifrons</i></u>	M	E	Almost exclusively coastal, preferring sheltered environments; however, may occur several km from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records). Nests in small, scattered colonies in low dunes or on sandy beaches just above high tide mark near estuary mouths or adjacent to coastal lakes and islands.	As above.	PMST	No
<u>Australian Fairy Tern</u> <u><i>Sternula nereis nereis</i></u>	V		Occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia. The subspecies has been known from NSW in the past, but it is unknown if it persists there. Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	As above.	PMST	No
<u>Red Knot</u> <u><i>Calidris canutus</i></u>	E, M		Mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	As above.	PMST	No
<u>Eastern Curlew</u> <u><i>Numenius madagascariensis</i></u>	CE, M		Found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	As above.	PMST	No
<u>Curlew Sandpiper</u> <u><i>Calidris ferruginea</i></u>	CE, M	E	Generally, occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts.	As above.	PMST	No
<u>Nunivak Bar-tailed Godwit</u> , <u>Western Alaskan Bar-tailed Godwit</u> <u><i>Limosa lapponica baueri</i></u>	V		Migratory wader found mainly in coastal harbours such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Arrive in NSW between August/October and leaves between February and April.	As above.	PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
White-throated Needletail <i>Hirundapus caudacutus</i>	V, M		Almost exclusively aerial. Takes insects on wing over a range of habitat types. Recorded most often above wooded areas, including open forest and rainforest.	Moderate. May fly over the site on occasion; however, would not be reliant on the site for its lifecycle requirements.	12 (DPE) PMST	No
Fork-tailed Swift <i>Apus pacificus</i>	M		Almost exclusively aerial. Takes insects on wing over a range of habitat types, but also less than 1 m above open areas or over water. Mostly occur over inland plains but sometimes above foothills or in coastal areas.	As above.	PMST	No
Bush Stone-curlew <i>Burhinus grallarius</i>		E	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	1 (DPE)	No
Greater Sand-plover <i>Charadrius leschenaultii</i>	V, M	V	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	Low. No suitable habitat present.	PMST	No
Lesser Sand-plover <i>Charadrius mongolus</i>	E, M	V	Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms.	As above.	PMST	No
Eastern Osprey <i>Pandion cristatus</i>	M	V	Occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands.	Individual sighted and a nest (atop light pole on eastern side of oval) observed within the southern extent of the site. However, the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by this species for its lifecycle requirements.	8 (DPE)	No
Red Goshawk <i>Erythrorhynchus radiatus</i>	V	CE	Very rare in NSW, extending south to about 30°S, with most records north of this, in the Clarence River Catchment, and a few around the lower Richmond and Tweed Rivers. Formerly, it was at least occasionally reported as far south as Port Stephens. In NSW, preferred habitats include mixed subtropical	Low. No suitable habitat present.	PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
			rainforest, <i>Melaleuca</i> swamp forest and riparian <i>Eucalyptus</i> forest of coastal rivers.			
White-bellied Sea-eagle <i>Haliaeetus leucogaster</i>		V	Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia.	Two individuals observed flying over the southern extent of the site. However, the proposed work would not adversely disturb or remove foraging or breeding habitat relied upon by this species for its lifecycle requirements.	21 (DPE)	No
<u>Grey Falcon</u> <i>Falco hypoleucos</i>	V	E	Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast.	Low. No suitable habitat present.	PMST	No
<u>Australian Painted Snipe</u> <i>Rostratula australis</i>	E	E	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	As above.	PMST	No
<u>Latham's Snipe</u> <i>Gallinago hardwickii</i>	M		Wet, treeless, tussocky grasslands, short grasses and/or marshes along freshwater streams and channels, though it can also be found in any vegetation around freshwater wetlands, in sedges, grasses, lignum, reeds and rushes, saltmarshes, creek edges, crops and pastures.	As above.	PMST	No
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>		V	Prefers tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests during summer, these being at higher altitudes. In winter, occurs at lower altitudes in drier, more open eucalypt forests and woodlands, or in dry forest in coastal areas.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	2 (DPE) PMST	No
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>		V	Inhabits eucalypt woodland and feeds almost exclusively on Casuarina fruits.	High. May occur within surrounding bushland but would not significantly rely on the impact footprint for its lifecycle requirements.	24 (DPE) PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
Little Lorikeet <i>Glossopsitta pusilla</i>		V	Forages primarily in the open Eucalypt forest and woodland canopies, particularly along water courses; occasionally in Angophoras, Melaleucas and other tree species, also riparian habitats are used.	As above.	25 (DPE)	No
Turquoise Parrot <i>Neophema pulchella</i>		V	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	1 (DPE)	No
Swift Parrot <i>Lathamus discolor</i>	CE	E	Eucalypt forests. When over-wintering on the mainland, this species is dependent on winter-flowering eucalypt species.	High. May occur within surrounding bushland but would not significantly rely on the impact footprint for its lifecycle requirements.	19 (DPE) PMST	No
<u>Oriental Cuckoo</u> <i>Cuculus optatus</i>	M		Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland.	Low. No suitable habitat present.	PMST	No
Powerful Owl <i>Ninox strenua</i>		V	Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest.	High. May occur within surrounding bushland but would not significantly rely on the impact footprint for its lifecycle requirements.	36 (DPE)	No
Sooty Owl <i>Tyto tenebricosa</i>		V	Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	As above.	2 (DPE)	No
Masked Owl <i>Tyto novaehollandiae</i>		V	Lives in dry eucalypt forests and woodlands from sea level to 1100 m.	As above.	23 (DPE)	No
<u>Pilotbird</u> <i>Pycnoptilus floccosus</i>	V		Found in wet forested areas and heathland in eastern Victoria and south-eastern New South Wales. Forages on the ground, turning over leaf litter using strong legs.	Low. No suitable habitat present.	PMST	No
Regent Honeyeater <i>Anthochaera phrygia</i>	CE	CE	Inhabits dry open forest and woodland. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	1 (DPE) PMST	No
<u>Painted Honeyeater</u> <i>Grantiella picta</i>	V	V	Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts	Low. No suitable habitat present.	PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
			and acacias. Prefers mistletoes of the genus <i>Amyema</i> .			
Varied Sittella <i>Daphoenositta chrysoptera</i>		V	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and <i>Acacia</i> woodland.	High. May occur within surrounding bushland but would not significantly rely on the impact footprint for its lifecycle requirements.	10 (DPE)	No
Dusky Woodswallow <i>Artamus cyanopterus cyanopterus</i>		V	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	2 (DPE)	No
Scarlet Robin <i>Petroica boodang</i>		V	Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs.	As above.	1 (DPE)	No
<u>Yellow Wagtail</u> <u><i>Motacilla flava</i></u>	M		Open country near swamps, salt marshes and sewage ponds.	Low. No suitable habitat present.	PMST	No
<u>Rufous Fantail</u> <u><i>Rhipidura rufifrons</i></u>	M		Mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts.	As above.	PMST	No
<u>Satin Flycatcher</u> <u><i>Myiagra cyanoleuca</i></u>	M		Mainly inhabit eucalypt forests, often near wetlands or watercourses.	Moderate. May occur within surrounding bushland but would not significantly rely on the site for its lifecycle requirements.	PMST	No
<u>Black-faced Monarch</u> <u><i>Monarcha melanopsis</i></u>	M		Rainforest and wet eucalypt forest.	Low. No suitable habitat present.	PMST	No
<u>Spectacled Monarch</u> <u><i>Monarcha trivirgatus</i></u>	M		Rainforest, mangroves and moist gloomy gullies of dense eucalypt forest.	As above.	PMST	No
REPTILES						
<u>Broad-headed Snake</u> <u><i>Hoplocephalus bungaroides</i></u>	V	E	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring.	Low. No suitable habitat present.	PMST	No
Stephen's Banded Snake <i>Hoplocephalus stephensii</i>		V	Rainforest and eucalypt forests and rocky areas up to 950 m in altitude. Shelters between loose bark and tree trunks, amongst vines, or in hollow trunks limbs, rock crevices or under slabs during the day.	As above.	3 (DPE)	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
Green Turtle <i>Chelonia mydas</i>	V	V	Ocean-dwelling species spending most of its life at sea; also occurs in coastal waters of NSW, where it is generally seen on the north or central coast.	Previously recorded (stranding/beaching) within the site. However, no suitable habitat present.	77 (DPE) PMST	No
Loggerheaded Turtle <i>Caretta caretta</i>	E	E	Loggerhead Turtles are ocean-dwellers. In NSW they are seen as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney.	Low. No suitable habitat present.	4 (DPE) PMST	No
AMPHIBIANS						
Wallum Froglet <i>Crinia tinnula</i>		V	Found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgeland and wet heathlands. They can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests.	High. May occur within surrounding bushland but would not significantly rely on the impact footprint for its lifecycle requirements.	5 (DPE)	No
Giant Burrowing Frog <i>Heleioporus australiacus</i>	V	V	Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Low. No suitable habitat present.	PMST	No
Green and Golden Bell Frog <i>Litoria aurea</i>	V	E	Inhabits a variety of environments, including disturbed sites, ephemeral ponds, wetlands, marshes, dams and stream-sides, particularly those that contain one or more of the following aquatic plants: bullrush (<i>Typha</i> spp.), spikerush (<i>Eleocharis</i> spp.), <i>Juncus kraussii</i> , <i>Schoenoplectus littoralis</i> and <i>Sporobolus virginicus</i> .	High. A concentration of previous records occurs about 4 km south-west of the site; however, this species would not significantly rely on the impact footprint for its lifecycle requirements.	99 (DPE) PMST	No
Littlejohn's Tree Frog <i>Litoria littlejohni</i>	V	V	Breeds in the upper reaches of permanent streams and in perched swamps. Non-breeding habitat is heath-based forests and woodlands where it shelters under leaf litter and low vegetation.	Low. No suitable habitat present.	PMST	No
Stuttering Frog <i>Mixophyes balbus</i>	V	E	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range.	As above.	PMST	No
Giant Barred Frog <i>Mixophyes iteratus</i>	E	E	Found along freshwater streams with permanent or semi-permanent water, generally (but not always) at lower elevation.	As above.	PMST	No

