Kogarah Public School Upgrade-DDWO06339/24Report

NSW Department of Education

10 March 2025

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ACKNOWLEDGEMENT OF COUNTRY

The Board and employees of Water Technology acknowledge and respect the Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of Country throughout Australia. We specifically acknowledge the Traditional Custodians of the land on which our offices reside and where we undertake our work.

We respect the knowledge, skills and lived experiences of Aboriginal and Torres Strait Islander Peoples, who we continue to learn from and collaborate with. We also extend our respect to all First Nations Peoples, their cultures and to their Elders, past and present.

Artwork by Maurice Goolagong 2023. This piece was commissioned by Water Technology and visualises the important connections we have to water, and the cultural significance of journeys taken by traditional custodians of our land to meeting places, where communities connect with each other around waterways.

The symbolism in the artwork includes:

- Seven circles representing each of the States and Territories in Australia where we do our work.
- Blue dots between each circle representing the waterways that connect us.
- The animals that rely on healthy waterways for their home
- Black and white dots representing all the different communities that we visit in our work.

Hands that are for the people we help on our journey

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ACRONYMS AND DEFINITIONS

Acronym	Definition
BC Act	*Biodiversity Conservation Act 2016*
BV	Biodiversity Values
DCP	Development Control Plan
DD	Due Diligence
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FM Act	*Fisheries Management Act 1994*
LEP	Local Environment Plan
LGA	Local Government Area
MNES	Matter of National Environmental Significance
PCT	Plant Community Type
SEARS	Secretary's Environmental Assessment Requirements
DoE	NSW Department of Education
TEC	Threatened Ecological Community
WM Act	*Water Management Act 2000*

1 EXECUTIVE SUMMARY

A Flora and Fauna Assessment has been conducted to identify potential constraints that may impede the future school infrastructure upgrades for Kogarah Public School Upgrade. This assessment aims to seek approval for a development without consent application under Part 5 of the EP&A Act, mitigating any risks during the delivery of the school upgrades. The report documents the findings of the biodiversity assessment, identifying potential biodiversity constraints relevant to the proposed activity under the NSW Biodiversity Conservation Act 2016, Commonwealth Environment Protection and Biodiversity Conservation Act 1999, and the NSW Fisheries Management Act 1994.

Kogarah Public School comprises existing buildings, play areas, mature trees, and sports fields. No Biodiversity Values areas were mapped, and no Plant Community Types were found. The Likelihood of Occurrence analysis determined that the Grey-headed Flying-Fox had a moderate likelihood of occurring within the site. The Likelihood of Occurrence analysis determined that the Green and Golden Bell Frog (*Litoria aurea*) had a low likelihood of occurring within the site.

Several other threatened species have previously been recorded within 10 km of the subject site though these are not expected to be present within the immediate development site due to a lack of suitable habitat. The site has no Key Fish habitat.

A Biodiversity Development Assessment Report (BDAR) was prepared to address Planning Secretary's Environmental Assessment Requirements (SEARs), due to the presence of planted native vegetation within the development site (Ecological Australia 2023).

The Flora and Fauna Assessment concluded that there will be no significant impacts on matters of national environmental significance. As there were no threatened species found, a Test of Significance was not required. Consequently, no referral to the Australian Minister for the Environment under the Environment Protection and Biodiversity Conservation Act 1999 is required. The proposal will not cause a significant impact on the environment. Therefore, it is not necessary for an Environmental Impact Statement to be prepared and approval to be sought from the Minister for Planning under the Environment Protection and Biodiversity Conservation Act 1999.

The proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations, ecological communities, their habitats, or impact biodiversity values. Additionally, the proposed activity is not likely to have a significant impact on matters of national environmental significance or on the environment of Commonwealth land. Therefore, referral to the Minister under the EPBC Act is not required, nor a Species Impact Statement (SIS). The potential impacts can be appropriately mitigated or managed to ensure minimal effect on the locality or community.

2 INTRODUCTION

2.1 Background

The proposed school site is in the Georges River Council (LGA), in Metropolitan Sydney, New South Wales. The site is situated at 24B Gladstone St Kogarah

2.2 Purpose

This Upgrades to Kogarah Public School Report has been prepared to support the Review of Environmental Factors (REF) being prepared on behalf of the NSW Department of Education (DoE) for the proposed Kogarah Public School upgrade (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as “development permitted without consent” on land carried out by or on behalf of a public authority (NSW DoE) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Clause 3.37 of the T&I SEPP.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the Addendum guidelines for schools. The purpose of this report is to document the findings of the desktop and on-site biodiversity assessment undertaken for the site. Any biodiversity constraints which may be relevant to the proposed development under the BC Act, EPBC Act, WM Act and the FM Act are outlined in the following sections.

DoE is proposing to develop upgraded school facilities at the site.

2.3 Proponent

The DoE is the proponent and determining authority pursuant to Section 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The site is owned by the Minister for Education.

2.4 Determination

- The proposed activity can proceed subject to mitigation measures relayed in this report
- Species Impact Statement and/or Biodiversity Development Assessment Report is not required having regard to s7.8 of the Biodiversity Conservation Act 2016. The proposed activity can proceed, with mitigation measures and conditions. The activity is unlikely to be classed as a controlled action under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), and an EPBC referral is not required.

2.5 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it was determined that:

- The extent and nature of potential impacts are low and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

3 SITE DESCRIPTION

3.1 Site Analysis / Description

Kogarah Public School is located at 24B Gladstone Street, Kogarah and contains a site area of 1.644ha per Detail Survey. The school is accommodated within the following allotments:

- Lots 1-3 DP 999122;
- Lot 1 DP 179779;
- Lot 1 DP 667959;
- Lot 2 DP 175247; and
- Lot A DP 391026.

The site is irregular in shape with existing vehicular access and the car park provided from Gladstone Street along the south western boundary. Pedestrian access is provided from Gladstone Street and Princes Highway. The site accommodates eight (8) permanent buildings and number of modular school buildings with play areas largely confined to the centre and north eastern portions of the site.

Development surrounding the site includes:

- North: Residential flat building at 71 Regent Street, retail tenancies orientated to Princes Highway(39-43 Princes Highway) and a smaller residential flat building at No 41 Princes Highway;
- East: Princes Highway and further to a mix of commercial and mid-rise residential development;
- South: St Paul's Church complex comprising St Paul's Childcare Centre, St Paul's Anglican Church and a residential flat building located at 24-30 Gladstone Street; and
- West: A mix of single dwelling and residential flat building development with Regent Street beyond.

The site is zoned SP2 Educational Establishment in accordance with Georges River Local Environmental Plan 2021 (GRLEP).

An aerial image of the site is provided in Figure 3-1.

3.2 Proposed Activity Description

The proposed Kogarah Public School upgrade works include the following:

- Demolition of existing playground facilities and Covered Outdoor Learning Area (COLA) in addition to footings and services associated with former demountable buildings;
- Tree removal;
- Construction of a new three storey Classroom building and attached amenities facilities;
- Construction of a single storey Hall with attached Covered Outdoor Learning Area;
- New pedestrian pathway connections providing access throughout the site;
- Service upgrades; and
- Site landscaping works.

Any works relating to the existing demountables will be undertaken via a separate planning pathway.

An extract of the proposed Site Plan is provided at Figure 3-2.

Figure 3-1 Site Boundary

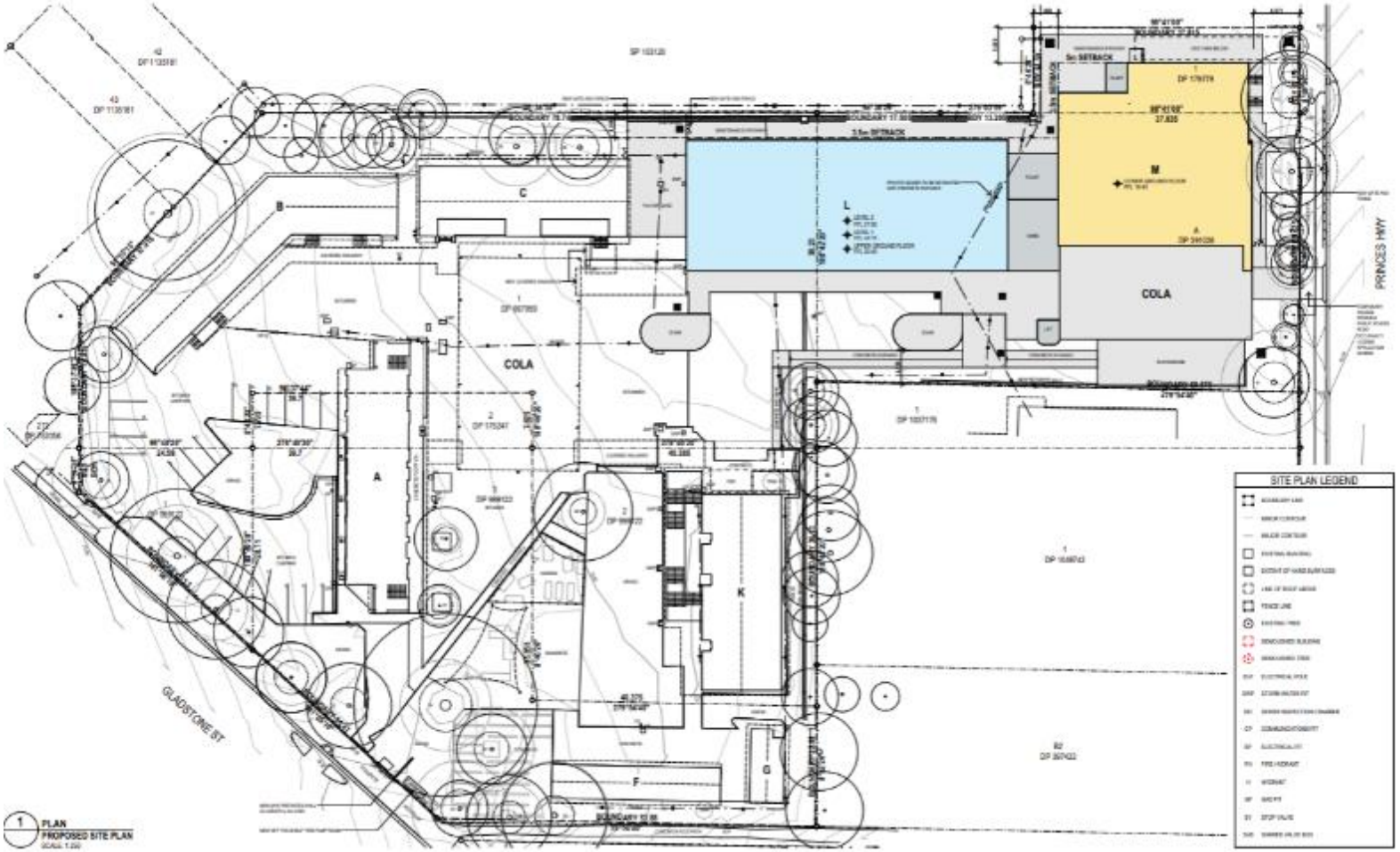


Figure 3-2 Extract of proposed Site Plan (Fulton Trotter, 2024)

4 REF DELIVERABLE

See below FFA deliverable requirement from NSW Department of Education (DoE) Table 4-1.

Table 4-1 REF Devliverable

Item	Requirement	Relevant Section of Report
1.0	Address all relevant legislation, environmental planning instruments (EPIs) (including drafts), plans, policies, guidelines and planning circulars.	See Section 6
2.0	Trees and Landscaping	See Section 9.1.1 See 11Appendix C
	Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site.	See Section 9.1.1 See 11Appendix C
3.0	Ecologically Sustainable Development (ESD)	See Section 5.2 See Table 5-1
4.0	Biodiversity	See Section 7

5 PROJECT JUSTIFICATION

The Kogarah Public School Upgrade is part of the NSW Government's plan to rebuild public education in 2024-25. This upgrade will ensure growing communities get access to public education.

5.1 Options

Option 1 – Do Nothing: The current school will continue to become dilapidated and outdated.

Option 2 – Implement Project Proposal: (Preferred option) Kogarah Public School Upgrade will be enhanced by providing more educational facilities for the local community. By providing enhanced services and spaces, the new proposed Kogarah Public School Upgrade aims to meet the current and future needs of the community.

5.2 Consideration of Ecologically Sustainable Development

The proposal has been considered against the principles of ecologically sustainable development (ESD) (refer to Table 5-1).

Table 5-1 Consideration of principles of ecologically sustainable development (ESD)

ESD Principle	Consideration in FFA
Precautionary principle	The proposal will not result in serious or irreversible environmental damage and there is no scientific uncertainty relating to the proposal.
Intergenerational equity	The proposal will help to meet the needs of future generations by providing education facilities, which can be used for future generations.
Conservation of biological diversity and ecological integrity	The proposal will not significantly impact on biological diversity or impact ecological integrity.
Improved valuation, pricing and incentive mechanisms	The proposal will provide cost efficient use of resources and provide optimum outcomes for the community, environment and with respect to financial cost.

6 LEGISLATIVE PLANNING DETAILS

The development is to be proposed as 'Development Without Consent' to be assessed within a Review of Environmental Factors under Part 5 of the Environmental Planning and Assessment Act 1979.

Legislation and policy relevant to the biodiversity component of works within the subject site are outlined below:

6.1 Environmental Protection and Biodiversity Conservation Act 1999

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Commonwealth approval is required for certain actions. Actions which have or may have or are likely to have a significant impact on a Matters of National Environmental Significance (MNES). MNES include nationally threatened species or endangered ecological communities. If the assessment concludes there is a significant impact, then it will become a controlled action under the EPBC Act, and the proposal must be referred to the Commonwealth. Approval from the relevant Federal Minister is also required for any actions that may have a significant impact on matters of National Environmental Significance, except in circumstances which are set out in the EPBC Act.

Approval from the Commonwealth is in addition to any approvals under NSW legislation unless the proposal sits under the NSW and Australian Governments' bilateral agreement established under the EPBC Act. The bilateral agreement accredits certain NSW assessment processes which allows the Australian Government Minister for the Environment to rely on NSW environmental impact assessment processes to assess actions under the EPBC Act. The bilateral agreement applies to certain major projects under the *Environmental Planning and Assessments Act 1979*.

6.2 State Environmental Planning Policies (SEPPS)

State Environmental Planning Policies (SEPPs) related to the subject site which are relevant to this Biodiversity DD Assessment include the following:

- State Environmental Planning Policy (Biodiversity and Conservation) 2021

6.3 Environmental Planning and Assessment Act 1979

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act 1979* (EP&A Act).

The development is to be proposed as 'Development Without Consent' to be assessed within a Review of Environmental Factors under Part 5 of the Environmental Planning and Assessment Act 1979.

6.4 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2015* (BC Act) provides a framework for the protection of biodiversity in NSW. The BC Act provides provisions for threatened species protection that must be considered by the determining authority. Features covered by the Act include:

- the protection of animals and plants,
- areas of outstanding biodiversity value,
- key threatening processes,
- biodiversity conservation programs,
- biodiversity offset schemes,
- biodiversity certification,

- public consultation requirements,
- regulatory compliance and penalties.

The Review of Environmental Factors is a critical component of the NSW planning pathway. It ensures that before any significant development is approved, all potential environmental impacts—including those on biodiversity as outlined in the Biodiversity Conservation Act 2016—are evaluated and that appropriate mitigation measures are in place. This systematic review helps balance development needs with environmental protection, aligning with NSW's broader planning and environmental legislation.

6.5 Fisheries Management Act 1994

The provisions of the *Fisheries Management Act 1994* (FM Act) relating to project development and approval processes operate similarly to the BC Act. The Act identifies threatened aquatic species, populations and ecological communities and requires a test of significance if they are present within the subject site. Where significant impacts to any of these features are considered likely to occur, this triggers the need for a species impact statement.

6.6 Water Management Act 2000

The objects of the *Water Management Act* 2000 (WM Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations and, in particular: ecologically sustainable development. Under the WM Act, a controlled activity approval (CAA) is required for controlled activities which are carried out in, on or under waterfront land, i.e., within 40 m of a waterway. Certain activities undertaken by public authorities are granted exemptions from the need to obtain a CAA from the Natural Resources Access Regulator (NRAR) and in those cases, the relevant guidelines published by NRAR should still be followed when works are undertaken.