Common Name	Status		Primary habitat requirements	Likelihood of Occurrence ⁴	No. of sources	Assessment
	EPBC Act	BC Act/ FM Act				
<u>Mahony's Toadlet</u> <u><i>Uperoleia mahonyi</i></u>	E	E	Endemic to the mid-north coast of NSW and has been found between Kangy Angy and Seal Rocks. Current observations indicate Mahony's Toadlet inhabits shallow ephemeral and semi-permanent swamps (with limited flow of water) and swales on the coastal fringe of its range. Known records occur in heath or wallum habitats almost exclusively associated with leached (highly nutrient impoverished) white sand. Commonly associated with acid paperbark swamps; also known to occur in wallum heath, swamp mahogany-paperbark swamp forest, heath shrubland and Sydney red gum woodland. Recent studies suggest intact vegetation adjacent to and within water bodies is an important habitat feature for this species. Aquatic vegetation at breeding sites includes sedges (<i>Shoenoplectus</i> spp., <i>Baumea</i> spp. and <i>Lepironia articulata</i>) and Broadleaf Cumbungi (<i>Typha orientalis</i>).	As above.	PMST	No
FISH						
<u>Black Rockcod</u> <u><i>Epinephelus daemeli</i></u>	V	V	Large, reef-dwelling species found in warm temperate and subtropical parts of the south-western Pacific.	Low. No suitable habitat present.	PMST	No

Appendix 5. Photographic record of area investigated

 A photograph showing a paved asphalt road that curves to the right. On the left side of the road, there is a brick building with a sign that reads 'Myuna Bay Sport and Recreation Centre'. The area is surrounded by lush green grass and several large, mature trees with dense foliage. The sky is overcast.	The Administration Block, and character of the internal road, pathways and areas of maintained lawn within the site.
 A photograph of a paved road winding through a park-like setting. The road is flanked by green grass and various trees, including some with bright yellow-green leaves. A small blue building is visible in the background on the left. A 'STOP' sign is visible on the right side of the road. The sky is blue with some clouds.	Character of the internal road and landscaping within the site. Example of planted Tuckeroo on the right-hand side of road.
 A photograph of an outdoor swimming pool. The pool is rectangular and surrounded by a red safety deck. A large blue canopy covers the pool area. In the background, there are trees and a building. The sky is overcast.	Existing character of the swimming pool within the north-eastern portion of the site.

	Existing character of Vines Lodge (BBQ, toilets in background) and surrounding grassland within the north-eastern portion of the site. Photo taken looking north-west. Characteristic of areas of mapped PCT vegetation with Lemon-scented gum (non-endemic species) seedlings reclassified to non-native vegetation.
	Character of the beach volleyball area, and Lakeview Lodge in the background.
	Character of PCT 4036 woodland along the eastern boundary of the site; Crooked Creek located out of frame to the left.



Top: photo taken within southern extent of the site looking north past the boat shed (left of photo) towards the oval.



Bottom: Character of the oval (including rock climbing and abseiling infrastructure) within the southern extent of the site.



Character of the boatshed and surrounding vegetation on the western foreshore of the site.

	Existing character of a jetty along the western foreshore.
	PCT 3583 – Hunter Coast Lowland Scribbly Gum Forest.
	PCT 4036 – Hunter Coast Lake Flats Apple Forest.