6.7 Georges River Local Environmental Plan 2021

The Georges River Local Environmental Plan 2021 (LEP) current version came into effect on 8 October 2021. This Plan aims to make local environmental planning provisions for land in the Georges River LGA in accordance with the relevant standard environmental planning instrument.

The works are to be conducted within SP2 zoned land, as per the LEP. The objectives of this zone include:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.
- To protect and provide for land used for community purposes and public infrastructure.

6.8 Georges River Development Control Plan 2021

The aim of the Georges River Development Control Plan 2021 (DCP) is to allow detailed provisions to be made to control and guide development and subdivision within the Georges River LGA.

7 EXISTING ENVIRONMENT

7.1 Existing Environment

The subject site encompasses an area of approximately 1.644ha (Figure 3-1).

7.2 Desktop Research and Analysis

Prior to undertaking the ecological field survey, desktop searches were conducted to provide a context of the surrounding environment.

7.2.1 Biodiversity Values

The Biodiversity Values Map is prepared by DCCEEW under Part 7 of the BC Act. It identifies land with high biodiversity value that is particularly sensitive to impacts from development and clearing. The map forms part of the Biodiversity Offsets Scheme threshold, which is one of the triggers for determining whether the Biodiversity Offset Scheme applies to a clearing or development proposal.

The site does not contain any areas mapped as Biodiversity Values (Figure 7-2).

7.2.2 Vegetation communities

A review of the vegetation mapping databases using the SEED portal- (NSW Government's central resource for Sharing and Enabling Environmental Data in NSW) was undertaken to identify Plant Community Types (PCTs) present within the area. As indicated in Figure 7-3, no PCTs were mapped as being present within the project site. The closest mapped PCTs were south and east of the site and are unlikely to be impacted by the proposed construction works.

Some mature canopy trees are established throughout the site, however, there is a lack of large, vegetated patches on the site as the undeveloped areas are mostly cleared sporting fields and lawn areas.

7.2.3 NSW BioNet Atlas of Threatened Species

A search of the DCCEEW BioNet Atlas revealed 5,304 records of 91 species previously recorded within 10 km of the site.

The DCCEEW BioNet Atlas mapping identified four endangered or threatened species near the site, including *Pteropus poliocephalus* (Grey-headed Flying-fox), Sunshine Wattle (*Acacia terminalis subsp. Eastern Sydney*), and Flame Robin (*Petroica phoenicea*). The Likelihood of Occurrence analysis indicated no species were highly likely to occur within the site, though the Grey-headed Flying-fox had a moderate likelihood due to their proximity (Appendix A).

Figure 7-1 Site Characteristics

7.2.4 Matters of National Significance

The Commonwealth Government DCCEEW Protected Matters Search Tool summarises the Matters of National Environmental Significance (MNES) that may occur in, or may relate to, the subject site. The results are provided in (Appendix B).

Under the EPBC Act, a person must not, without an approval under the Act, take an action that has or will have, or is likely to have, a significant impact on a MNES. These matters are listed as:

- The world heritage values of a declared World Heritage property;
- The ecological character of a declared Ramsar wetland;
- A threatened species or endangered community listed under the Act;
- A migratory species listed under the Act; or
- The environment in a Commonwealth marine area or on Commonwealth.

The *EPBC Act* does not require Commonwealth approval for the construction of infrastructure. It does suggest that when approving such developments, determining authorities should consider whether to allow actions that could significantly affect MNES or the environment of Commonwealth land. Commonwealth Assessment will be required for proposed activities on the site if they are considered likely to affect any MNES.

Analysis of the Protected Matters Search Tool indicated 14 listed threatened ecological communities, 124 listed threatened species, and 82 listed migratory species, four World Heritage Properties, and one Wetlands of international importance were recorded within 10 km of the subject site. No Protected Marine Areas occurred within 10 km of the site (Appendix A).

7.2.5 Waterways and Key Fish Habitat

The subject site was not mapped as containing any Key Fish Habitat, nor is it in proximity to significant waterways or waterfront land, thus no further provisions within the FM Act and WM Act are not required for the proposed activity.

7.3 Site Visit

An assessment of the site was undertaken on 26 September 2024 by ecologist Marion Huxley. The survey comprised a walkthrough of all the accessible vegetated areas of the site. Flora species were surveyed by stratum and recorded. The vegetation communities observed were later cross checked with those already mapped nearby the property.

A generalised fauna survey was also conducted to include searches for proxy evidence of fauna activity such as tree scratches, scat, and bird nests. As many faunal species likely to occur are cryptic and/or nocturnal, they are unlikely to be physically detected during a short daylight survey. The fauna assessment is, therefore, largely an assessment of the potential of the site as habitat for various fauna species.

Apart from species recorded from the recent site survey, there is no certainty as to the presence or absence of the species discussed. Therefore, it is important to adopt the precautionary principle such that it is assumed that any threatened species are likely to occur at the site if suitable habitat exists.

The site was predominantly occupied by a variety of canopy species, including both native and exotic trees. The presence of midstorey and understorey species was limited, with the understory vegetation primarily consisting of exotic species.

7.4 Results

The site was predominantly occupied by a variety of canopy species, including both native and exotic trees. The presence of midstorey and understorey species was limited, with the understory vegetation primarily consisting of exotic species.

Numerous native trees lined the laneway on the northern side of the site, some of which extended into the neighbouring property. Due to the unclear delineation of the site boundary, the ownership of the trees remains uncertain. This ambiguity complicates the determination of property lines and the associated responsibilities for the trees in question. The Sunshine Wattle (*Acacia terminalis subsp.* Eastern Sydney) which is endangered under the BC Act and EPBC Act, was not found on site.

Large native trees were distributed throughout the site, offering canopy cover and habitat for birds and mammals. One tree, on the east side near Princess Highway, was observed to contain a nest. Some trees had scratches on their bark, but it was presumed that these marks were caused by students rather than wildlife.

Nectar-bearing trees, essential for the foraging of the Grey-headed Flying-fox, were minimal and mainly included Eucalyptus and Bottlebrush trees. Evidence of the Flame Robin, which is vulnerable under the BC Act and EPBC Act, was not found on site.

The Green and Golden Bell Frogs could potentially inhabit the site, as they had a high count of 664 in the Likelihood of Occurrence analysis and they tend to favour degraded areas and are known to migrate. However, the likelihood of them being present is significantly reduced due to consistent human activity.

No aquatic habitat was identified on the site. Which further reduced the likelihood of a suitable habitat for Green and Golden Bell Frogs.

Efforts should be made to retain all trees where possible. However, exotic species, particularly invasive ones like Camphor Laurel (*Cinnamomum camphora*), may be removed if required. If mature trees are slated for removal, a qualified ecologist must inspect them for hollows, nests, and potential habitation.

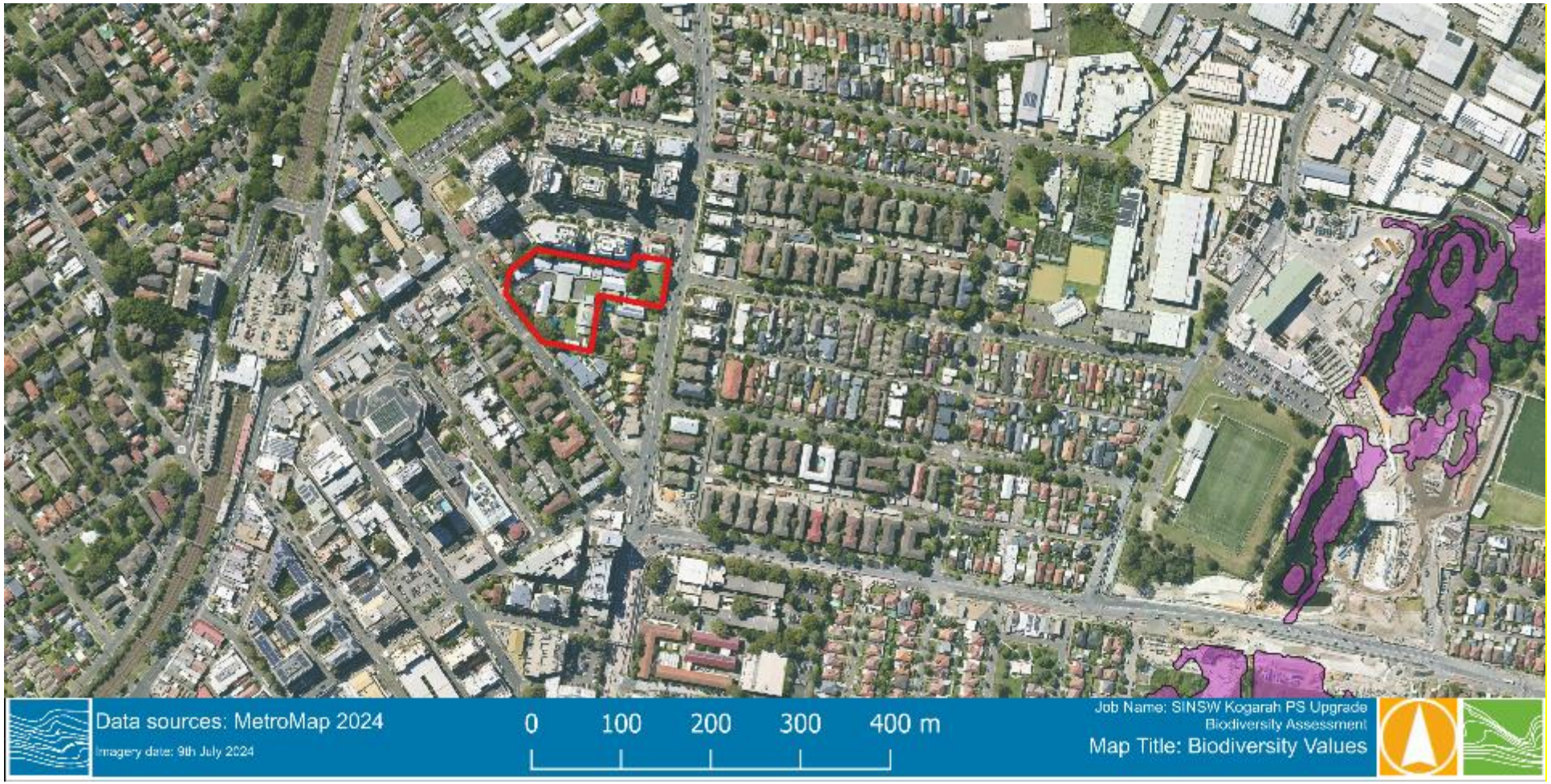


Figure 7-2 Biodiversity Values Map

Figure 7-3 PCT Mapping

Figure 7-4 Threatened Species Mapping

Figure 7-5 Key Fish Habitat Mapping

8 ENVIRONMENTAL DETERMINATION

No native fauna, including any threatened species, were identified during the site inspection. The terrestrial flora and fauna survey was limited to less than one hour. The field survey was restricted to the area of impact of the proposed works

As there were no threatened species found, a Test of Significance was not required. As many faunal species likely to occur within the project area are cryptic and/or nocturnal, or may only visit the site on occasion, they are unlikely to be detected even during seasonal surveys. The fauna assessment is, accordingly, largely an assessment of the potential of the project site as habitat for various fauna species. Therefore, it is important to adopt the precautionary principle such that it is assumed that threatened species may be at the site if suitable habitat exists.

9 POTENTIAL IMPACTS

9.1 Construction Impacts

The following is a summary of the direct and indirect impacts to the biodiversity potentially persisting onsite.

9.1.1 Trees

The Arboriculturally Impact Assessment Report (Appendix C) identified that 18 trees, will be removed .

It is important to note that activities are scheduled to take place within the Tree Protection Zone (TPZ) of the trees designated for retention. The Eucalyptus trees should be protected to avoid them being damaged. As the construction takes place in an area of the TPZ precautions should be taken (Figure 9-1).

It is recommended that a qualified arborist is to attend to the pruning and the removal of any trees. Also, if roots greater than 50mm are encountered or if any trees are to be removed or significantly pruned, an arborist will monitor and evaluate the remaining trees. An arborist will be engaged prior to construction to provide a Tree Protection Plan.

All tree protection measures during construction should be adhered to, as described in the Arboriculturally Impact Assessment Report (Appendix C).

9.1.2 Nests and Hollows

Prior to the commencement of the construction, all trees and vegetation should be inspected for hollows and nests. If fauna is discovered inhabiting hollows or nests, an ecologist may be required to remove and relocate any fauna if the tree or vegetation is to be removed.

While dead stags without hollows are not subject to preservation requirements, they may still require council approval.

9.1.3 Contractors and Staff Inductions

Induction of all contractors and staff outlining the ecological sensitivity of the site, no-go areas, the need to minimise ecological impact, and all other required mitigation measures is to be undertaken.

9.1.4 Hygiene

Basic hygiene protocols would be implemented for construction personnel and machinery on site to reduce the potential for invasion by plant pathogens including *Phytopthora cinnamomi*, the fungus myrtle rust *Uredo rangelli* and amphibian chytrid fungus.

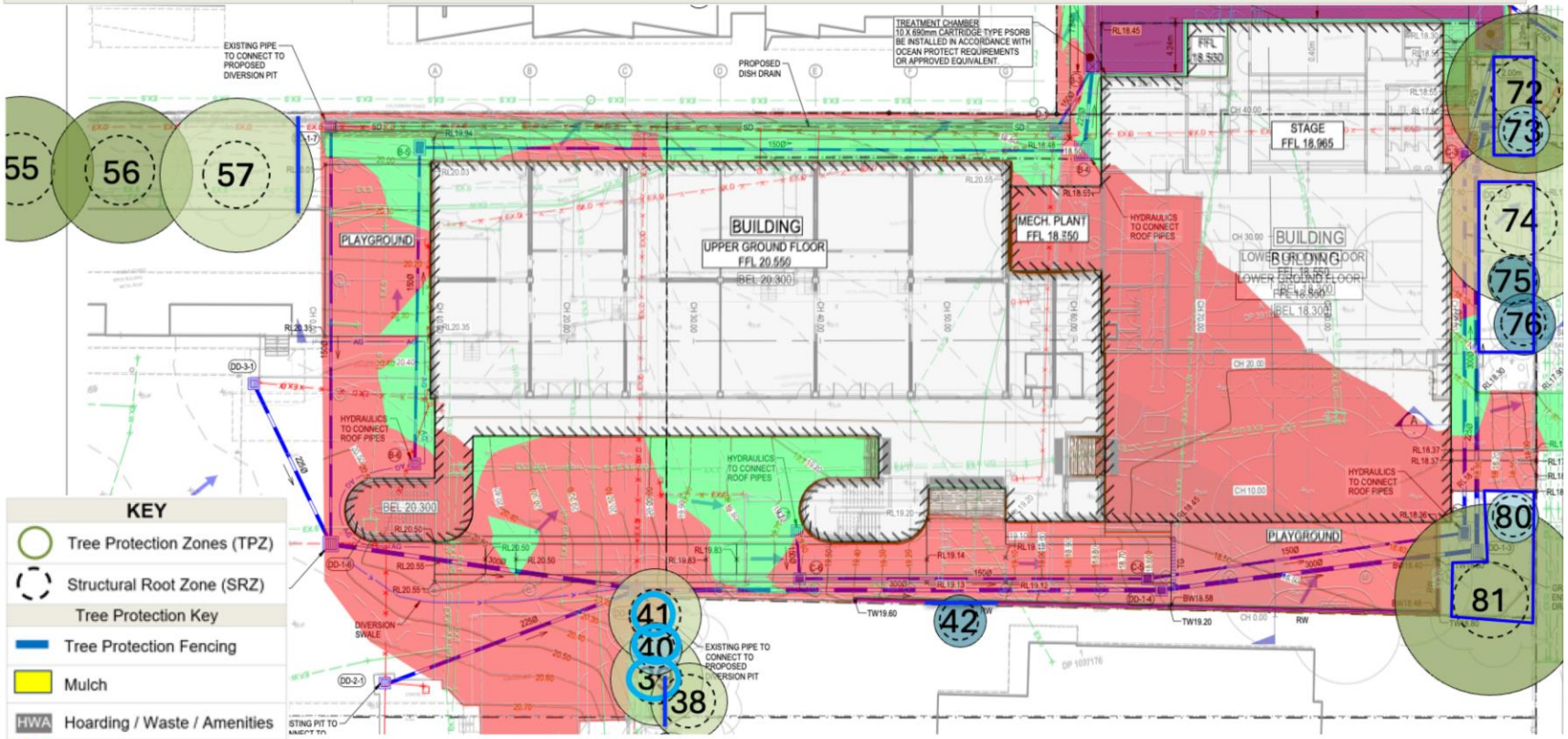
9.2 Operational Impacts

No operational impacts to fauna are anticipated as a result of the proposal.