Appendix 6. Flora species recorded

Mapping: NSW State Vegetation Type Map (SVMT) (release C1.1.M1) (State Government of NSW and DPE 2022)

PCT

Condition: moderate

Survey completed by Peter Monsted on 1 December 2022

KEY

- GF Code (Growth Form): Tree (TG), Shrub (SG), Forb (FG), Fern (EG), Other (OG), Grass & grass like (GG)
- N, E, HTW: Native (N), Exotic (E), High Threat Weed (HTW)
- EPBC/BC Act: Not listed species or population (0), Protected (P).

GF Code	Family	Species	N, E, HTW	BC Act	EPBC Act	3583	4036	Non-native
Tree (TG)								
(TG)	Myrtaceae	<i>Angophora costata</i>	N	0	0	●	●	●
(TG)	Myrtaceae	<i>Corymbia gummifera</i>	N	0	0	●		
(TG)	Myrtaceae	<i>Eucalyptus botryoides</i>	N	0	0		●	
(TG)	Myrtaceae	<i>Eucalyptus racemosa</i>	N	0	0	●		
(TG)	Myrtaceae	<i>Eucalyptus tereticornis</i>	N	0	0		●	●
(TG)	Phyllanthaceae	<i>Glochidion ferdinandi</i>	N	0	0	●		
Shrub (SG)								
(SG)	Araliaceae	<i>Polyscias sambucifolia</i>	N	0	0	●		
(SG)	Asteraceae	<i>Ozothamnus diosmifolius</i>	N	0	0	●	●	
(SG)	Fabaceae (Mimosoideae)	<i>Acacia irrorata</i>	N	0	0		●	
(SG)	Fabaceae (Mimosoideae)	<i>Acacia obtusifolia</i>	N	0	0	●	●	
(SG)	Goodeniaceae	<i>Goodenia ovata</i>	N	0	0		●	
(SG)	Myrtaceae	<i>Melaleuca nodosa</i>	N	0	0		●	
(SG)	Myrtaceae	<i>Melaleuca sieberi</i>	N	0	0		●	
(SG)	Phyllanthaceae	<i>Breynia oblongifolia</i>	N	0	0	●	●	
(SG)	Pittosporaceae	<i>Pittosporum undulatum</i>	N	0	0	●	●	
(SG)	Proteaceae	<i>Persoonia linearis</i>	N	P	0	●		
(SG)	Santalaceae	<i>Exocarpos cupressiformis</i>	N	0	0		●	
(SG)	Sapindaceae	<i>Dodonaea triquetra</i>	N	0	0		●	
Forb (FG)								
(FG)	Apiaceae	<i>Centella asiatica</i>	N	0	0	●	●	●
(FG)	Apiaceae	<i>Hydrocotyle sibthorpioides</i>	N	0	0			●
(FG)	Asteraceae	<i>Solenogyne belliioides</i>	N	0	0		●	
(FG)	Commelinaceae	<i>Commelina cyanea</i>	N	0	0			●
(FG)	Convolvulaceae	<i>Dichondra repens</i>	N	0	0		●	

GF Code	Family	Species	N, E, HTW	BC Act	EPBC Act	3583	4036	Non-native
(FG)	Goodeniaceae	<i>Goodenia heterophylla</i>	N	0	0	●		
(FG)	Haloragaceae	<i>Gonocarpus teucrioides</i>	N	0	0	●		
(FG)	Orchidaceae	<i>Cryptostylis erecta</i>	N	P	0	●		
(FG)	Oxalidaceae	<i>Oxalis perennans</i>	N	0	0		●	
(FG)	Phormiaceae	<i>Dianella caerulea</i> var. <i>caerulea</i>	N	0	0	●	●	●
Other (OG)								
(OG)	Apocynaceae	<i>Parsonsia straminea</i>	N	0	0	●	●	
(OG)	Campanulaceae	<i>Lobelia purpurascens</i>	N	0	0	●	●	●
(OG)	Dilleniaceae	<i>Hibbertia scandens</i>	N	0	0	●		
(OG)	Fabaceae (Faboideae)	<i>Glycine clandestina</i>	N	0	0			●
(OG)	Fabaceae (Faboideae)	<i>Glycine tabacina</i>	N	0	0	●		
(OG)	Fabaceae (Faboideae)	<i>Hardenbergia violacea</i>	N	0	0	●		
(OG)	Fabaceae (Faboideae)	<i>Kennedia rubicunda</i>	N	0	0	●		
(OG)	Luzuriagaceae	<i>Eustrephus latifolius</i>	N	0	0	●		
(OG)	Ranunculaceae	<i>Clematis glycinoides</i>	N	0	0	●		
(OG)	Xanthorrhoeaceae	<i>Xanthorrhoea</i> spp.	N	P	0	●		
Grass & grasslike (GG)								
(GG)	Cyperaceae	<i>Gahnia sieberiana</i>	N	P	0		●	
(GG)	Cyperaceae	<i>Lepidosperma laterale</i>	N	0	0	●		
(GG)	Lomandraceae	<i>Lomandra longifolia</i>	N	0	0		●	
(GG)	Poaceae	<i>Cynodon dactylon</i>	N	0	0			●
(GG)	Poaceae	<i>Dichelachne crinita</i>	N	0	0		●	
(GG)	Poaceae	<i>Echinopogon caespitosus</i>	N	0	0	●	●	
(GG)	Poaceae	<i>Echinopogon ovatus</i>	N	0	0			●
(GG)	Poaceae	<i>Entolasia marginata</i>	N	0	0	●	●	
(GG)	Poaceae	<i>Imperata cylindrica</i>	N	0	0	●		●
(GG)	Poaceae	<i>Microlaena stipoides</i>	N	0	0	●		●
(GG)	Poaceae	<i>Oplismenus imbecillis</i>	N	0	0	●		
(GG)	Poaceae	<i>Panicum simile</i>	N	0	0			●
(GG)	Poaceae	<i>Rytidosperma</i> spp.	N	0	0	●	●	
(GG)	Poaceae	<i>Themeda triandra</i>	N	0	0	●	●	●
Fern (EG)								
(EG)	Dennstaedtiaceae	<i>Pteridium esculentum</i>	N	0	0	●		
(EG)	Pteridaceae	<i>Adiantum aethiopicum</i>	N	P	0		●	
(EG)	Pteridaceae	<i>Cheilanthes sieberi</i>	N	0	0		●	
Exotic (weeds) (#N/A)								