9.2.1 Mitigation Measures

Measures that will be implemented to address potential pre-construction impacts are listed in Table 9-1 and construction impacts are listed in Table 9-2. Detailed tree mitigation measures during pre-construction and construction should be adhered to, as described in in the Arboriculturally Impact Assessment Report (Appendix C).

6.2 Plan 2 Tree Protection Plan	Kogarah Public School	Scale on plan 1:400 @A3	20.01.2025
Trunk protection 3 trees: 39, 40 and 41.	**Fencing for 12 trees:** 38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81. Mulch to be installed within fenced area during long periods of exposed bare earth.		



Sensitive design considerations 5 trees: 41, 42, 72, 74 and 81.
Root pot hole investigation 5 trees: 41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction 6 trees: 39, 40, 41, 72, 74 and 81.

Figure 9-1 Tree Protection Zones curtesy of McArdle Arboricultural Consultancy

Table 9-1 Mitigation measures for pre-construction impacts (PI)

FFA	Mitigation Measure	Timing
PI1	Tree protection must be approved by a Consulting Arborist AQF Level 5. No materials, mixing, parking, disposal, repairs, refuelling, fires, stockpiling, or backfilling is allowed near remaining trees. Removal or lopping of trees needs written permission from the Superintendent.	Pre-construction
PI2	All trees to be protected shall be clearly identified and all TPZs surveyed.	Pre-construction
PI3	Protective fencing around existing trees and within TPZs must be installed before any site work begins. The fence must be 1800mm high chain wire mesh fixed to Galvanised steel posts, enclosing an area to prevent damage as defined in the Tree Protection Plan. No storage inside fenced area.	Pre-construction
PI4	Use AS 4454 leaf mulch with 90% recycled content for tree protection fencing. Chip trees marked for removal and use mulch 100mm deep. Avoid soil, weeds, sticks, and stones. Comply with AS 4454 (1999) and AS 4419 (1998).	Pre-construction
PI5	Tree protection signage must be attached to tree protection zones before works begin. Signs should be displayed prominently and repeated at 10m intervals or closer when the fence changes direction. Signs must include information about the tree protection zone, access restrictions, developer's contact details, and Site Arborist information.	Pre-construction
PI6	Inspect all trees for hollows and nests. If fauna is discovered an ecologist may be required to remove and relocate any fauna if the tree or vegetation is to be removed.	Pre-construction
PI7	Induction of all contractors and staff outlining the ecological sensitivity of the site, no-go areas, the need to minimise ecological impact, and all other required mitigation measures is to be undertaken.	Pre-construction
P18	Assess cumulative impacts of surrounding developments and ensure the proposed activity integrates effectively into the existing environment. This is necessary to ensure connectivity with the biodiversity of the surrounding environment.	Pre-construction

Table 9-2 Mitigation measures for construction impacts (CI)

FFA	Mitigation Measure	Timing
CI1	Tree Protection Zones (TPZs) will be maintained around vegetation to be retained. TPZs will be maintained in accordance with Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970). No activities are to take place within the Structural Root Zones (SRZs) of mature trees. No works, stockpiling of materials, excavation, parking or any other potentially harmful activities will be undertaken within TPZs unless a Level 5 Arborist has provided confirmation that the works will not impact the tree (Appendix C).	Construction
CI2	No pedestrian or plant access is permissible to the TPZ.	Construction
CI3	Avoid storing bulk or harmful materials near trees. Keep spoil from excavations away from TPZs. Ensure wind-blown materials like cement don't harm trees. Contaminants stored properly with spill measures.	Construction
CI4	Protect the tree from harm. Avoid tying ropes, cables, or similar items to trees. No staff members. No plant, machinery, or materials can enter the tree protection fencing.	Construction

FFA	Mitigation Measure	Timing
CI5	Do not fill or compact soil above tree roots enclosed by protection fencing during construction near trees. Guidelines must be followed to prevent soil compaction in these areas. Protection includes using elevated planks attached to scaffolding to prevent ground compression.	Construction
CI6	Trenching is not allowed in TPZs or tree protection fencing. Approval needed for trenching, must be done by hand with arborist supervision.	Construction
CI7	Contractors are to maintain plants are watered. Apply water at an appropriate rate suitable for the plant species during periods of little or no rainfall.	Construction
CI8	All site facilities must be located outside of TPZ. Chemicals and contaminants must be stored properly in an enclosed area with a spill bund to prevent runoff in case of accidents.	Construction
CI9	Basic hygiene protocols would be implemented for construction personnel and machinery on site to reduce the potential for invasion by plant pathogens including *Phytopthora cinnamomi*, the fungus myrtle rust *Uredo rangelli* and amphibian chytrid fungus.	Construction
CI9	Implement construction noise and vibration controls in line with local environmental standards. Dust suppression measures will include water spraying, covering stockpiles, and using dust screens around construction zones.	Construction
C20	A detailed Construction Traffic Management Plan (CTMP) will be developed once a contractor is appointed to ensure minimal disruption. This plan will outline safe construction vehicle routes, temporary access, and designated parking areas to prevent conflicts with local traffic.	Construction

10 CONCLUSION AND RECOMMENDATIONS

The construction project will clear approximately 18 trees. Most tree removal will affect mature Eucalyptus trees. Activities within the Tree Protection Zone (TPZ) will require precautions to avoid damage, with a qualified arborist overseeing the process and providing a Tree Protection Plan. Trees and vegetation will be inspected for hollows and nests, with an ecologist relocating any fauna found. Contractors and staff will be inducted on the site's ecological sensitivity, and basic hygiene protocols will be implemented to prevent plant pathogens and fungi.

No operational impacts to fauna are anticipated, and mitigation measures will include maintaining TPZs, inspecting trees for fauna, and implementing hygiene protocols. If these mitigation measures are followed, the ecological impact of the construction can be minimised, ensuring the protection of the remaining trees and local wildlife.

A Biodiversity Development Assessment Report (BDAR) was prepared to address Planning Secretary's Environmental Assessment Requirements (SEARs), due to the presence of planted native vegetation within the site.

The proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations, ecological communities, their habitats, or impact biodiversity values. Additionally, the proposed activity is not likely to have a significant impact on matters of national environmental significance or on the environment of Commonwealth land. Therefore, referral to the Minister under the EPBC Act is not required, and a Species Impact Statement (SIS) and/or a Biodiversity Development Assessment Report (BDAR) is not required, in accordance with Section 7.8 of the Biodiversity Conservation Act 2016.The potential impacts can be appropriately mitigated or managed to ensure minimal effect on the locality or community.

Water Technology hereby certifies that the contents of this report are true and correct to the best of our knowledge and belief.

Please refer below to the mitigation measures *Table 10-1*.

Table 10-1 Project Stage Design (D) Construction (C) Operation (O)

Project Stage	Mitigation Measures	Relevant Section of Report
C	Tree protection must be approved by a Consulting Arborist (AQF Level 5). Activities such as mixing, parking, disposal, repairs, refuelling, fires, stockpiling, or backfilling are not allowed near trees. Any tree removal or lopping requires written permission from the Superintendent.	Section 9.2.1 Table 9-1
C	All trees to be protected must be clearly identified, and Tree Protection Zones (TPZs) surveyed.	Section 9.2.1 Table 9-1
C	Protective fencing, 1800mm high chain wire mesh fixed to galvanised steel posts, must be installed around all existing trees and within TPZs before any site work begins. No storage or activities should occur within the fenced area.	Section 9.2.1 Table 9-1
C	Use AS 4454 leaf mulch with 90% recycled content for tree protection fencing. Chip trees marked for removal and spread mulch to a depth of 100mm, ensuring no soil, weeds, sticks, or stones. Comply with AS 4454 (1999) and AS 4419 (1998).	Section 9.2.1 Table 9-1

Project Stage	Mitigation Measures	Relevant Section of Report
C	Tree protection signage must be displayed at the TPZs before work commences, at intervals of no more than 10m. Signs must include details of the tree protection zone, access restrictions, the developer's contact information, and Site Arborist details.	Section 9.2.1 Table 9-1
C	Conduct an inspection of all trees for hollows and nests. If fauna is found, an ecologist may need to remove and relocate any fauna before tree removal or vegetation clearance.	Section 9.2.1 Table 9-1
C	All contractors and staff must undergo induction on the ecological sensitivity of the site, including no-go areas, minimisation of ecological impacts, and tree protection measures.	Section 9.2.1 Table 9-1
C	Tree Protection Zones (TPZs) should be maintained in accordance with AS 4970 (2009) and ensure no activities take place within the Structural Root Zones (SRZs) of mature trees. Any works within TPZs must be approved by a Level 5 Arborist.	Section 9.2.1 Table 9-2
C	No pedestrian or plant access is permitted within the TPZ.	Section 9.2.1 Table 9-2
C	Do not store bulk materials or harmful substances near trees. Ensure that spoil from excavation work is kept away from TPZs and wind-blown materials such as cement are managed appropriately.	Section 9.2.1 Table 9-2
C	The tree must be protected from damage, including not allowing ropes, cables, or other materials to be tied to it. No plant, machinery, or staff should enter the tree protection fencing.	Section 9.2.1 Table 9-2
C	Avoid soil compaction in TPZs by not filling or compacting soil above tree roots. Use elevated planks attached to scaffolding to prevent ground compression during construction.	Section 9.2.1 Table 9-2
C	Trenching within TPZs is prohibited unless approved and supervised by an Arborist. Trenching must be done by hand.	Section 9.2.1 Table 9-2
C	Maintain appropriate watering of plants, especially during periods of little or no rainfall, to ensure plant health.	Section 9.2.1 Table 9-2
C	Site facilities must be located outside TPZs. Chemicals and contaminants should be stored in an enclosed area with a spill bund to prevent runoff in case of accidents.	Section 9.2.1 Table 9-2
C	Noise, vibration, and dust must be managed through measures such as installing noise barriers, limiting vibration-intensive activities to designated hours, and suppressing dust using water sprays and dust screens.	Section 9.2.1 Table 9-2
C	A detailed Construction Traffic Management Plan (CTMP) will be developed once a contractor is appointed to ensure minimal disruption. This plan will outline safe construction vehicle routes, temporary access, and designated parking areas to prevent conflicts with local traffic.	Section 9.2.1 Table 9-2
C	Flood and bushfire assessments must be conducted to identify risks. Evacuation plans and mitigation strategies must be included in project design.	Section 9.2.1 Table 9-2
C	Utility infrastructure and service assets must be assessed and protected to prevent disruption. Coordination with service providers is required.	Section 9.2.1 Table 9-2

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APPENDIX A
LIKELIHOOD OF OCCURRENCE

Likelihood Criteria	
Recorded	The species was observed in the study area during the current survey.
High	It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (i.e. for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10km) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration.
Moderate	Potential habitat is present in the study area. Species unlikely to maintain sedentary populations, however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (i.e. for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded.
Low	It is unlikely that the species inhabits the study area and has not been recorded recently in the locality (10km). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (i.e. for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the study area, or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded.
None	Suitable habitat is absent from the study area.

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Amphibia	Myobatrachidae	*Crinia tinnula*	Wallum Froglet	V, P		1	Found in coastal Wallum habitats, prefers acidic, sandy soils.	Low
Amphibia	Hylidae	*Litoria aurea*	Green and Golden Bell Frog	E1, P	V	664	Inhabits marshes and wetlands, often found near still or slow-moving water.	Low
Reptilia	Cheloniidae	*Caretta caretta*	Loggerhead Turtle	E1, P	E	4	Found in marine environments, particularly coastal waters; nests on sandy beaches.	Low
Reptilia	Cheloniidae	*Chelonia mydas*	Green Turtle	V, P	V	4	Inhabits tropical and subtropical seas, often found in seagrass beds and coral reefs.	Low
Reptilia	Cheloniidae	*Eretmochelys imbricata*	Hawksbill Turtle	P	V	2	Found in coral reefs and coastal waters, prefers warm, shallow waters.	Low
Aves	Columbidae	*Ptilinopus superbus*	Superb Fruit-Dove	V, P		4	Inhabits rainforests, often found in the canopy feeding on fruits.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Aves	Apodidae	*Hirundapus caudacutus*	White-throated Needletail	V, P	V, C, J, K	4	Found in open skies, often seen in large flocks during migration.	Low
Aves	Diomedeidae	*Diomedea exulans*	Wandering Albatross	E1, P	V	4	Inhabits open oceans, known for its long-distance flights.	Low
Aves	Procellariidae	*Ardenna pacifica*	Wedge-tailed Shearwater	P	J	2	Found in marine environments, known for long migrations and nesting on islands.	Low
Aves	Procellariidae	*Ardenna tenuirostris*	Short-tailed Shearwater	P	C, J, K	6	Inhabits marine environments, migrates to the Northern Hemisphere, nests in burrows.	Low
Aves	Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	E1, P	E	1	Found in wetlands, prefers dense reed beds and marshes.	Low
Aves	Ardeidae	*Ixobrychus flavicollis*	Black Bittern	V, P		2	Inhabits dense vegetation near water, often found in mangroves and swamps.	Low
Aves	Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V, P		11	Found near coasts and large inland waters, nests in tall trees or cliffs.	Low
Aves	Accipitridae	*Hieraaetus morphnoides*	Little Eagle	V, P		2	Inhabits open woodlands and forests, often seen soaring high in the sky.	Low
Aves	Pandionidae	*Pandion cristatus*	Eastern Osprey	V, P, 3		2	Found near water bodies, nests on tall structures near water.	Low
Aves	Burhinidae	*Esacus magnirostris*	Beach Stone-curlew	E4A, P		1	Found on sandy beaches and mudflats, often in remote areas.	Low
Aves	Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher	V, P		5	Found on rocky shores, often seen foraging for molluscs.	Low
Aves	Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher	E1, P		203	Found on sandy and rocky shores, nests on beaches.	Low
Aves	Charadriidae	*Charadrius leschenaultii*	Greater Sand-plover	V, P	V, C, J, K	4	Found on sandy beaches and mudflats, often in coastal areas.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Aves	Charadriidae	*Charadrius mongolus*	Lesser Sand-plover	V, P	E, C, J, K	5	Found on sandy beaches and mudflats, prefers coastal habitats.	Low
Aves	Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	P	C, J, K	20	Found in coastal and inland wetlands, often seen in grassy areas.	Low
Aves	Charadriidae	*Pluvialis squatarola*	Grey Plover	P	C, J, K	4	Found on coastal mudflats and sandy beaches, often in estuaries.	Low
Aves	Rostratulidae	*Rostratula australis*	Australian Painted Snipe	E1, P	E	1	Found in wetlands, prefers shallow, vegetated areas.	Low
Aves	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	P	C, J, K	3	Found along the edges of rivers and lakes, often seen bobbing its tail.	Low
Aves	Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	P	C, J, K	5	Found on rocky shores and mudflats, known for flipping stones to find food.	Low
Aves	Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C, J, K	47	Found in wetlands and coastal areas, often in grassy marshes.	Low
Aves	Scolopacidae	*Calidris alba*	Sanderling	V, P	C, J, K	3	Found on sandy beaches, often seen running along the shore.	Low
Aves	Scolopacidae	*Calidris canutus*	Red Knot	P	E, C, J, K	14	Found in coastal mudflats and estuaries, migrates long distances.	Low
Aves	Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	E4A, P	CE, C, J, K	148	Found in coastal wetlands, prefers mudflats and estuaries.	Low
Aves	Scolopacidae	*Calidris ruficollis*	Red-necked Stint	P	C, J, K	159	Found in coastal and inland wetlands, often in large flocks.	Low
Aves	Scolopacidae	*Calidris tenuirostris*	Great Knot	V, P	V, C, J, K	5	Found in coastal mudflats and estuaries, migrates long distances.	Low
Aves	Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	V, P	V, J, K	12	Found in wetlands and grasslands, often in dense vegetation.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Aves	Scolopacidae	*Limicola falcinellus*	Broad-billed Sandpiper	V, P	C, J, K	2	Found in coastal mudflats and estuaries, prefers shallow waters.	Low
Aves	Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	P	C, J, K	372	Found in coastal mudflats and estuaries, known for long migrations.	Low
Aves	Scolopacidae	*Limosa lapponica baueri*	Bar-tailed Godwit (baueri)	P	V	1	Found in	
Aves	Scolopacidae	*Limosa limosa*	Black-tailed Godwit	V, P	E, C, J, K	3	Found in coastal mudflats and estuaries, prefers shallow waters.	Low
Aves	Scolopacidae	*Numenius madagascariensis*	Eastern Curlew	P	CE, C, J, K	113	Found in coastal mudflats and estuaries, known for its long, down-curved bill.	Low
Aves	Scolopacidae	*Numenius phaeopus*	Whimbrel	P	C, J, K	83	Found in coastal mudflats and estuaries, often seen in flocks.	Low
Aves	Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	P	C, J, K	12	Found in coastal mudflats and estuaries, prefers rocky shores.	Low
Aves	Scolopacidae	*Tringa incana*	Wandering Tattler	P	J	1	Found in coastal areas and rocky shores, known for its wandering habits.	Low
Aves	Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	P	C, J, K	1	Found in marshes and wetlands, prefers shallow waters.	Low
Aves	Scolopacidae	*Xenus cinereus*	Terek Sandpiper	V, P	V, C, J, K	4	Found in coastal mudflats and estuaries, known for its upturned bill.	Low
Aves	Laridae	*Gelochelidon nilotica*	Gull-billed Tern	P	C	1	Found in coastal and inland wetlands, often seen near water bodies.	Low
Aves	Laridae	*Hydroprogne caspia*	Caspian Tern	P	J	59	Found in coastal areas and large inland waters, known for its large size.	Low
Aves	Laridae	*Onychoprion fuscata*	Sooty Tern	V, P		5	Found in tropical and subtropical seas, often seen in large colonies.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Aves	Laridae	*Sterna hirundo*	Common Tern	P	C, J, K	3	Found in coastal areas and estuaries, known for its black cap.	Low
Aves	Laridae	*Sternula albifrons*	Little Tern	E1, P	C, J, K	78	Found in coastal areas and estuaries, often seen in small flocks.	Low
Aves	Laridae	*Thalasseus bergii*	Crested Tern	P	J	78	Found in coastal areas and estuaries, known for its distinctive crest.	Low
Aves	Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	E1, P, 3	E	2	Found in forests and woodlands, known for its distinctive red head.	Low
Aves	Cacatuidae	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V, P, 2	V	2	Found in forests and woodlands, prefers areas with casuarina trees.	Low
Aves	Cacatuidae	*Lophochroa leadbeateri*	Pink Cockatoo	V, P, 2		2	Found in arid and semi-arid regions, known for its pink crest.	Low
Aves	Psittacidae	*Glossopsitta pusilla*	Little Lorikeet	V, P		1	Found in woodlands and forests, often seen in flowering trees.	Low
Aves	Strigidae	*Ninox strenua*	Powerful Owl	V, P, 3		15	Found in forests and woodlands, known for its powerful build and deep hooting call.	Low
Aves	Tytonidae	*Tyto novaehollandiae*	Masked Owl	V, P, 3		2	Found in forests and woodlands, known for its distinctive heart-shaped face.	Low
Aves	Meliphagidae	*Anthochaera phrygia*	Regent Honeyeater	E4A, P, 2	CE	3	Found in woodlands and forests, often seen in flowering trees.	Low
Aves	Meliphagidae	*Epthianura albifrons*	White-fronted Chat	V, P		35	Found in open habitats such as grasslands and wetlands, often seen in small flocks.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Aves	Meliphagidae	*Epthianura albifrons*	White-fronted Chat population in the Sydney Metropolitan Catchment Management Area	E2, V, P		35	Found in open habitats within the Sydney area, often seen in small flocks.	Low
Aves	Artamidae	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V, P		2	Found in woodlands and forests, often seen in small flocks.	Low
Aves	Petroicidae	*Petroica boodang*	Scarlet Robin	V, P		2	Found in forests and woodlands, known for its bright red breast.	Low
Aves	Petroicidae	*Petroica phoenicea*	Flame Robin	V, P		1	Found in open forests and woodlands, known for its bright orange-red breast.	Low
Aves	Estrildidae	*Stagonopleura guttata*	Diamond Firetail	V, P	V	1	Found in grassy woodlands, known for its distinctive red rump and white spots.	Low
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala	E1, P	E	2	Found in eucalyptus forests and woodlands, known for its tree-dwelling habits.	Low
Mammalia	Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	V, P	V	986	Found in urban and rural areas, roosts in large colonies, often seen in fruiting trees.	Moderate
Mammalia	Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V, P		4	Found in various habitats including forests and woodlands, often roosts in tree hollows.	Low
Mammalia	Vespertilionidae	*Myotis macropus*	Southern Myotis	V, P		3	Found near water bodies, feeds on insects and fish, often roosts in caves.	Low
Mammalia	Vespertilionidae	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V, P		1	Found in forests, often roosts in tree hollows.	Low
Mammalia	Miniopteridae	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V, P		22	Found in caves and forests, known for its long, bent wings.	Low

Class	Family	Scientific Name	Common Name	NSW status	Comm. Status	Records	Comment	Likelihood of Occurrence
Flora	Convolvulaceae	*Wilsonia backhousei*	Narrow-leafed Wilsonia	V		1	Found in coastal areas, prefers saline environments.	Low
Flora	Elaeocarpaceae	*Tetratheca juncea*	Black-eyed Susan	V	V	19	Found in heathlands, prefers well-drained soils.	Low
Flora	Fabaceae (Mimosoideae)	*Acacia bynoeana*	Bynoe's Wattle	E1	V	4	Found in sandy soils, often in heathlands and woodlands.	Low
Flora	Fabaceae (Mimosoideae)	*Acacia prominens*	Gosford Wattle, Hurstville and Kogarah Local Government Areas	E2		5	Found in specific local government areas, prefers well-drained soils.	Low
Flora	Fabaceae (Mimosoideae)	*Acacia pubescens*	Downy Wattle	V	V	4	Found in woodlands, prefers clay or sandy soils.	Low
Flora	Fabaceae (Mimosoideae)	*Acacia terminalis subsp. Eastern Sydney*	Sunshine wattle	E1	E	9	Found in Eastern Sydney, prefers sandy soils.	Low
Flora	Hygrophoraceae	*Hygrocybe austropratensis*		E1		6	Found in grassy areas, prefers moist, well-drained soils.	Low
Flora	Juncaginaceae	*Maundia triglochinoides*		V		5	Found in wetlands, prefers shallow, freshwater habitats.	Low
Flora	Myrtaceae	*Melaleuca deanei*	Deane's Paperbark	V	V	12	Found in woodlands and swamps, prefers moist, well-drained soils.	Low
Flora	Myrtaceae	*Syzygium paniculatum*	Magenta Lilly Pilly	E1	V	44	Found in coastal rainforests, prefers moist, well-drained soils.	Low
Flora	Orchidaceae	*Caladenia tessellata*	Thick Lip Spider Orchid	V, P, 2	V	2	Found in grassy woodlands, prefers well-drained soils.	Low
Flora	Proteaceae	*Persoonia hirsuta*	Hairy Geebung	E1, P, 3	E	3	Found in heathlands, prefers sandy or rocky soils.	Low

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APPENDIX B
PROTECTED MATTERS SEARCH

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Feb-2025

Summary

Details

- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat

Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	3
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	14
Listed Threatened Species:	122
Listed Migratory Species:	78

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	282
Commonwealth Heritage Places:	4
Listed Marine Species:	107
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	9
Regional Forest Agreements:	None
Nationally Important Wetlands:	3
EPBC Act Referrals:	57
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Historic			
Kamay Botany Bay: botanical collection sites	NSW	Listed place	In buffer area only
Kurnell Peninsula Headland	NSW	Listed place	In buffer area only
Natural			
Royal National Park and Garawarra State Conservation Area	NSW	Listed place	In buffer area only

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Towra point nature reserve	Within Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In buffer area only
Eastern Suburbs Banksia Scrub of the Sydney Region	Critically Endangered	Community likely to occur within area	In feature area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area	In buffer area only

Community Name	Threatened Category	Presence Text	Buffer Status
Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion	Endangered	Community likely to occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In buffer area only
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community may occur within area	In feature area
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Community may occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Limosa limosa](#) Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Melanodryas cucullata cucullata](#) South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
[Neophema chrysogaster](#) Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Neophema chrysostoma](#) Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pachyptila turtur subantarctica](#) Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Pluvialis squatarola](#) Grey Plover [865]	Vulnerable	Roosting known to occur within area	In buffer area only
[Pterodroma leucoptera leucoptera](#) Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
[Pterodroma neglecta neglecta](#) Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In buffer area only
FISH			
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
FROG			
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Mixophyes balbus](#) Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In buffer area only
INSECT			
[Austrocordulia leonardi](#) Sydney Hawk Dragonfly [84741]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Isoodon obesulus obesulus](#) Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area	In feature area
[Notamacropus parma](#) Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
[Petauroides volans](#) Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
[Petaurus australis australis](#) Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Petrogale penicillata](#) Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
OTHER			
Dendronephthya australis			
Cauliflower Soft Coral [90325]	Endangered	Species or species habitat known to occur within area	In buffer area only
PLANT			
Acacia baueri subsp. aspera			
[18662]	Endangered	Species or species habitat may occur within area	In buffer area only
Acacia bynoeana			
Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Acacia pubescens			
Downy Wattle, Hairy Stemmed Wattle [18800]	Vulnerable	Species or species habitat known to occur within area	In feature area
Acacia terminalis subsp. Eastern Sydney (G.P.Phillips 126) listed as Acacia terminalis subsp. terminalis MS			
Sunshine Wattle (Sydney region) [91564]	Endangered	Species or species habitat known to occur within area	In feature area
Allocasuarina glareicola			
[21932]	Endangered	Species or species habitat may occur within area	In feature area
Caladenia tessellata			
Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calochilus pulchellus			
Pretty Beard Orchid, Pretty Beard-orchid [84677]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Darwinia biflora [14619]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Deyeuxia appressa [7438]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Genoplesium baueri Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat known to occur within area	In feature area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Leucopogon exolasius Woronora Beard-heath [14251]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Melaleuca deanei Deane's Melaleuca [5818]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat known to occur within area	In buffer area only
Persoonia nutans Nodding Geebung [18119]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Prostanthera densa Villous Mintbush [12233]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pterostylis saxicola Sydney Plains Greenhood [64537]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pterostylis sp. Botany Bay (A.Bishop J221/1-13) Botany Bay Bearded Greenhood, Botany Bay Bearded Orchid [64965]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pultenaea aristata [18062]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thelymitra kangaloonica Kangaloon Sun Orchid [81861]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Hoplocephalus bungaroides Broad-headed Snake [1182]	Endangered	Species or species habitat likely to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
SHARK			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharias taurus (east coast population)			
Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Galeorhinus galeus			
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini			
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
SNAIL			
Meridolum maryae			
Maroubra Woodland Snail, Maroubra Land Snail [89884]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pommerhelix duralensis			
Dural Land Snail [85268]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Breeding likely to occur within area	In buffer area only
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Migratory Marine Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharias taurus Grey Nurse Shark [64469]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa incana Wandering Tattler [831]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [14408]	NSW	In buffer area only
Commonwealth Land - Commonwealth Bank of Australia [14407]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Bank of Australia [14406]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [14322]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14323]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14477]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14325]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Corporation [15511]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [15538]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14324]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14328]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14329]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [15537]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14391]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14355]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14326]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14384]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [12078]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14366]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14350]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [15698]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [13121]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14348]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [14473]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [15603]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [15898]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Postal Corporation [14421]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [14422]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [12073]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [12072]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [14342]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [14343]	NSW	In buffer area only
Commonwealth Land - Australia Post [15591]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian & Overseas Telecommunications Corporation [14458]	NSW	In buffer area only
Commonwealth Land - Australian & Overseas Telecommunications Corporation [14359]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12058]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14381]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14383]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [13097]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12069]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14388]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14405]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14285]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14409]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14327]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14443]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14415]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [14414]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12098]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12059]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14418]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14416]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14417]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14463]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12116]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [16448]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14402]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14379]	NSW	In feature area
Commonwealth Land - Telstra Corporation Limited [14340]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14368]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [15504]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14410]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14385]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14412]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14333]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14339]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12075]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12076]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14349]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Telstra Corporation Limited [14341]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [14363]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14357]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14352]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [14360]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [13054]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12117]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation & Alice Isabel Patterson [14377]	NSW	In feature area
Commonwealth Land - Director of Defence Service Homes [14425]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11099]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11098]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11108]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11101]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11100]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11106]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11105]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11107]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11102]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11103]	NSW	In buffer area only
Defence - 21 CONST REGT - HABERFIELD DEPOT [11104]	NSW	In buffer area only
Defence - BANKSMEADOW DEPOT (Sydney Workshop Company) [11117]	NSW	In buffer area only
Defence - BANKSMEADOW DEPOT (Sydney Workshop Company) [11116]	NSW	In buffer area only
Defence - FOREST LODGE (SYDNEY) TRG DEP [10071]	NSW	In buffer area only
Defence - HURSTVILLE TRG DEP [11109]	NSW	In buffer area only
Defence - KENSINGTON DEPOT [11110]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - LEICHHARDT STORES DEPOT [11112]	NSW	In buffer area only
Defence - MATERIAL RESEARCH LAB [10013]	NSW	In buffer area only
Defence - RANDWICK BARRACKS [11126]	NSW	In buffer area only
Defence - RANDWICK BARRACKS [11124]	NSW	In buffer area only
Defence - ROCKDALE TRAINING DEPOT [11111]	NSW	In buffer area only
Defence - SYDNEY UNIVERSITY REGIMENT - DARLINGTON [11094]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11086]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11087]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11084]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11085]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11082]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11083]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11080]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11081]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11088]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11092]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11076]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11077]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11075]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11091]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11090]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11079]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11078]	NSW	In buffer area only
Defence - ZETLAND NAVY SUPPLY CENTRE [11089]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [15963]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12086]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [12085]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12080]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12084]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16491]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12061]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16093]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15944]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14380]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15945]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [13096]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16286]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16459]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12071]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15918]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15959]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12062]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14450]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14453]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15414]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12087]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14459]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15413]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15948]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16047]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16046]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16045]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12088]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [15441]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12082]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14021]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12081]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16468]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14468]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16025]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14457]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14456]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14455]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14454]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14469]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16028]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16020]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16467]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16461]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16462]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16463]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16048]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12067]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12060]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12063]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15636]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14447]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16460]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12118]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15969]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [16117]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16458]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14411]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14449]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12090]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12091]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14362]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16453]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16454]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14448]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16122]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16455]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12079]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16457]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14419]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16056]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14462]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12096]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12095]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16469]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12097]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12094]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12093]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16465]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16464]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14446]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14330]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [14461]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15596]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15956]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15619]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14464]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15887]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14467]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14403]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15712]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14344]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14345]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12099]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16058]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15486]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12074]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12077]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14099]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12070]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14470]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14346]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [14347]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16470]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12068]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12089]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12100]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14361]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14413]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Director of War Service Homes [12092]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14358]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14423]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14424]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14367]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [14474]	NSW	In buffer area only
Transport and Regional Services - Airservices Australia		
Commonwealth Land - Airservices Australia [14389]	NSW	In buffer area only
Commonwealth Land - Airservices Australia [13098]	NSW	In buffer area only
Commonwealth Land - Airservices Australia [12057]	NSW	In buffer area only
Commonwealth Land - Airservices Australia [14465]	NSW	In buffer area only
Unknown		
Commonwealth Land - [15530]	NSW	In buffer area only
Commonwealth Land - [16159]	NSW	In buffer area only
Commonwealth Land - [15539]	NSW	In buffer area only
Commonwealth Land - [16562]	NSW	In buffer area only
Commonwealth Land - [14382]	NSW	In buffer area only
Commonwealth Land - [14386]	NSW	In buffer area only
Commonwealth Land - [14394]	NSW	In buffer area only
Commonwealth Land - [14387]	NSW	In buffer area only
Commonwealth Land - [14399]	NSW	In buffer area only
Commonwealth Land - [16283]	NSW	In buffer area only
Commonwealth Land - [16160]	NSW	In buffer area only
Commonwealth Land - [11160]	NSW	In buffer area only
Commonwealth Land - [14401]	NSW	In buffer area only
Commonwealth Land - [14400]	NSW	In buffer area only
Commonwealth Land - [16161]	NSW	In buffer area only
Commonwealth Land - [14396]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [14376]	NSW	In buffer area only
Commonwealth Land - [14398]	NSW	In buffer area only
Commonwealth Land - [14395]	NSW	In buffer area only
Commonwealth Land - [14393]	NSW	In buffer area only
Commonwealth Land - [14392]	NSW	In buffer area only
Commonwealth Land - [14390]	NSW	In buffer area only
Commonwealth Land - [14397]	NSW	In buffer area only
Commonwealth Land - [15436]	NSW	In buffer area only
Commonwealth Land - [15503]	NSW	In buffer area only
Commonwealth Land - [16116]	NSW	In buffer area only
Commonwealth Land - [14364]	NSW	In buffer area only
Commonwealth Land - [14365]	NSW	In buffer area only
Commonwealth Land - [15690]	NSW	In buffer area only
Commonwealth Land - [14420]	NSW	In buffer area only
Commonwealth Land - [14369]	NSW	In buffer area only
Commonwealth Land - [14375]	NSW	In buffer area only
Commonwealth Land - [14373]	NSW	In buffer area only
Commonwealth Land - [14374]	NSW	In buffer area only
Commonwealth Land - [14371]	NSW	In buffer area only
Commonwealth Land - [14372]	NSW	In buffer area only
Commonwealth Land - [14370]	NSW	In buffer area only
Commonwealth Land - [14378]	NSW	In buffer area only
Commonwealth Land - [15688]	NSW	In buffer area only
Commonwealth Land - [15689]	NSW	In buffer area only
Commonwealth Land - [15729]	NSW	In buffer area only
Commonwealth Land - [15435]	NSW	In buffer area only
Commonwealth Land - [15434]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [15459]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Botany Post Office	NSW	Listed place	In buffer area only
Cronulla Post Office	NSW	Listed place	In buffer area only
Marrickville Post Office	NSW	Listed place	In buffer area only
Sydney Airport Air Traffic Control Tower	NSW	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Foraging, feeding or related behaviour known to occur within area overfly marine area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Sterna striata White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Sternula albifrons as Sterna albifrons](#) Little Tern [82849]		Breeding likely to occur within area	In buffer area only
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In feature area
[Thalassarche bulleri](#) Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Thalassarche bulleri platei as Thalassarche sp. nov.](#) Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Thalassarche carteri](#) Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Thalassarche cauta](#) Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalassarche eremita](#) Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
[Thalassarche impavida](#) Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Tringa brevipes as Heteroscelus brevipes](#) Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
[Tringa incana as Heteroscelus incanus](#) Wandering Tattler [831]		Roosting known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Foraging, feeding or related behaviour known to occur within area overfly marine area	In buffer area only
[Xenus cinereus](#) Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Fish			
[Acentronura tentaculata](#) Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
[Festucalex cinctus](#) Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
[Filicampus tigris](#) Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
[Heraldia nocturna](#) Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
[Hippichthys penicillus](#) Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In buffer area only
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Stigmatopora nigra](#) Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
[Syngnathoides biaculeatus](#) Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
[Trachyrhamphus bicoarctatus](#) Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
[Urocampus carinirostris](#) Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
[Vanacampus margaritifer](#) Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
[Dugong dugon](#) Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Boat Harbour	Aquatic Reserve	NSW	In buffer area only
Georges River	National Park	NSW	In buffer area only
Kamay Botany Bay	National Park	NSW	In buffer area only
Royal	National Park	NSW	In buffer area only
Shiprock	Aquatic Reserve	NSW	In buffer area only
Sydney Harbour	National Park	NSW	In buffer area only
Towra Point	Nature Reserve	NSW	In buffer area only
Towra Point	Aquatic Reserve	NSW	In buffer area only
Wolli Creek	Regional Park	NSW	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Botany Wetlands	NSW	In buffer area only