GF Code	Family	Species	N, E, HTW	BC Act	EPBC Act	3583	4036	Non-native
#N/A	Asteraceae	<i>Ageratina adenophora</i>	HTW	0	0	●	●	
#N/A	Poaceae	<i>Andropogon virginicus</i>	HTW	0	0	●	●	
#N/A	Poaceae	<i>Axonopus fissifolius</i>	HTW	0	0	●		
#N/A	Poaceae	<i>Briza subaristata</i>	HTW	0	0		●	●
#N/A	Poaceae	<i>Cortaderia selloana</i>	HTW	0	0	●		
#N/A	Poaceae	<i>Paspalum dilatatum</i>	HTW	0	0		●	●
#N/A	Poaceae	<i>Stenotaphrum secundatum</i>	HTW	0	0			●
#N/A	Verbenaceae	<i>Lantana camara</i>	HTW	0	0	●		●
#N/A	Asteraceae	<i>Chrysanthemoides monilifera</i>	E	0	0		●	
#N/A	Asteraceae	<i>Hypochaeris radicata</i>	E	0	0			●
#N/A	Asteraceae	<i>Senecio madagascariensis</i>	E	0	0			●
#N/A	Malvaceae	<i>Sida rhombifolia</i>	E	0	0			●
#N/A	Myrtaceae	<i>Corymbia citriodora</i>	E	0	0			●
#N/A	Pinaceae	<i>Pinus radiata</i>	E	0	0			●
#N/A	Plantaginaceae	<i>Plantago lanceolata</i>	E	0	0			●
#N/A	Poaceae	<i>Bromus catharticus</i>	E	0	0			●
#N/A	Poaceae	<i>Cenchrus clandestinus</i>	E	0	0			●
#N/A	Poaceae	<i>Melinis repens</i>	E	0	0			●
#N/A	Poaceae	<i>Vulpia spp.</i>	E	0	0			●
#N/A	Rosaceae	<i>Rubus fruticosus sp. agg.</i>	E	0	0	●		
#N/A	Solanaceae	<i>Solanum mauritianum</i>	E	0	0			●
#N/A	Verbenaceae	<i>Verbena africana</i>	E	0	0			●

Appendix 7. Ecological Assessments

Commonwealth – EPBC Act

No threatened TECs or flora species listed under this Act were recorded within the study area during the site investigation for this assessment, or previously. The following four species of plant or their habitat, however, listed as Vulnerable under the Act, were considered likely to occur within the study area:

- Bynoe's Wattle (*Acacia bynoeana*)
- Charmhaven Apple (*Angophora inopina*)
- Small-flower Grevillea (*Grevillea parviflora* subsp. *parviflora*)
- Black-eyed Susan (*Tetradlea juncea*).

Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan within the subject area, if present, are not considered important populations.

The Significant Impact Guidelines prepared under the EPBC Act (DE 2013) are used to determine whether the action has, will have, or is likely to have a significant impact on these potentially occurring MNES and, as such, whether the conducting of the proposal would be a controlled action requiring referral of the matter to the Federal Minister for the Environment.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- ***lead to a long-term decrease in the size of an important population of a species***

The impact to these species, if present within the activity footprint, would not significantly decrease the size of the local populations. There are many records of each of these species within the locality and, given no individuals were recorded during the site inspection, if individuals of these species are present, they are expected to be a small number or located in the area that will not be impacted by the work (i.e., within the dense vegetation around the facilities and sporting installations).

- ***reduce the area of occupancy of an important population***

The proposed activity would not significantly reduce the area of habitat for the local populations. The main area of disturbance will be restricted to areas of non-native vegetation. Impacts in the areas of PCT vegetation providing potential habitat for these species are likely to be short term (i.e., decommissioning and demolition of sporting installations) after which the areas will be allowed to naturally regenerate.

- ***fragment an existing important population into two or more populations***

The proposed work would not fragment the local populations of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan into two or more populations as the impacts to suitable habitat would be temporary and would not create a barrier to the distribution of the species.

- ***adversely affect habitat critical to the survival of a species***

Habitat within the study area is not listed on the SPRAT Register of Critical Habitat (DCCEEW 2023c) and is not considered critical to the survival of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan.

- ***disrupt the breeding cycle of an important population***

The proposed work will not disrupt the breeding cycle of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan. The proposed work does not involve any activities that would modify the pollination, seed dispersal or germination processes of these species. Impacts to the soil

profile and any seed would be limited and would not prevent regeneration following completion of the activity.

- ***modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline***

The proposed activity would not significantly reduce the area of habitat for the local populations of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan.

The main area of disturbance will be restricted to areas of non-native vegetation. Impacts in the areas of PCT vegetation providing potential habitat for these species are likely to be short term (i.e., decommissioning and demolition of sporting installations) after which the areas will be allowed to naturally regenerate. The site is also connected to larger areas of quality habitat which provide habitat for these species.

- ***result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat***

It is unlikely that the proposal will result in the establishment of invasive species. Provided equipment/machinery is cleaned prior to its use at the work site, it is unlikely that the work would result in the introduction of weeds that are harmful to Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan.

There are a number of regional and State significant weeds already at the site and the development of a Weed Management Plan will prevent these weeds proliferating the disturbed areas following the activity.

- ***introduce disease that may cause the species to decline, or***

Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*) is listed as a KTP on the EPBC Act. The proposed activity has the potential to introduce this pathogen that lives in soils and plant roots and is the key organism associated with the dieback of native plant species in Australia. Myrtle Rust although not listed as a KTP on the EPBC Act, is considered a threat to the species. Work must therefore avoid the potential spread of this organism as far as possible. Contractors would need to adhere to the following hygiene protocols:

- Before entering and leaving the work site, workers are to remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant supplied by the contractor (70% Methylated spirits / 30% Water) until runoff is clear.
 - Avoid unnecessary soil disturbance.
- ***interfere substantially with the recovery of the species.***

It is considered that the proposed action will not interfere with the recovery of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan.

Conclusion

As the proposal is not considered to have a significant impact on Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan, it is considered unnecessary that the matter be referred to the Federal Minister for the Environment for further consideration or approval.

State – BC Act (Section 7.3)

As they have been previously recorded within the locality, and as suitable habitat is present, it is considered necessary to adopt the precautionary approach to the potential presence of the:

- Bynoe's Wattle (*Acacia bynoeana*) – Endangered
- Charmhaven Apple (*Angophora inopina*) – Vulnerable
- Small-flower Grevillea (*Grevillea parviflora* subsp. *parviflora*) – Vulnerable
- Black-eyed Susan (*Tetratheca juncea*) – Vulnerable.

The potential impact associated with the proposal on these potentially occurring threatened species, and their local population, is considered with reference to the assessment criteria provided under s.7.3 of the BC Act (these commonly referred to as the 5-part test). These criteria are designed to determine whether there is likely to be a significant effect on these threatened species, or their habitats, and consequently whether the BOS is triggered and BDAR is required.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The proposed work will not disrupt the lifecycle of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan. The work does not involve any activities that would modify the pollination, seed dispersal or germination processes of these species. Impacts to the soil profile and any seed would be limited and would not prevent regeneration following completion of the activity.

There are also many records of all four species surrounding the site. Given that similar habitat would be retained within and beyond the limits of the study area, the impact of the proposal would not affect the lifecycle of the local populations such that a viable local population of the species is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or***
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction***

Not applicable to a threatened species.

(c) in relation to the habitat of a threatened species or ecological community:

- (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity,***

The proposed activity would not significantly reduce the area of habitat for the local populations. The main area of disturbance will be restricted to areas of non-native vegetation. Impacts in the areas of PCT vegetation providing potential habitat for these species area likely to be short term (i.e., decommissioning and demolition of sporting installations) after which the areas will be allowed to naturally regenerate.

- (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity,***

The proposed work would not fragment the local populations into two or more populations, or isolate them from other areas of habitat of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and

Black-eyed Susan, as the impacts to suitable habitat would temporary and would not create a barrier to the distribution of the species.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long term survival of the species, population or ecological community in the locality,

The habitat that will be impacted by the proposal is not considered to be important to the long-term survival of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan.

The proposed activity would not significantly reduce the area of habitat for the local populations of Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan. The main area of disturbance will be restricted to areas of non-native vegetation. Impacts in the areas of PCT vegetation providing potential habitat for these species area likely to be short term (i.e., decommissioning and demolition of sporting installations) after which the areas will be allowed to naturally regenerate. The site is also connected to larger areas of quality habitat which provide habitat for these species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared AOBV would be directly or indirectly affected by the proposal. The subject site is not listed as a declared AOBV under Part 3 of the BC Regulation 2017.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process

Of the KTP listed under the BC Act, those that are relevant to the proposal are identified below. Based on the adherence of those recommendations provided in Section 5.2 and 7 of this report, the proposal can proceed as planned without contributing to, or increasing the impact of, the following KTPs:

- Clearing of native vegetation (BC Act)

Based on a worst-case estimate, the proposed work would require total direct/indirect impact of 9.7 ha, involving an expected disturbance/removal of up to about 7 ha of non-native vegetation. Given the extent of similar and better-quality resources within the study area and beyond, and the revegetation work to be implemented, the loss of this amount of vegetation is not considered to significantly contribute to this KTP.

- Infection of native plants by *Phytophthora cinnamomi* (BC Act)
- Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae (Myrtle Rust) (BC Act)

The proposed activity has the potential to introduce these pathogens that live in soils and plant roots and is the key organism associated with the dieback of native plant species in Australia. Work must therefore avoid the potential spread of these organism as far as possible, with contractors adhering to the following hygiene protocols:

- Before entering and leaving the work site, workers are to remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant supplied by the contractor (70% Methylated spirits / 30% Water) until runoff is clear.
- Avoid unnecessary soil disturbance.

Conclusion

The proposal is considered unlikely to significantly affect Bynoe's Wattle, Charmhaven Apples, Small-flower Grevillea and Black-eyed Susan or their habitat. As such, the BOS is not triggered for significant impacts and the preparation of a BDAR is not required.

Appendix 8. Fauna species recorded or known to occur within 5 km of the study area

Source of Records

1 = Species recorded during present study
 2 = BioNet Atlas (2023a)
 3 = AECOM 2018

Key

A – species listed under the EPBC Act
 B – species listed under the BC Act or FM ACT
 V – species is Vulnerable
 E – species is Endangered
 CE – species is Critically Endangered
 F – migratory Family listed under the EPBC Act
 M – species listed as migratory listed under the EPBC Act
 Ma – species listed as marine under the EPBC Act
 * – indicates introduced species