Wetland Name	State	Buffer Status
Eve St. Marsh, Arncliffe	NSW	In buffer area only
Towra Point Estuarine Wetlands	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Decommissioning of the National Research Cyclotron Facility, Camperdown	2024/10072		Referral Decision	In buffer area only
Kamay Ferry Wharves Project	2020/8825		Post-Approval	In buffer area only
Controlled action				
Construction and operation of the Westconnex New M5, Sydney, NSW	2015/7520	Controlled Action	Post-Approval	In buffer area only
Cook Cove Southern Precinct development, Sydney, NSW	2016/7767	Controlled Action	Post-Approval	In buffer area only
Cooks Cove Development Project	2006/2685	Controlled Action	Post-Approval	In buffer area only
Expansion of Port Botany facilities	2002/543	Controlled Action	Post-Approval	In buffer area only
Kurnell Sand Extraction and Backfilling Proposal	2002/631	Controlled Action	Completed	In buffer area only
Sand Reclamation to Towra Beach	2003/1085	Controlled Action	Post-Approval	In feature area
Southern section of the Bonnie Doon Golf Course, Pagewood, NSW	2015/7479	Controlled Action	Completed	In buffer area only
Not controlled action				
Botany Bay Cable Project	2007/3552	Not Controlled Action	Completed	In buffer area only
Botany Rail Duplication	2019/8566	Not Controlled Action	Completed	In buffer area only
BP/Mobil Pipeline to Kingsford Smith Airport	2000/104	Not Controlled Action	Completed	In buffer area only
Carbon Black Plant Upgrade	2006/2785	Not Controlled Action	Completed	In buffer area only
construction of a road linking Newbridge Road and Nuwarra Road	2004/1843	Not Controlled Action	Completed	In buffer area only
Construction Of Two New Fuel Processing Plants On Existing Site	2003/1243	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Cox's Creek Reserve	2001/409	Not Controlled Action	Completed	In buffer area only
Decommissioning of Army Depot, Haberfield	2001/217	Not Controlled Action	Completed	In buffer area only
Decommissioning of NMC and Camperdown Facility	2010/5645	Not Controlled Action	Completed	In buffer area only
Development of an Intermodal Terminal for containerised freight at the former En	2002/622	Not Controlled Action	Completed	In buffer area only
Enfield Industrial Subdivision	2007/3727	Not Controlled Action	Completed	In buffer area only
Environmental Works	2001/396	Not Controlled Action	Completed	In buffer area only
Extension of Hale Street to Foreshore Road and Associated Works	2008/4035	Not Controlled Action	Completed	In buffer area only
Extension to Lucas Heights production building	2003/1114	Not Controlled Action	Completed	In buffer area only
Georges River Program 2	2003/999	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Industrial Subdivision	2004/1859	Not Controlled Action	Completed	In feature area
Industrial Subdivision, 262-276 Captain Cook Drive	2004/1899	Not Controlled Action	Completed	In buffer area only
Installation of viewing platform	2005/2138	Not Controlled Action	Completed	In buffer area only
Little Bay Residential Subdivision	2002/873	Not Controlled Action	Completed	In buffer area only
Noxious weed removal and controlled burn	2003/1272	Not Controlled Action	Completed	In buffer area only
Rabbit Control Anzac Rifle Range	2005/1940	Not Controlled Action	Completed	In buffer area only
Redevelopment of the Cronulla Sharks Leagues Club	2011/5889	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Rehabilitation works of the Coogee Sewer Diversion Submain - Maxwell Avenue, Mar	2004/1683	Not Controlled Action	Completed	In buffer area only
Remediation of Contaminated Buildings	2005/1983	Not Controlled Action	Completed	In buffer area only
Remediation of Contaminated Soil	2005/1985	Not Controlled Action	Completed	In buffer area only
Shipment of Spent Nuclear Fuel to USA	2007/3672	Not Controlled Action	Completed	In feature area
subdivision and development on the Rhodes Peninsula for residential and commerci	2003/1249	Not Controlled Action	Completed	In buffer area only
Sydney Desalination Plant	2005/2331	Not Controlled Action	Completed	In feature area
Sydney Metro Network Stage 2	2010/5307	Not Controlled Action	Completed	In buffer area only
Sydney Primary Loop Gas Pipeline	2006/2622	Not Controlled Action	Completed	In buffer area only
Taleb Property Pty Ltd, Tempe Tyres Warehouse project, Captain Cook Drive, Kurnell	2017/8068	Not Controlled Action	Completed	In buffer area only
Undertake a controlled burn of the Eastern Suburbs Banksia Scrub at Byrne Cresce	2004/1728	Not Controlled Action	Completed	In buffer area only
Upgrade of Captain Cook Drive	2012/6286	Not Controlled Action	Completed	In buffer area only
Widening of the M5 Southwest Motorway	2010/5665	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Kareela, Garnet Road Rezoning	2020/8841	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Kareela Flying-fox Camp and Camellia Gardens Dispersal 2017	2017/7920	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Kingsford Defence Land Subdivision and Redevelopment	2002/852	Not Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		(Particular Manner)		
Moriah Primary School, Centennial Park, Sydney	2004/1676	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Transport of intermediate level radioactive waste to Lucas Heights, NSW	2015/7437	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Transport of OPAL Spent Fuel to France in 2018 and 2025	2016/7841	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Trial dispersal of Kareela Flying-fox camp, Bates Drive, Kareela, NSW	2015/7474	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Veg removal to increase buffer betwn Kareela GHFF camp & residences & school, Kareela, NSW	2014/7222	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only
Relocation of Grey-Headed Flying-Fox Colony	2008/4568	Referral Decision	Completed	In buffer area only
Summer Hill Flour Mills Residential & Commercial development	2011/5859	Referral Decision	Completed	In buffer area only

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only
Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

APPENDIX C
ARBORIST REPORT

REPORT

Arboricultural Impact Assessment

PREPARED FOR

NSW Department of
Education

Stage 2

Kogarah Public School
24B Gladstone Street
Kogarah NSW 2217

28th of January 2025

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Version tracking

Version 1	29/10/2024	Hephzibah Ryan	Initial document version for Stage 2
Version 2	30/10/2024	Jim McArdle	Review & edit
Version 3	23/01/2025	Hephzibah Ryan	Amendment based on civil works
Version 4	23/01/2025	Jim McArdle	Review & edit
Version 5	28/01/2025	Hephzibah Ryan	Amendment based on provided commentary

1. EXECUTIVE SUMMARY

1.1 The client commissioned an Arboricultural Impact Assessment to determine the potential impacts of a proposal development on trees. The assessment provides recommendations to minimise the impacts on trees, if viable.

1.2 The proposed development at Kogarah Public School involves the demolition of existing structures and upgrades as outlined in 2.2.2 on following page.

1.3 The assessment was conducted on the 18th of March 2024, by Jim McArdle B.Ed. Sci (ACU), Dip. Arb AQF L5 (Ryde), Tree Risk Assessment Qualified (TRA), Quantified Tree Risk Assessment (QTRA) & Tree Contractors Association of Australia (TCAA) President.

1.4 Forty-three (43) trees were assessed on site and the adjacent surroundings and are summarised as follows.

Table 1: Retention Values

Retention Values				
High (8 trees)	Moderate (9 trees)	Moderate-Low (11 trees)	Low (11 trees)	Very Low (4 trees)
Trees 55, 56, 63, 64, 65, 72, 81 and 82.	Trees 30, 38, 39, 41, 57, 60, 68, 74 and 78.	Trees 22, 32, 33, 34, 37, 42, 67, 75, 76, 77 and 79.	Trees 31a, 13b, 35, 40, 62, 66, 69, 70, 71, 73 and 80.	Trees 36, 58, 59 and 61.

Table 2: Proposed Tree Management Plan.

Tree Management Plan	
Remove (18 trees)	Retain (25 trees)
58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.	22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81

Table 3: Proposed Tree Protection Plan

Tree Protection Measures	No of trees	Tree No.
Tree Protection Fencing	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Mulch Ground Cover Protection (During long periods of exposed bare earth)	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Tree trunk protection	3 trees	39, 40 and 41.
Sensitive design considerations	5 trees	41, 42, 72, 74 and 81.
Root pot hole investigation	5 trees	41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction	6 trees	39, 40, 41, 72, 74 and 81.

1.5 Sensitive Construction Measures

Trees 41, 42, 72, 74 and 81 requires a sensitive excavation method within the TPZ incursions to protect and minimise damage to the roots. Excavation using non-destructive digging NDD e.g., hand shovels or high-pressure water vacuums, will reduce impact on the trees stability and must be completed under the supervision of a Project Arborist.

For trees 39, 40, 41, 72, 74 and 81, Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.

1.6 New Planting of eighteen (18) trees of 45L volume pots.

2. INTRODUCTION

2.1 Aims

2.1.1 To evaluate the condition of trees, their value for retention and identify any potential effects of the proposed development. To provide feasible alternatives to mitigate detrimental effects on trees and provide suggestions for the management and protection of the trees throughout the development process.

2.1.2 To designate and preserve Tree Protection Zones (TPZ) for trees proposed for retention, in order to maintain their vitality and ensure that the tree protection measures are compliant throughout the duration of works.

2.2 Scope

2.2.1 NSW Department of Education commissioned an Arboricultural Impact Assessment for Kogarah Public School.

2.2.2 The proposed Kogarah Public School upgrade works include the following:

- Demolition of existing playground facilities and Covered Outdoor Learning Area (COLA) in addition to footings and services associated with former demountable buildings;
- Tree removal;
- Construction of a new three storey Classroom building and attached amenities facilities;
- Construction of a single storey Hall with attached Covered Outdoor Learning Area;
- New pedestrian pathway connections providing access throughout the site;
- Service upgrades; and
- Site landscaping works.

Any works relating to the existing demountables will be undertaken via a separate planning pathway.

2.2.3 Forty-three (43) trees were assessed on site and on the adjacent surroundings.

2.2.4 The assessment was conducted on the 18th of March 2024, by Jim McArdle, B Ed Sc (ACU), Dip Arb, AQF L5 (Ryde), Tree Risk Assessment Qualified (TRA), Quantified Tree Risk Assessment (QTRA) & Tree Contractors Association of Australia (TCAA) President.

2.2.5 The technical writer ascribed with compiling the report is Ryan, H. B.AgriSc (SYD).

2.2.6 Tree management measures are regulated by Georges River Council DPC 2021 and LEP 2021.

2.2.7 The Visual Tree Assessment VTA does not include below ground root excavation, and no expert laboratory analyses - including internal diagnostics, inaccessible trunk and aerial inspections – were conducted. No pathology tests or soil analyses were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

2.2.8 There is no additional tree -related documentation provided by the client. Our observations are the only analysed details besides post-site research and comparisons of similar sites.

2.3. Methodology

2.3.1 The inspection was primarily conducted using ground-based collection of data to identify visible signs of tree health, structure and potential hazards. Collection data methods may include a mallet for sound test, trowel, screwdriver for compaction and probing cavities to identify pathogens pests and disease. The assessments do not involve laboratory analysis and include the following methods.

2.3.2 **Visual Tree Assessment (VTA**) (Mattheck and Breloer 1994), a method assessing for biological and lower-level mechanical functions and signs of decay, damage, or defects (Appendix A).

2.3.3 **Tree AZ Categories** (Barrell 2010) classifies importance of trees on development sites, (Appendix B).
Category A: suitable for retention and **Category Z:** not worthy of constraint.

2.3.4 **Tree Useful Life Expectancy (TULE)** (Barrell 1993, adapted with permission for TCAA 2014) determines the time a tree can be expected to be usefully retained in normal circumstance. **Long TULE** is >40 years; Medium TULE is 15-40years; **Short TULE** is 5-15years; No retention potential is 0yrs- 5yrs; **Remove-** next 5yrs; **Move or Replace** and **small, young, regularly clipped** (Appendix C).