A	B	Common Name	Family and Scientific Name	1	2	3
		MAMMALS				
			Ornithorhynchidae			
		Platypus	<i>Ornithorhynchus anatinus</i>		x	
			Tachyglossidae			
		Short-beaked Echidna	<i>Tachyglossus aculeatus</i>		x	
			Dasyuridae			
E	V	Spotted-tailed Quoll	<i>Dasyurus maculatus</i>		x	
		Brown Antechinus	<i>Antechinus stuartii</i>		x	
		Common Dunnart	<i>Sminthopsis murina</i>		x	
			Peramelidae			
		Northern Brown Bandicoot	<i>Isodon macrourus</i>		x	
		Long-nosed Bandicoot	<i>Perameles nasuta</i>		x	
			Phascolarctidae			
E	E	Koala	<i>Phascolarctos cinereus</i>		x	
			Vombatidae			
		Common Wombat	<i>Vombatus ursinus</i>		x	
			Petauridae			
		Sugar Glider	<i>Petaurus breviceps</i>		x	
	V	Squirrel Glider	<i>Petaurus norfolcensis</i>		x	x
			Pseudocheiridae			
		Common Ringtail Possum	<i>Pseudocheirus peregrinus</i>		x	
			Acrobatidae			
		Feathertail Glider	<i>Acrobates pygmaeus</i>		x	
			Phalangeridae			
		Common Brushtail Possum	<i>Trichosurus vulpecula</i>		x	
			Macropodidae			
		Eastern Grey Kangaroo	<i>Macropus giganteus</i>		x	
		Red-necked Wallaby	<i>Macropus rufogriseus</i>		x	
		Swamp Wallaby	<i>Wallabia bicolor</i>		x	
			Pteropodidae			
		Black Flying Fox	<i>Pteropus alecto</i>		x	
V	V	Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>		x	
			Rhinolophidae			
		Eastern Horseshoe Bat	<i>Rhinolophus megaphyllus</i>		x	
			Vespertilioidae			
V	V	Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
		Gould's Wattled Bat	<i>Chalinolobus gouldii</i>		x	
		Chocolate Wattled Bat	<i>Chalinolobus morio</i>		x	
	V	Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>		x	
	V	Southern Myotis	<i>Myotis macropus</i>		x	
		Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>		x	
		Gould's Long-eared Bat	<i>Nyctophilus gouldi</i>		x	
	V	Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>		x	
		Eastern Broad-nosed Bat	<i>Scotorepens orion</i>		x	
		Large Forest Bat	<i>Vespadelus darlingtoni</i>		x	
		Eastern Forest Bat	<i>Vespadelus pumilus</i>		x	
		Little Forest Bat	<i>Vespadelus vulturnus</i>		x	
			Miniopteridae			
	V	Little Bent-winged Bat	<i>Miniopterus australis</i>		x	
	V	Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>		x	
			Molossidae			
		White-striped Freetail Bat	<i>Austronomus australis</i>		x	
	V	Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>		x	
		Eastern Freetail Bat	<i>Mormopterus ridei</i>		x	
			Muridae			
		Water Rat	<i>Hydromys chrysogaster</i>		x	
		* House Mouse	<i>Mus musculus</i>		x	
		Bush Rat	<i>Rattus fuscipes</i>		x	
		Swamp Rat	<i>Rattus lutreolus</i>		x	
		* Brown Rat	<i>Rattus norvegicus</i>		x	
		* Black Rat	<i>Rattus rattus</i>	x	x	
			Canidae			
		Dingo	<i>Canis lupus dingo</i>		x	
		* Fox	<i>Vulpes vulpes</i>	x	x	
		* Dog	<i>Canis familiaris</i>		x	
			Felidae			
		* Feral Cat	<i>Felis catus</i>		x	
			Leporidae			
		* Rabbit	<i>Oryctolagus cuniculus</i>		x	
		* Brown Hare	<i>Lepus capensis</i>		x	
			Equidae			
		* Horse	<i>Equus caballus</i>		x	
		BIRDS				
			Phasianidae			
		Brown Quail	<i>Coturnix ypsilophora</i>		x	
			Anatidae			
		Black Swan	<i>Cydnus atratus</i>	x	x	
		Pacific Black Duck	<i>Anas superciliosa</i>		x	
		Grey Teal	<i>Anas gracilis</i>		x	
		Chestnut Teal	<i>Anas castanea</i>		x	
		Hardhead	<i>Aythya australis</i>		x	
		Australian Wood Duck	<i>Chenonetta jubata</i>		x	
	V	Freckled Duck	<i>Stictonetta naevosa</i>		x	
	V	Blue-billed Duck	<i>Oxyura australis</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
		Musk Duck	<i>Biziura lobata</i>		x	
			Podicipedidae			
		Australasian Grebe	<i>Tachybaptus novaehollandiae</i>		x	
			Columbidae			
	V	Rose-crowned Fruit-Dove	<i>Ptilinopus regina</i>		x	
		Topknot Pigeon	<i>Lopholaimus antarcticus</i>		x	
		White-headed Pigeon	<i>Columba leucomela</i>		x	
		* Rock Dove	<i>Columba livia</i>		x	
		* Spotted Dove	<i>Streptopelia chinensis</i>		x	
		Brown Cuckoo-Dove	<i>Macropygia amboinensis</i>		x	
		Peaceful Dove	<i>Geopelia striata</i>		x	
		Bar-shouldered Dove	<i>Geopelia humeralis</i>	x	x	
		Emerald Dove	<i>Chalcophaps indica</i>		x	
		Common Bronzewing	<i>Phaps chalcoptera</i>		x	
		Crested Pigeon	<i>Ocyphaps lophotes</i>	x	x	
		Wonga Pigeon	<i>Leucosarcia picata</i>		x	
			Podargidae			
		Tawny Frogmouth	<i>Podargus strigoides</i>		x	
			Eurostopodidae			
		White-throated Nightjar	<i>Eurostopodus mystacalis</i>		x	
			Aegothelidae			
		Australian Owlet-nightjar	<i>Aegotheles cristatus</i>		x	
			Apodidae			
V, M, Ma		White-throated Needletail	<i>Hirundapus caudacutus</i>		x	
M, Ma		Fork-tailed Swift	<i>Apus pacificus</i>		x	
			Procellariidae			
M, Ma		Short-tailed Shearwater	<i>Ardenna tenuiorstris</i>		x	
			Spheniscidae			
		Little Penguin	<i>Eudyptula minor</i>		x	
			Phalacrocoracidae			
		Pied Cormorant	<i>Phalacrocorax varius</i>		x	
		Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>		x	
		Great Cormorant	<i>Phalacrocorax carbo</i>		x	
		Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>		x	
			Pelecanidae			
		Australian Pelican	<i>Pelecanus conspicillatus</i>	x	x	
			Ciconiidae			
	E	Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>		x	
			Ardeidae			
		White-necked Heron	<i>Ardea pacifica</i>		x	
		White-faced Heron	<i>Egretta novaehollandiae</i>	x	x	
Ma		Cattle Egret	<i>Ardea ibis</i>		x	
Ma		Great Egret	<i>Ardea alba</i>		x	
		Little Egret	<i>Egretta garzetta</i>		x	
		Striated Heron	<i>Butorides striatus</i>		x	
		Nankeen Night-Heron	<i>Nycticorax caledonicus</i>		x	
	V	Black Bittern	<i>Ixobrychus flavicollis</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
			Threskiornidae			
		Australian White Ibis	<i>Threskiornis molucca</i>		x	
		Straw-necked Ibis	<i>Threskiornis spinicollis</i>		x	
		Royal Spoonbill	<i>Platalea regia</i>	x	x	
F			Accipitridae			
		Pacific Baza	<i>Aviceda subcristata</i>		x	
		Black-shouldered Kite	<i>Elanus axillaris</i>		x	
M, Ma	V	Eastern Osprey	<i>Pandion cristatus</i>	x	x	
		Black Kite	<i>Milvus migrans</i>		x	
		Whistling Kite	<i>Haliastur sphenurus</i>		x	
		Brahminy Kite	<i>Haliastur indus</i>		x	
Ma	V	White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	x	x	
		Wedge-tailed Eagle	<i>Aquila audax</i>		x	
		Brown Goshawk	<i>Accipiter fasciatus</i>	x	x	
		Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>		x	
		Grey Goshawk	<i>Accipiter novaehollandiae</i>		x	
		Swamp Harrier	<i>Circus approximans</i>		x	
F			Falconidae			
		Peregrine Falcon	<i>Falco peregrinus</i>		x	
		Australian Hobby	<i>Falco longipennis</i>		x	
		Brown Falcon	<i>Falco berigora</i>		x	
		Nankeen Kestrel	<i>Falco cenchroides</i>		x	
			Rallidae			
		Buff-banded Rail	<i>Gallirallus phillippensis</i>		x	
		Dusky Moorhen	<i>Gallinula tenebrosa</i>		x	
		Purple Swamphen	<i>Porphyrio porphyrio</i>		x	
		Eurasian Coot	<i>Fulica atra</i>		x	
			Burhinidae			
	E	Bush Stone-curlew	<i>Burhinus grallarius</i>		x	
			Recurvirostridae			
		Black-winged Stilt	<i>Himantopus himantopus</i>		x	
		Red-necked Avocet	<i>Recurvirostra novaehollandiae</i>		x	
F			Charadriidae			
		Masked Lapwing	<i>Vanellus miles</i>	x	x	
		Red-kneed Dotterel	<i>Erythronyx cinctus</i>		x	
		Black-fronted Dotterel	<i>Euseyonis melanops</i>		x	
F			Scolopacidae			
M, Ma		Common Sandpiper	<i>Actitis hypoleucos</i>		x	
			Turnicidae			
		Painted Button-quail	<i>Turnix varius</i>		x	
			Stercorariidae			
M, Ma		Arctic Jaeger	<i>Stercorarius parasiticus</i>		x	
			Laridae			
		Silver Gull	<i>Chroicocephalus novaehollandiae</i>		x	
		Crested Tern	<i>Thalasseus bergii</i>		x	
			Cacatuidae			
V	V	South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
		Yellow-tailed Black Cockatoo	<i>Calyptorhynchus funereus</i>		x	
E	V	Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>		x	
		Galah	<i>Eolophus roseicapillus</i>	x	x	
		Long-billed Corella	<i>Cacatua tenuirostris</i>		x	
		Little Corella	<i>Cacatua sanguinea</i>		x	
		Sulphur-crested Cockatoo	<i>Cacatua galerita</i>		x	
			Psittacidae			
		Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	x	x	
		Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>		x	
		Musk Lorikeet	<i>Glossopsitta concinna</i>	x	x	
	V	Little Lorikeet	<i>Glossopsitta pusilla</i>		x	
		Australian King Parrot	<i>Alisterus scapularis</i>		x	
CE, Ma	E	Swift Parrot	<i>Lathamus discolor</i>		x	
		Crimson Rosella	<i>Platycercus elegans</i>		x	
		Eastern Rosella	<i>Platycercus eximius</i>	x	x	
	V	Turquoise Parrot	<i>Neophema pulchella</i>		x	
			Cuculidae			
		Brush Cuckoo	<i>Cacomantis variolosus</i>		x	
		Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	x	x	
		Horsfield's Bronze-Cuckoo	<i>Chalcites basal</i>		x	
		Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>		x	
		Eastern Koel	<i>Eudynamys orientalis</i>	x	x	
		Channel-billed Cuckoo	<i>Scythrops novaehollandiae</i>	x	x	
		Pheasant Coucal	<i>Centropus phasianinus</i>		x	
			Strigidae			
	V	Powerful Owl	<i>Ninox strenua</i>		x	
		Southern Boobook	<i>Ninox novaeseelandiae</i>		x	
			Tytonidae			
	V	Sooty Owl	<i>Tyto tenebricosa</i>		x	
	V	Masked Owl	<i>Tyto novaehollandiae</i>		x	
		Eastern Barn Owl	<i>Tyto javanica</i>		x	
			Alcedinidae			
		Azure Kingfisher	<i>Ceyx azureus</i>		x	
			Halcyonidae			
		Laughing Kookaburra	<i>Dacelo novaeguineae</i>	x	x	
		Sacred Kingfisher	<i>Todiramphus sanctus</i>	x	x	
			Meropidae			
Ma		Rainbow Bee-eater	<i>Merops ornatus</i>		x	
			Coraciidae			
		Dollarbird	<i>Eurystomus orientalis</i>	x	x	
			Climacteridae			
		White-throated Treecreeper	<i>Cormobates leucophaea</i>		x	
			Ptilonorhynchidae			
		Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>	x	x	
			Maluridae			
		Superb Fairy-wren	<i>Malurus cyaneus</i>	x	x	
		Variegated Fairy-wren	<i>Malurus lamberti</i>		x	
		Southern Emu-wren	<i>Stipiturus malachurus</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
			Acanthizidae			
		Rockwarbler	<i>Origma solitaria</i>		x	
		White-browed Scrubwren	<i>Sericornis frontalis</i>	x	x	
		Yellow-throated Scrubwren	<i>Sericornis citreogularis</i>		x	
		Chestnut-rumped Heathwren	<i>Hylacola pyrrhopygia</i>		x	
		Weebill	<i>Smicromis brevirostris</i>		x	
		White-throated Gerygone	<i>Gerygone albogularis</i>		x	
		Brown Gerygone	<i>Gerygone mouki</i>		x	
		Western Gerygone	<i>Gerygone fusca</i>		x	
		Brown Thornbill	<i>Acanthiza pusilla</i>		x	
		Yellow Thornbill	<i>Acanthiza nana</i>	x	x	
		Striated Thornbill	<i>Acanthiza lineata</i>	x	x	
		Buff-rumped Thornbill	<i>Acanthiza reguloides</i>		x	
			Pardalotidae			
		Spotted Pardalote	<i>Pardalotus punctatus</i>		x	
		Striated Pardalote	<i>Pardalotus striatus</i>		x	
			Meliphagidae			
		Red Wattlebird	<i>Anthochaera carunculata</i>		x	
		Little (Brush) Wattlebird	<i>Anthochaera chrysoptera</i>		x	
		Striped Honeyeater	<i>Plectorhyncha lanceolata</i>		x	
		Noisy Friarbird	<i>Philemon corniculatus</i>		x	
		Little Friarbird	<i>Philemon citreogularis</i>		x	
CE	CE	Regent Honeyeater	<i>Anthochaera phrygia</i>		x	
		Bell Miner	<i>Manorina melanophrys</i>	x	x	
		Noisy Miner	<i>Manorina melanocephala</i>	x	x	
		Lewin's Honeyeater	<i>Meliphaga lewinii</i>	x	x	
		Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>		x	
		Fuscous Honeyeater	<i>Lichenostomus fuscus</i>		x	
		White-plumed Honeyeater	<i>Lichenostomus pencillatus</i>		x	
		Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>		x	
		White-naped Honeyeater	<i>Melithreptus lunatus</i>		x	
		White-cheeked Honeyeater	<i>Phylidonyris niger</i>		x	
		New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>		x	
		Tawny-crowned Honeyeater	<i>Glyciphila melanops</i>		x	
		Brown Honeyeater	<i>Lichmera indistincta</i>		x	
		Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>		x	
		Scarlet Honeyeater	<i>Myzomela sanguinolenta</i>	x	x	
			Psophodidae			
		Spotted Quail-thrush	<i>Cinclosoma punctatum</i>		x	
		Eastern Whipbird	<i>Psophodes olivaceus</i>	x	x	
			Neosittidae			
	V	Varied Sittella	<i>Daphoenositta chrysoptera</i>		x	
			Campephagidae			
		Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	x	x	
		White-bellied Cuckoo-shrike	<i>Coracina papuensis</i>		x	
		Cicadabird	<i>Coracina tenuirostris</i>		x	
			Pachycephalidae			
		Crested Shrike-tit	<i>Falcunculus frontatus</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
		Grey Shrike-thrush	<i>Colluricincla harmonica</i>		x	
		Golden Whistler	<i>Pachycephala pectoralis</i>		x	
		Rufous Whistler	<i>Pachycephala rufiventris</i>		x	
			Oriolidae			
		Olive-backed Oriole	<i>Oriolus sagittatus</i>	x	x	
		Australasian Figbird	<i>Sphecotheres vieilloti</i>	x	x	
			Artamidae			
		White-breasted Woodswallow	<i>Artamus leucorhynchus</i>		x	
		Masked Woodswallow	<i>Artamus personatus</i>		x	
		White-browed Woodswallow	<i>Artamus superciliosus</i>		x	
	V	Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>		x	
		Grey Butcherbird	<i>Cracticus torquatus</i>		x	
		Pied Butcherbird	<i>Cracticus nigrogularis</i>	x	x	
		Australian Magpie	<i>Cracticus tibicen</i>	x	x	
		Pied Currawong	<i>Strepera graculina</i>	x	x	
			Dicruridae			
		Spangled Drongo	<i>Dicrurus bracteatus</i>		x	
			Rhipiduridae			
		Grey Fantail	<i>Rhipidura albiscapa</i>	x	x	
M, Ma		Rufous Fantail	<i>Rhipidura rufifrons</i>		x	
		Willie Wagtail	<i>Rhipidura leucophrys</i>	x	x	
			Corvidae			
		Australian Raven	<i>Corvus coronoides</i>	x	x	
		Torresian Crow	<i>Corvus orru</i>		x	
			Monarchidae			
		Leaden Flycatcher	<i>Myiagra rubecula</i>		x	
		Restless Flycatcher	<i>Myiagra inquieta</i>		x	
M, Ma		Black-faced Monarch	<i>Monarcha melanopsis</i>		x	
		Magpie-lark	<i>Grallina cyanoleuca</i>	x	x	
			Corcoracidae			
		White-winged Chough	<i>Corcorax melanorhamphos</i>		x	
			Petroicidae			
		Rose Robin	<i>Petroica rosea</i>		x	
	V	Scarlet Robin	<i>Petroica boodang</i>		x	
		Red-capped Robin	<i>Petroica goodenovii</i>		x	
		Eastern Yellow Robin	<i>Eopsaltria australis</i>	x	x	
		Jacky Winter	<i>Microeca fascians</i>		x	
F			Acrocephalidae			
Ma		Australian Reed-Warbler	<i>Acrocephalus australis</i>		x	
F			Megaluridae			
		Little Grassbird	<i>Megalurus gramineus</i>		x	
			Timaliidae			
		Silvereye	<i>Zosterops lateralis</i>		x	
			Hirundinidae			
		Welcome Swallow	<i>Hirundo neoxena</i>	x	x	
		Tree Martin	<i>Petrochelidon nigricans</i>		x	
F			Turdidae			
		Bassian Thrush	<i>Zoothera lunulata</i>		x	