2.3.5 **Landscape Significance Rating** (Morton 1996) rates trees as **Significant** – based on heritage or ecological value. **Very high** – based on adjacent area surrounding the site. **High** - neighbourhood status but may have some conditions or health issues. **Moderate -** Good and Worthy of Preservation, may have minor health issues. **Low** - Worthy of Preservation, may have major conditions or health issues. **Very low** - Retain and protect. and **Insignificant** - Exempt from retention (Appendix D).

2.3.6 **Retention Value Rating** (Morton 2011) determined by considering both TULE and the Landscape Significance. **High** Retention are a priority for retention. **Moderate** Retention are retained where possible. **Low** Retention are generally not a constraint to development and **Very Low** Retention may have potential hazards (Appendix E).

2.3.7 **Planting Specifications from NATSPEC** (Clark 2003) and Australian Standard ® AS 2303-2018 Tree Stock for Landscape Use. (Appendix H).

2.3.8 Tree management and protection during development is in accordance with **Australian Standard ® AS 4970 2009 Protection of Trees on Development Sites**.

2.3.9 Photos with GPS waypoints were captured using the SOLOCATOR app. An iPhone 13 is used for taking the photos and these were not digitally altered.

3. RESULTS

3.1 Site Analysis

3.1.1 The site is Kogarah Public School at 24B Gladstone St, Kogarah NSW 2217.

3.1.2 The site's topography is flat, and the soil[1] composition in this region mostly consists of clay loam.

Figure 1: *Aerial site map of Kogarah Public School (Nearmap 2024). The scope of the construction is outlined in yellow.*

[1] *Espade.environment.nsw.gov.au*

3.2 Legislation And Significance In The Environment

3.2.1 Commonwealth Legislation regulates the **Biosecurity Act 2015**, (diseases and pests) and **Environmental Protection & Biodiversity Conservation Act 1999 (EPBC Act)** protects endangered ecological communities (EEC) and heritage items.

3.2.2 The **NSW Biodiversity Conservation Act 2016 (BC Act**) mandates a *Species Impact Statement* on land that includes critical habitat or endangered species. Additionally, the *Biodiversity Banking Offset Scheme* determined by Biodiversity Assessment Method (BAM), may potentially be needed to counteract the impact on biodiversity. The BC Act repealed (but still has some transitional arrangements) the NSW Threatened Species Conservation Act, 1995.

3.2.3 **NSW Environmental Planning and Assessment Act 1979 (EP&A Act),** regulates Environmental Planning Instruments EPIs at both state and local levels. Under section 76 of the Act, exempt development may be carried out without the need for development consent under Part 4 of the Act or for assessment under Part 5 of the Act.

3.2.4 **State Environmental Planning Policy (SEPP'S), (Vegetation in Non-Rural Areas) 2017** focuses on issues of regional or state significance and has precedence over Council's Local Environment Plan LEP and Development Control Plan DCP.

3.2.5 **NSW Rural Fire Act 1997**[2] regulates a *10/50 Vegetation Clearing Code* which permits the removal of trees within 10 metres and underlying shrubs within 50 metres of a house to reduce risk from bushfires.

3.2.6 An analysis of legislation concludes the following:

- Tree management measures are regulated by Georges River Council DPC 2021 and LEP 2021.
- **Land Zoning:** SP2: Infrastructure
- **Local Aboriginal Land Council:** METROPOLITAN**.**

3.3 Local Planning Control Maps[3]

Figure 2: *Land Zoning.*
SP2: Infrastructure

[2] *https://www.rfs.nsw.gov.au/*
[3] *https://www.planningportal.nsw.gov.au/*

3.4 Tree Schedule

Table 4: Tree Schedule - Health and Structural Condition of Trees.

(* DBH- Diameter Breast Height, DRC- Diameter Root Collar. * TPZ- Tree Protection Zone. SRZ- Structural Root Zone. * TULE-Tree Useful Life Expectancy)

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
22	Planter	*Callistemon viminalis* Bottlebrush	N4, S4, E4, W6	7	15/15/15	3.12 1.88	Semi mature, previously pruned, unbalanced canopy to the West, triple leaders, decking adjacent.	2a	Low to Moderate	Retain and protect.
30	Adjacent fence	*Leptospermum species* Tea Tree	N6, S2, E3, W3	9	29 30	3.48 2	Semi mature, good condition but poor development, minor damage to roots, lean to the West.	2a	Moderate	Retain and protect.
31a		*Hakea speices*	4	5	5/5 8	2 1.5	Immature, unbalanced canopy, good condition but poor development.	2a	Low	Retain and protect.
31b		*Hakea speices*	4	5	5/5 8	2 1.5	Immature, unbalanced canopy, good condition but poor development.	2a	Low	Retain and protect.
32	East fence	*Leptospermum species* Tea Tree	N-S 6, E-W 8	10	20/20/6 28	3.48 1.94	Semi mature, previously pruned at 1 meter, unbalanced canopy to the East.	2a	Low to Moderate	Retain and protect.
33	East fence	*Leptospermum species* Tea Tree	N-S 5, E-W 7	10	25 27	3 1.91	Semi mature, good condition but poor development and unbalanced canopy to the East.	2d	Low to Moderate	Retain and protect.
34	East fence	*Leptospermum species* Tea Tree	N4, S0, W5, E0	11	20 22	2.4 1.75	Semi mature, unbalanced canopy to the West.	2d	Low to Moderate	Retain and protect.
35	East fence	*Leptospermum species* Tea Tree	5	5	10/10 15	2 1.5	Immature, good condition but poor development.	2a	Low	Retain and protect.
36	East fence	*Leptospermum species* Tea Tree	4	5	5/8 10	2 1.5	Juvenile, good condition but poor development, previously pruned.	2a	Very Low	Retain and protect.
37	East fence	*Tristaniopsis laurina* Water gum	4	5	10 10	2 1.5	Immature, unbalanced canopy to the East.	2a	Low to Moderate	Retain and protect.
38	East fence	*Callistemon viminalis* Bottlebrush	8	8	20/15 32	3 2.05	Semi mature, good condition but poor development, twin stem, cavity to the East.	2a	Moderate	Retain and protect.
39	East fence	*Tristaniopsis laurina* Water gum	8	8	20/10/10 30	3 2	Semi mature, good condition but poor development.	2a	Moderate	Retain and protect.
40	Centre	*Tristaniopsis laurina* Water gum	3	4	10x3 15	2.04 1.5	Semi mature, good condition but poor development.	2d	Low	Retain and protect.
41	Adjacent fence	*Tristaniopsis laurina* Water gum	8	8	20/18/3x12 45	4.08 2.37	Semi mature, good condition but poor development, 30% hard surface impacts.	2a	Moderate	Retain and protect.
42	Neighbours	*Callistemon viminalis* Bottlebrush	6	6	10/12 15	2 1.5	Immature, good condition but poor development, 1 meter of canopy hanging over fence.	2a	Low to Moderate	Retain and protect.
55	North courtyard	*Tristaniopsis laurina* Water gum	12	14	25/40 66	5.64 2.78	Mature, good condition but poor development, failed the mallet test, decay damage to roots.	2d	High	Retain and protect.
56	North courtyard	*Tristaniopsis laurina* Water gum	12	14	46 60	5.52 2.67	Mature, good condition but poor development to the West, lean, decay on old cut.	3a	High	Retain and protect.
57	North courtyard	*Tristaniopsis laurina* Water gum	12	14	50 55	6 2.57	Mature, good condition but poor development, decay, cavity to the South at base, previously pruned.	3d	Moderate	Retain and protect.

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
58		*Leptospermum species* Tea Tree	4	5	5/5/5 10	2 1.5	Juvenile, unbalanced canopy to the West.	2a	Very Low	Remove and replenish.
59		*Melia azederach* White Cedar	5	7	12 14	2 1.5	Semi mature, previously pruned.	5e	Very Low	Remove and replenish. Toxicity concern.
60		*Tristaniopsis laurina* Water gum	8	10	32 35	3.84 2.13	Semi mature, good condition but poor development.	2a	Moderate	Remove and replenish.
61		*Melia azederach* White Cedar	3	5	5 8	2 1.5	Juvenile, moderate condition.	5e	Very Low	Remove and replenish. Toxicity concern.
62		*Pittosporum undulatum* Pittosporum	4	5	10 10	2 1.5	Immature, good condition but poor development.	2a	Low	Remove and replenish.
63	North	*Tristaniopsis laurina* Water gum	10	13	55 60	6.6 2.67	Mature, good condition but poor development, lean to the West, vine.	2d	High	Remove and replenish.
64		*Eucalyptus microcorys* Tallowwood	N0, S8, E9, W9	24	70 85	8.4 3.09	Mature, good condition.	2a	High	Remove and replenish.
65		*Eucalyptus microcorys* Tallowwood	N3, S8, E10, W9	18	67 68	8.04 2.81	Mature, unbalanced canopy to the South, topped, decay to the North, 10% dehydration.	2d	High	Remove and replenish.
66	West fence	*Callistemon viminalis* Bottlebrush	5	5	10 10	2 1.5	Juvenile, excellent condition, on fence.	2a	Low	Remove and replenish.
67		*Pittosporum undulatum* Pittosporum	5	7	20 22	2.4 1.75	Immature, decay at base.	3a	Low to Moderate	Remove and replenish.
68		*Melaleuca styphelioides* Prickly-leaved Paperbark	6	8	24/15/15 30	3.84 2	Immature, good condition, triple stem, supressed.	2a	Moderate	Remove and replenish.
69		*Pittosporum undulatum* Pittosporum	2	5	10 12	2 1.5	Immature, previously pruned, physical damage.	3a	Low	Remove and replenish.
70		*Eucalyptus torelliana* Cadaghi	12	15	60 60	7.2 2.67	Immature, good condition.	2a	Low	Remove and replenish.
71		*Melaleuca styphelioides* Prickly-leaved Paperbark	2	4	10 10	2 1.5	Immature, good condition.	2a	Low	Remove and replenish.
72		*Corymbia maculata* Spotted Gum	N-S 12, E-W 14	18	52 58	6.24 2.63	Semi mature, good condition but poor development, minor dehydration.	2a	High	Retain and protect.
73		*Leptospermum species* Tea Tree	3	4	5/5/5 10	2 1.5	Juvenile, good condition.	1a	Low	Retain and protect.
74	West fence	*Lophostemon confertus* Brushbox	N6, S6, E0, W6	15	54 66	6.48 2.78	Semi mature, good condition but poor development, previously pruned for power pole.	3a	Moderate	Retain and protect.
75	West, sign	*Callistemon viminalis* Bottlebrush	4	7	16 24	2 1.82	Immature, storm damage, good condition but poor development.	2a	Low to Moderate	Retain and protect.
76		*Callistemon viminalis* Bottlebrush	5	7	20 22	2.4 1.75	Immature, good condition but poor development.	2a	Low to Moderate	Retain and protect.
77		*Melaleuca styphelioides* Prickly-leaved Paperbark	N4, E-W 6	8	10/15 25	2.16 1.85	Immature, good condition, supressed.	2a	Low to Moderate	Remove and replenish.

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
78		*Lophostemon confertus* Brushbox	10	12	30 34	3.6 2.1	Immature, twin stem, good condition but poor development, previously pruned to the West.	2d	Moderate	Remove and replenish.
79		*Hakea species*	3	5	10 15	2 1.5	Semi mature, decay at base, moderate condition, passed the push test.	4c	Low to Moderate	Remove and replenish. Safety concern.
80	West fence	*Hakea species*	6	5	16 17	2 1.57	Immature, good condition but poor development.	2a	Low	Retain and protect.
81	South fence	*Lophostemon confertus* Brushbox	14	14	62 74	7.44 2.92	Mature, slight lean to the West, artificial grass.	2a	High	Retain and protect.
82	South fence	*Angophora costata* Red Gum	18	24	74 80	8.88 3.01	Mature, good condition but poor development, lean to the West, grass swale.	2a	High	Remove and replenish.

3.5 Photographic Observations

Plate 1: Trees 24 to 27 seating and assembly area.

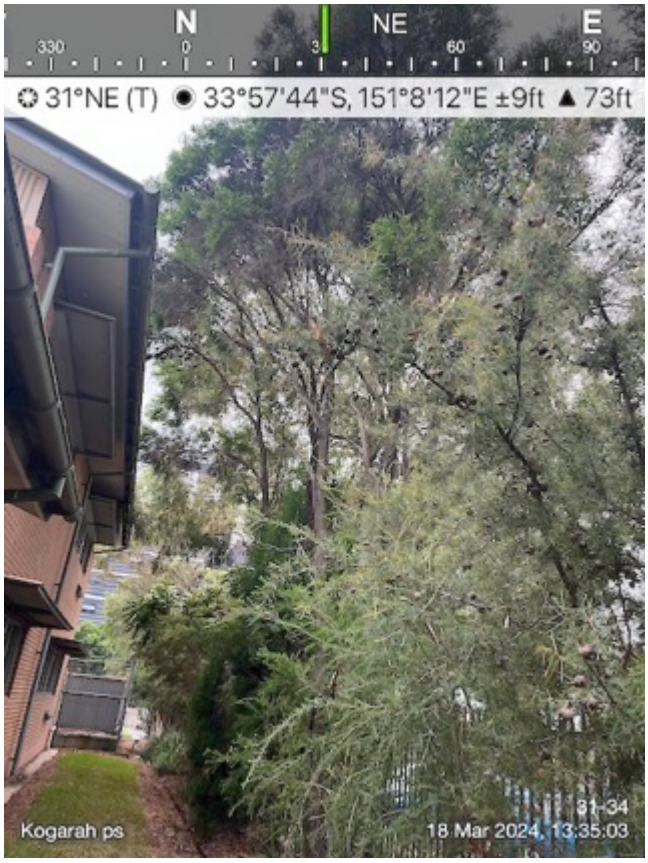


Plate 2: Trees 31 to 34 western boundary.

Plate 3: Trees 55 to 57 corridor on north of site.

Plate 4: Tree 65, Eucalyptus microcorys (Tallowwood), surrounded with artificial turf.

Plate 5: Tree 66 to 78 adjacent sited boundary fence.

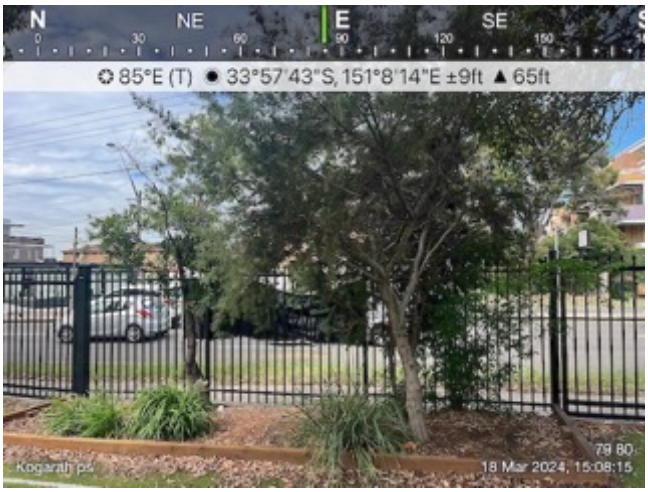


Plate 6: Trees 79 and 80 adjacent school fence.

4. DISCUSSION

4.1.1 Forty-three (43) trees were assessed on site for the purposes of the development.

4.1.2 Eighteen (18) trees are proposed for removal, of which seven (7) possess high or moderate retention values. These trees were identified in the preliminary arborist report provided to the client. However, due to site constraints, the removal of these trees has become necessary.

4.1 Tree Useful Life Expectancy (TULE) and Landscape Significance

4.1.1 Trees 55, 64, 65, 70, 72, 81 and 82 have **medium** useful life expectancy ratings (2a/2d) of 15 to 40 years. The trees are considered to have **high** value in the landscape, given they are native species with live crown sizes exceeding 100m^2.

4.1.2 Trees 38, 39, 41, 60, 63, and 78 have **medium** useful life expectancy ratings (2a/2d) of 15 to 40 years. The trees are considered to have **moderate** value, given that they are native species with live crown sizes exceeding 40m^2.