A	B	Common Name	Family and Scientific Name	1	2	3
			Sturnidae			
		* Common Starling	<i>Sturnus vulgaris</i>		x	
		* Common Myna	<i>Sturnus tristis</i>		x	
			Nectariniidae			
		Mistletoebird	<i>Dicaeum hirundinaceum</i>		x	
			Estrildidae			
		Double-barred Finch	<i>Taeniopygia bichenovii</i>		x	
		Red-browed Finch	<i>Neochmia temporalis</i>		x	
		Beautiful Firetail	<i>Stagonopleura bella</i>		x	
			Passeridae			
		* House Sparrow	<i>Passer domesticus</i>		x	
		REPTILES				
			Chelidae			
		Eastern Snake-necked Turtle	<i>Chelodina longicollis</i>		x	
E	E	Loggerhead Turtle	<i>Caretta caretta</i>		x	
V	V	Green Turtle	<i>Chelonia mydas</i>		x	
			Scincidae			
		Robust Ctenotus	<i>Ctenotus robustus</i>		x	
		Copper-tailed Skink	<i>Ctenotus taeniolatus</i>		x	
		Eastern Water Skink	<i>Eulamprus quoyii</i>		x	
		Three-toed earless skink	<i>Hemiergis decresiensis</i>		x	
		Dark-flecked Garden Sun-skink	<i>Lampropholis delicata</i>	x	x	
		Pale-flecked Garden Sun-skink	<i>Lampropholis guichenoti</i>		x	
		Three-toed Skink	<i>Saiphos equalis</i>		x	
		Eastern Blue-tongued Lizard	<i>Tiliqua scincoides</i>		x	
			Agamidae			
		Jacky Lizard	<i>Amphibolurus muricatus</i>		x	
		Eastern Water Dragon	<i>Intellagama lesueurii</i>		x	
		Bearded dragon	<i>Pogona barbata</i>		x	
	E	Monaro Grassland Earless Dragon	<i>Tympanocryptis osbornei</i>			
	CE	Bathurst Grassland Earless Dragon	<i>Tympanocryptis mcartneyi</i>			
			Varanidae			
		Gould's Goanna or Sand Monitor	<i>Varanus gouldii</i>		x	
		Lace Monitor	<i>Varanus varius</i>		x	
			Boidae			
		Carpet python	<i>Morelia spilota</i>		x	
			Colubridae			
		Green Tree Snake	<i>Dendrelaphis punctulatus</i>		x	
			Elapidae			
		Golden-crowned Snake	<i>Cacophis squamulosus</i>		x	
		Yellow-faced whipsnake	<i>Demansia psammophis</i>		x	
		Red-naped Snake	<i>Furina diadema</i>		x	
		Marsh snake	<i>Hemiaspis signata</i>		x	
	V	Stephens' Banded Snake	<i>Hoplocephalus stephensii</i>		x	x
		Red-bellied Black Snake	<i>Pseudechis porphyriacus</i>		x	
		Eastern Brown Snake	<i>Pseudonaja textilis</i>		x	
		AMPHIBIANS				
			Limnodynastidae			