4.1.3 Trees 56 and 57 have **short** useful life expectancy ratings (3a) of 5 to 15 years. The trees are considered to have **high** value in the landscape, given that they are native species with live crown sizes exceeding 100m^2.

4.1.4 Tree 74 has a **short** useful life expectancy rating (3a) of 5 to 15 years. The tree is considered to have **moderate** value in the landscape, given that it is a native species with a live crown size exceeding 40m^2.

4.2 Retention Values

4.2.1 Retention values are established by evaluating both the factors of TULE and Landscape Significance. (Appendix C,D & E). Retention values are determined as follows.

Table 5: Retention Values

Retention Values				
High (8 trees)	Moderate (9 trees)	Moderate-Low (11 trees)	Low (11 trees)	Very Low (4 trees)
Trees 55, 56, 63, 64, 65, 72, 81 and 82.	Trees 30, 38, 39, 41, 57, 60, 68, 74 and 78.	Trees 22, 32, 33, 34, 37, 42, 67, 75, 76, 77 and 79.	Trees 31a, 13b, 35, 40, 62, 66, 69, 70, 71, 73 and 80.	Trees 36, 58, 59 and 61.

4.2.2 Trees of very low retention value are numbered 36, 58, 59 and 61. These trees are considered are noxious weeds or very young specimens.

4.3 Impact Assessment

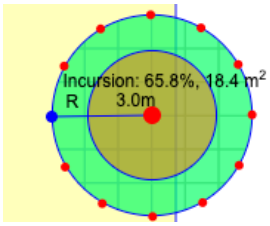
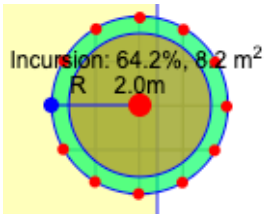
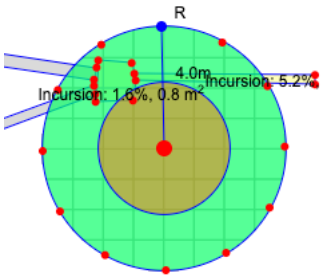
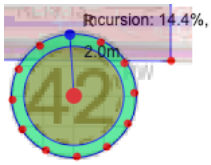
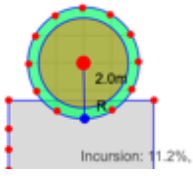
4.3.1 The assessment analyses the possible impacts of the proposed development on the Tree Protection Zones (TPZ) and tree canopies. The impacts are classified based on the percentage of TPZ encroachments: minor if they are less than 10%, and major if they are more than 10%.

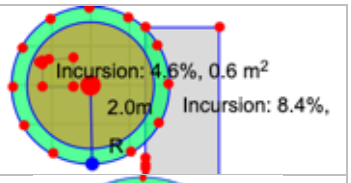
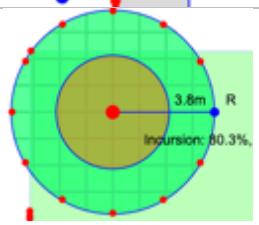
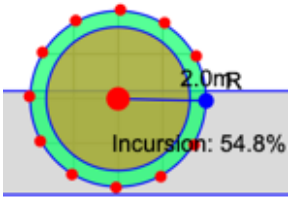
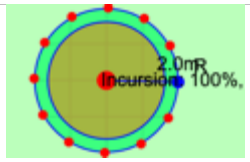
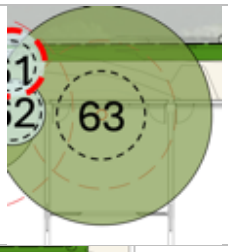
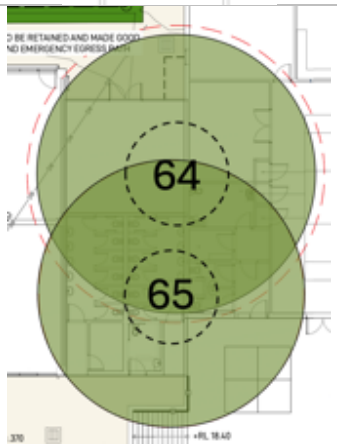
4.3.2 Thirteen (13) trees are not impacted, these are numbered 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 55, 56, and 57.

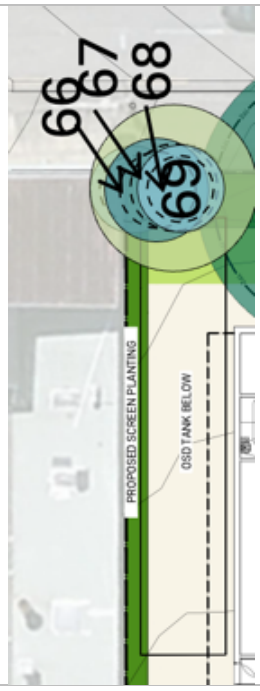
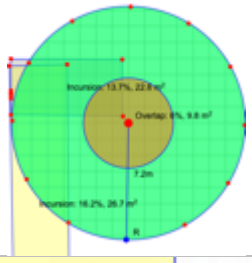
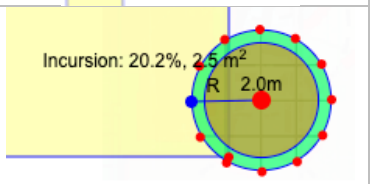
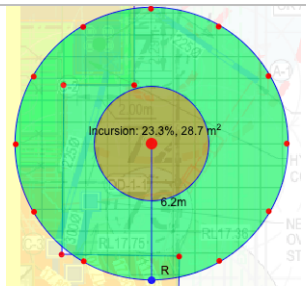
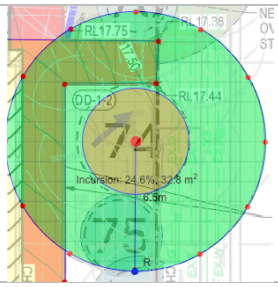
4.3.3 Six (6) trees have minor incursions, these are numbered 38, 73, 75, 76, 79 and 80.

4.3.4 Twenty-four (24) trees have major incursions, these are numbered 39, 40, 41, 42, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 77, 78, 81 and 82.

Table 6: Major TPZ Encroachments - more than 10%

Major TPZ Encroachment for Proposed Retention	
Tree 39, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 65.8% **Impact:** 100 mm of fill in TPZ and SRZ. **Viability Statement:** Tree is viable to be retained with 100 mm of fill. **Recommendation:** Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 40, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Low **TPZ Encroachment**: 64.2% **Impact:** 100 mm of fill in TPZ and SRZ. **Viability Statement:** Tree is viable to be retained with 100 mm of fill. **Recommendation:** Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 41, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 75% (including 6.8% from stormwater) **Impact:** Stormwater in TPZ. 100 mm of fill. **Viability Statement:** Viability is dependent on location of tree and tree roots. **Recommendation:** Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 42, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Low to Moderate **TPZ Encroachment**: 14.4% **Impact:** Retaining wall in SRZ, 350 mm cut from foot path. **Viability Statement:** Viability is dependent on location of tree and tree roots. **Recommendation:** Retain and protect with sensitive construction measures and root pot hole investigation.	
Tree 58, *Leptospermum species* (Tea Tree) **Retention Value:** Very Low **TPZ Encroachment**: 11.2% **Impact:** Proposed new courtyard in root system, canopy damage from proximity to works. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 59, *Melia azedarach* (White Cedar) **Retention Value:** Very Low **TPZ Encroachment**: 13%	

Impact: Root system impacted by proposed hardstand and pit. **Viability Statement:** **Recommendation:** Remove and replenish.	
Tree 60, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 80.3% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 61, *Melia azedarach* (White Cedar) **Retention Value:** Very Low **TPZ Encroachment**: 54.8% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 62, *Pittosporum undulatum* (Pittosporum) **Retention Value:** Low **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 63, *Tristaniopsis laurina* (Water Gum) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 64, *Eucalyptus microcorys* (Tallowwood) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish. Tree 65, *Eucalyptus microcorys* (Tallowwood) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 66, *Callistemon viminalis* (Bottlebrush) **Retention Value:** Low **TPZ Encroachment**: 20% **Impact:** Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable, Tree is not worthy of being a constraint. **Recommendation:** Remove and replenish. Tree 67, *Pittosporum undulaltum* (Pittosporum) **Retention Value:** Low to Moderate **TPZ Encroachment**: 20%	

Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable, Tree is not worthy of being a constraint.	
Recommendation: Remove and replenish.	
Tree 68, *Melaleuca styphelioides* (Prickly-leaved Paperbark)	
Retention Value: Moderate	
TPZ Encroachment: 20%	
Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 69, *Pittosporum undulaltum* (Pittosporum)	
Retention Value: Low	
TPZ Encroachment: 20%	
Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 70, *Eucalyptus torelliana* (Cadaghi)	
Retention Value: Low	
TPZ Encroachment: 30%	
Impact: Root system impacts from hardscaping, stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 71, *Melaleuca styphelioides* (Prickly Leaved Paperbark)	
Retention Value: Low	
TPZ Encroachment: 20.2%	
Impact: Root system impacts from hardscaping, stormwater pit and access for OSD tank, and cut & fill. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 72, *Corymbia maculata* (Spotted Gum)	
Retention Value: High	
TPZ Encroachment: 26.3%	
Impact: Major encroachment 23.3% from cut n fill and footpath. Additional 3% from stormwater pipes and pit. **Viability Statement:** Tree is viable to be retained with 100 mm or less of fill.	
Recommendation: Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 74, *Lophostemon Confertus* (Brushbox)	
Retention Value: Moderate	
TPZ Encroachment: 24.6%	
Impact: Footpath, stormwater, cut and fill. **Viability Statement:** Tree is viable to be retained with 100 mm or less of fill.	
Recommendation: Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 77, *Melaleuca styphelioides* (Prickly-leaved Paperbark)	
Retention Value: Low to Moderate	
TPZ Encroachment: 11%	
Impact: Impacts to root system, stem and canopy from “out of bounds” fence.	

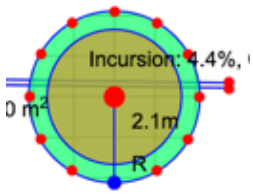
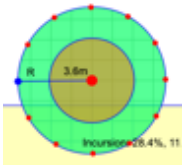
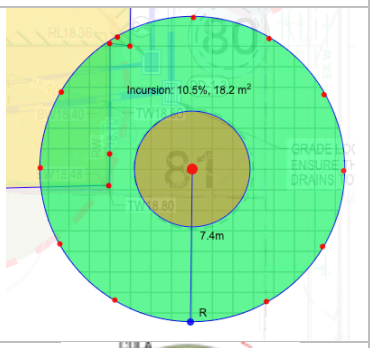
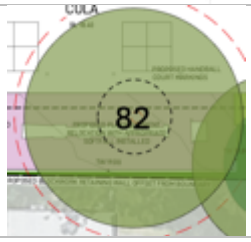
Viability Statement: Non-viable **Recommendation:** Remove and replenish	
Tree 78, *Lophostemon confertus* (Brushbox) **Retention Value:** Moderate **TPZ Encroachment**: 28% **Impact:** Root system impacted from proposed driveway, canopy damage from vehicle access. **Viability Statement:** Non-viable **Recommendation:** Remove and replenish	
Tree 81, *Lophostemon confertus* (Brushbox) **Retention Value:** High **TPZ Encroachment**: 13.5% **Impact:** TPZ impacts from landscaping, stormwater pit, and Softfall area. **Viability Statement:** Tree is viable to be retained with impacts. **Recommendation:** Retain and protect. sensitive design considerations, ensure minimal earthworks within the Tree protection zone. Root pot hole investigation.	
Tree 82, Angophora costata (Red Gum) **Retention Value:** High **TPZ Encroachment**: 41% **Impact:** Stem impacts from Softfall area and proposed cola. **Viability Statement:** Tree is not viable to be retained due to proximity. **Recommendation:** Remove and replenish.	

Table 7: Impact Summary

Tree No.	Botanical Name Common Name	TPZ Encroachment %	Recommendation
38	*Callistemon viminalis* Bottlebrush	Minor (9.6%)	Retain and protect.
39	*Tristaniopsis laurina* Water gum	Major (65.8%)	Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
40	*Tristaniopsis laurina* Water gum	Major (64.2%)	Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
41	*Tristaniopsis laurina* Water gum	Major (75%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
42	*Tristaniopsis laurina* Water gum	Major (14.4%)	Retain and protect. Sensitive construction measures. Root pot hole investigation.
58	*Leptospermum species* Tea Tree	Major (11.2%)	Remove and replenish.
59	*Melia azederach* White Cedar	Major (13%)	Remove and replenish. Toxicity concern.
60	*Tristaniopsis laurina* Water gum	Major (80.3%)	Remove and replenish.
61	*Melia azederach* White Cedar	Major (54.8%)	Remove and replenish. Toxicity concern.
62	*Pittosporum undulatum* Pittosporum	Major (100%)	Remove and replenish.
63	*Tristaniopsis laurina* Water gum	Major (100%)	Remove and replenish.
64	*Eucalyptus microcorys* Tallowwood	Major (100%)	Remove and replenish.
65	*Eucalyptus microcorys* Tallowwood	Major (100%)	Remove and replenish.
66	*Callistemon viminalis* Bottlebrush	Major (20%)	Remove and replenish.
67	*Pittosporum undulatum* Pittosporum	Major (20%)	Remove and replenish.
68	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major (20%)	Remove and replenish.
69	*Pittosporum undulatum* Pittosporum	Major (20%)	Remove and replenish.
70	*Eucalyptus torelliana* Cadaghi	Major (30%)	Remove and replenish.
71	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major (20.2%)	Remove and replenish.
72	*Corymbia maculata* Spotted Gum	Major (26.3%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction. Any fencing works to use existing pier holes.
73	*Leptospermum species* Tea Tree	Minor (<1%)	Retain and protect. Any fencing works to use existing pier holes.
74	*Lophostemon confertus* Brushbox	Major (24.6%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction. Any fencing works to use existing pier holes.
75	*Callistemon viminalis* Bottlebrush	Minor (<1%)	Retain and protect.
76	*Callistemon viminalis* Bottlebrush	Minor (<1%)	Retain and protect.
77	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major impacts (totalling 11%) to	Remove and replenish.
78	*Lophostemon confertus* Brushbox	Major (28%)	Remove and replenish.
79	*Hakea species*	Minor (5%)	Remove and replenish. Safety concern.
80	*Hakea species*	Minor (<1%)	Retain and protect.
81	*Lophostemon confertus* Brushbox	Major (13.5%)	Retain and protect. sensitive design considerations, ensure minimal earthworks within the Tree protection zone. Root pot hole investigation.
82	*Angophora costata* Red Gum	Major (41%)	Remove and replenish.

4.4 Trees Proposed For Removal

4.4.1 The proposed **removal** of eighteen (18) trees, numbered 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.

4.4.2 **Tree Removals and Pruning** to be assessed and determined under the T&I SEPP - REF pathway. Provisions of the SEPP's (vegetation in non-rural areas) 2017 and Council DCP specify that a permit is required in respect to pruning or removing trees unless specified exempt. Dead stags without hollows are exempt from preservation but may be subject to council permit.

4.4.3 **Suitably Qualified Arborist** must have a minimum AQF 3 and work in accordance with Australian Standard® AS 4373 2007 Pruning of Amenity Trees, the Work Health & Safety (WHS) Act 2011 and the WHS Regulations 2017, the Safe Work Guide to Managing Risks of Tree Trimming and Removal Work 2016 and the Code of Practice for The Amenity Tree Industry 1998. Work near powerlines should be carried out in accordance with the Code of Practice for Work Near Overhead Power Lines. Tree contractors shall be members of Tree Contractors Association Australia (TCAA) or Arborists Australia (AA) and hold Workers Compensation and Public Liability Insurance. Tree contractors must liaise with the consulting arborist to ensure that pruning and / or removal is in accordance with specifications.

4.5 Canopy Cover Loss

4.5.1 **Canopy Cover Loss** calculates the reduction of canopy cover, due to tree removal. The calculation excludes exempt trees, the canopy cover formula is $((½ \times \text{canopy diameter})^2 \times \pi)$ as follow. See Appendix F.

Table 8: Canopy Cover Loss for trees proposed for removal.