A	B	Common Name	Family and Scientific Name	1	2	3
		Brown-striped Frog	<i>Limnodynastes peronii</i>		x	
		Spotted Grass Frog	<i>Limnodynastes tasmaniensis</i>		x	
			Myobatrachidae			
		Common Eastern Froglet	<i>Crinia signifera</i>		x	
	V	Wallum Froglet	<i>Crinia tinnula</i>		x	
		Brown Toadlet	<i>Pseudophryne bibronii</i>		x	
		Red-backed Toadlet	<i>Pseudophryne coriacea</i>		x	
		Dusky Toadlet	<i>Uperoleia fusca</i>		x	
		Smooth Toadlet	<i>Uperoleia laevigata</i>		x	
			Hylidae			
V	E	Green and Golden Bell Frog	<i>Litoria aurea</i>		x	
		Green Tree Frog	<i>Litoria caerulea</i>		x	
		Bleating Tree Frog	<i>Litoria dentata</i>		x	
		Eastern Dwarf Tree Frog	<i>Litoria fallax</i>		x	
		Freycinet's Frog	<i>Litoria freycineti</i>		x	
		Jervis Bay Tree Frog	<i>Litoria jervisiensis</i>		x	
		Broad-palmed Frog	<i>Litoria latopalmata</i>		x	
		Peron's Tree Frog	<i>Litoria peronii</i>		x	
		Revealed Frog	<i>Litoria revelata</i>		x	
		Tyler's Tree Frog	<i>Litoria tyleri</i>		x	
		Verreaux's Tree Frog	<i>Litoria verreauxii</i>		x	
			Bufonidae			
		* Cane Toad	<i>Rhinella marina</i>		x	