Trees	Canopy Diameter (m)	Canopy Loss (m^2)	Total Canopy Loss (m^2)	New Plantings
58	4	13	1037 m^2	**A total of eighteen (18) new tree plantings:** 11 trees with a canopy diameter at maturity of 6m (11x28m^2=308m^2) and 6 trees with a canopy diameter at maturity of 10m (6x79m^2=474m^2) and 1 tree with canopy diameter at maturity of 18m (254m^2).
59	5	20		
60	8	50		
61	3	7		
62	4	13		
63	10	79		
64	13	133		
65	15	177		
66	5	20		
67	5	20		
68	6	28		
69	2	3		
70	12	113		
71	2	3		
77	5	20		
78	10	79		
79	3	7		
82	18	254		

4.6 Replenishment Planting

4.6.1 New Tree Planting should be planted on site to compensate for the proposed removal of trees. The Georges River councils tree preservation order specifies tree removals are to be replaced.

4.6.2 New Tree Planting of eighteen (18) trees of 45L volume pots are required to compensate for the proposed removal of trees.

4.6.3 Consideration should be given trees endemic to the local area or native trees already part of the vegetation community on site. Trees exempt from preservation are usually excluded from replenishment, see council's DPC.

4.6.4 New Plantings are to be completed in accordance with Planting Specifications from NATSPEC (Clark 2003) and Australian Standard ® AS 2303-2018 Tree Stock for Landscape Use. (Appendix F) and where possible at least 3-5 metres away from buildings, away from power lines, hard-surfaces, infrastructure and underground services.

4.6.5 **Watering Schedule:** Maintain a watering schedule for replenished trees; for example, a 45L pot requires approximately 35L of daily water. (Trees Impact: 2021).

4.6.6 **Mulch:** Maintain aged eucalyptus mulch to replenished trees in accordance with Australian Standards® AS 4454-2003 Compost, Soil Conditioners and Mulches.

Mulch should have at least 70% by mass of its particles, with a maximum size of greater than 16 mm and spread 50-75mm deep to the extent of the dripline, (never exceed 100mm depth). Mulch should not have contact with the tree trunk, apply 200mm from trunk and shaping a soil berm dish close to the root ball to facilitate establishment of watering.

4.7 Trees Proposed For Retention

4.7.1 Proposed Retention of twenty-five (25) trees numbered 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.

4.7.2 **Tree Pruning** is subject to Council approval. Provisions of the SEPP's (vegetation in non-rural areas) 2017, and Council DCP specify that a permit is required in respect to pruning or removing trees unless specified exempt.

4.7.3 **Root pot hole investigation** is advised for trees numbered 41, 42, 72, 74 and 81 to investigate the location and extent of the Structural Root Zone SRZ affected by the proposed built structures and to ascertain if the tree would remain viable. Root mapping investigations shall be conducted under the supervision of an Arborist Project (AQF 5), using non-destructive, digging NDD e.g., hand excavation or a high-pressure water vacuum.

5. RECOMMENDATION

5.1 Tree Retention and Removal Plan

5.1.1 Forty-three (43) trees were assessed on site and on the adjacent surroundings and are summarised as follows.

Table 9: Proposed Tree Retention and Removal Plan

Tree Management Plan	
Remove (18 trees)	Retain (25 trees)
58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.	22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81

5.2 Tree Protection Plan

Table 10: Proposed Tree Protection Plan

Tree Protection Measures	No of trees	Tree No.
Tree Protection Fencing	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Mulch Ground Cover Protection	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Tree trunk protection	3 trees	39, 40 and 41.
Sensitive design considerations	5 trees	41, 42, 72, 74 and 81.
Root pot hole investigation	5 trees	41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction	6 trees	39, 40, 41, 72, 74 and 81.

6.2.1 Existing boundary fences or walls shall constitute part of the tree protection fence where appropriate.

5.3 Sensitive Construction Measures

5.3.1 Trees 41, 42, 72, 74 and 81 requires a sensitive excavation method within the TPZ incursions to protect and minimise damage to the roots. Excavation using non-destructive digging NDD e.g., hand shovels or high-pressure water vacuums, will reduce impact on the trees stability and must be completed under the supervision of a Project Arborist.

For trees 39, 40, 41, 72, 74 and 81, Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.

5.4 Replenishment Plantings

5.4.1 New Planting of **eighteen (18**) trees of 45L volume pots.

5.4.2 New Plantings Plan should be considered in line with landscape plan and should be species selected from indigenous species an according to NatSpec and council tree species list.

5.5 Tree Protection Specifications

5.5.1 **Tree removal can now be assessed in the REF under SEPP (Transport and Infrastructure 2021) Chapter 3 controls for a classroom building and a Hall. No pruning** of protected trees is permitted without the consultation of the Project Arborist.

5.5.2 **Tree Protection Fencing** is to be a chain wire-mesh fence that is 1.8-metre-high and anchored with concrete blocks. In some circumstances a red high-visibility plastic mesh fence fastened to star pickets may suffice. Fencing is to be in accordance with AS4687 Temporary fencing and hoardings. Existing boundary fences or walls shall constitute part of the tree protection fence where appropriate.

5.5.3 **Signage** with the project arborist's contact details is to be attached to the fencing and to read 'Tree Protection Zone: Do Not Enter' in accordance with Australian Standard® AS 1319-1994 – Safety Signage.

5.5.4 **Mulch** is to be certified eucalyptus species and must be spread at 75mm depth in accordance with Australian Standard® AS 4454-2003 – Compost, Soil Conditioners and Mulches. Mulch across the TPZ is at the discretion of the arborist.

5.5.5 **Trunk Protection;** A layer of geofabric will be wrapped around the trunk. Hardwood planks measuring 50mm x 100mm or similar shall be placed over the geofabric, spaced at intervals of 300mm. These planks shall be secured with 8-gauge wire or similar. Do not drive nails into trunks or branches. Trunk protection shall extend a minimum height of 2 metres or to the maximum possible length permitted by the first branches.

5.5.6 **Watering Schedule** must be maintained for new tree plantings, a 45L potted volume requires approximately 35L of water daily, depending on weather conditions. (Trees Impact: 2021).

5.5.7 Hoarding waste and amenities (HWA) should be stored outside the TPZs of the retained trees.

5.6 Project Arborist Hold Points

5.6.1 **Appointment of an AQF 5 Project Arborist** to implement and adhered to the Tree Protection Plan during works in accordance with Australian Standards *AS 4970-2009 Protection of Trees on Development Sites.*

5.62 **Monitor** protected trees with regular site visits and record with photographs.

5.6.3 **Supervise** works within the TPZ incursions by the Project Arborist, including increasing/decreasing soil level, installation of underground services, driveway, piers or anything that may adversely affect the tree.

5.6.4 **Root m**ust be pruned with sharp clean tools. Any root in the Tree Protection Zone (TPZ) less than 40 mm in diameter may be pruned under the direction of the Project Arborist. Any roots in the TPZ over 40 mm in diameter must be pruned by the Project Arborist. No root in the Structural Root Zone (SRZ) shall be pruned unless directed by the Project Arborist. Root pruning can be performed by an AQF 3 Arborist or higher. No more than 20% of the total root system should be pruned at a time.

5.6.5 **Remediation** of protected tree in decline or damaged must be supported with a Project Arborist remedial plan.

5.6.6 Site Induction with project manager and ensuring Tree Protection Plan TPP is presented in site sheds. All construction personnel to be inducted to TPP.

Table 11: Project Arborist Hold Points & Monitoring Schedule

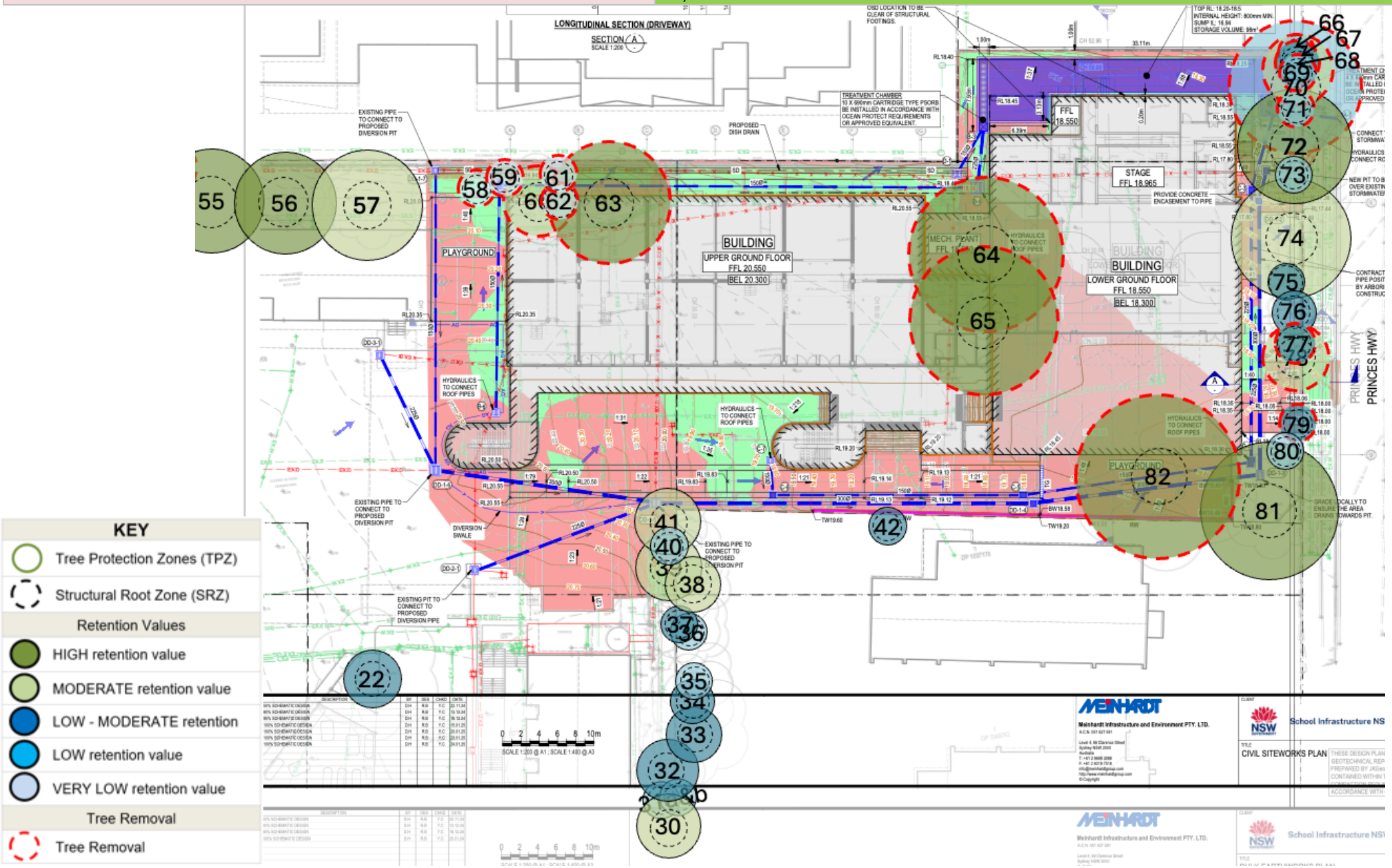
Hold Point	**Project Arborist Hold Points & Monitoring Schedule**	Timing
1	Obtain DA approval for Tree Protection Plan & Specifications.	Pre-construction & pre- demolition
2	Appoint an AQF5 Project Arborist to implement Tree Protection Plan.	
3	Certify Tree Protection Installation for trees approved for retention.	
4	Inspect and monitor Tree Protection Measures and tree health for the duration of works.	During Construction
5	Supervise and certify approved works within the Tree Protection Zone incursions. e.g., excavation, potholes, pruning, shoring and installations inside TPZ.	
6	Undertake any remedial works if necessary for declining tree health.	
7	Certify Final Tree Protection Measures and tree health.	Post construction

6. TREE MANAGEMENT PLANS

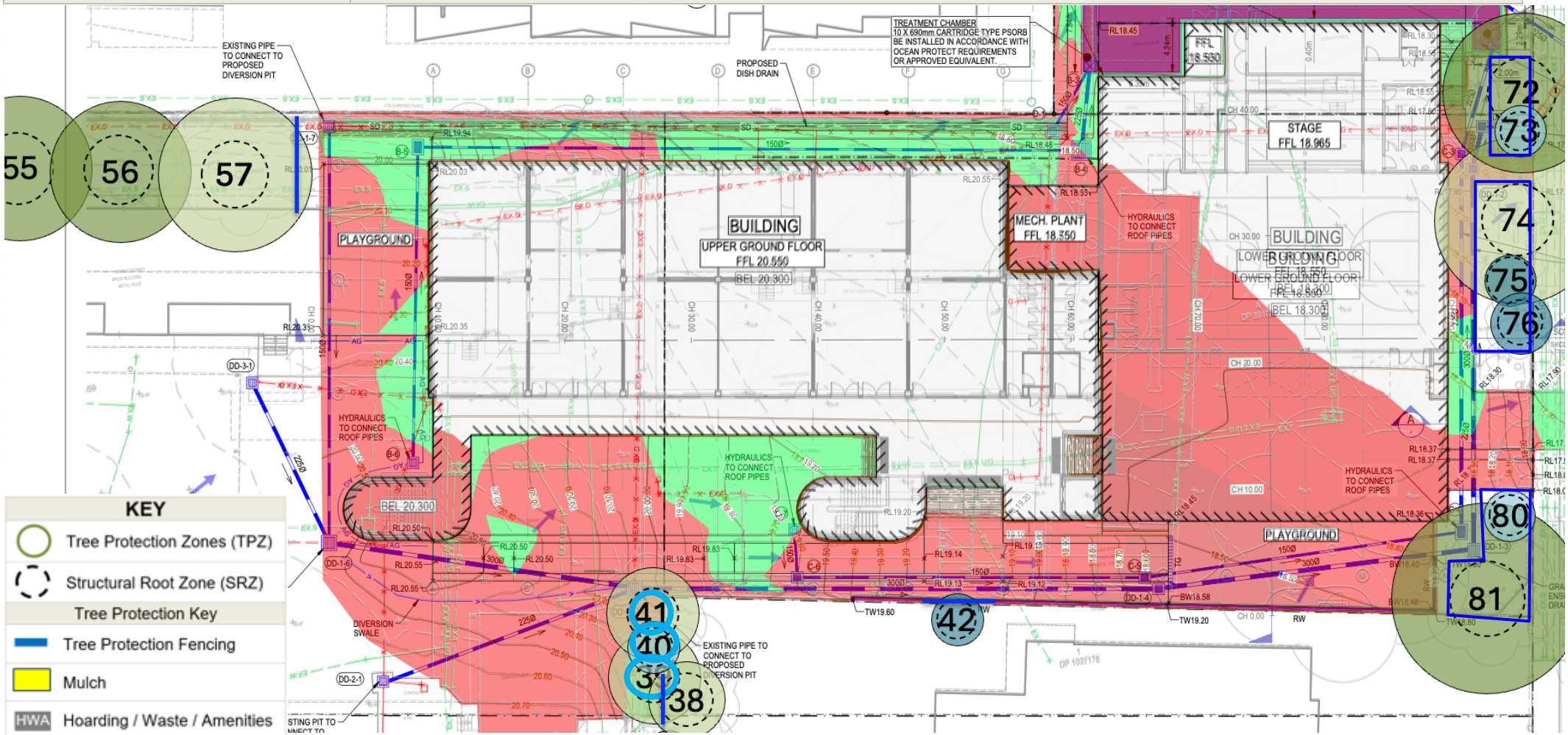
6.1 Plan 1 Tree Retention and Removal Plan	Kogarah Public School	Scale on plan 1:400 @A3	20.01.2025

Remove 18 trees: 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.

Retain 25 trees: 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81



6.2 Plan 2 Tree Protection Plan	Kogarah Public School	Scale on plan 1:400 @A3	20.01.2025
Trunk protection 3 trees: 39, 40 and 41.	**Fencing for 12 trees:** 38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81. Mulch to be installed within fenced area during long periods of exposed bare earth.		



Sensitive design considerations 5 trees: 41, 42, 72, 74 and 81.
Root pot hole investigation 5 trees: 41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction 6 trees: 39, 40, 41, 72, 74 and 81.

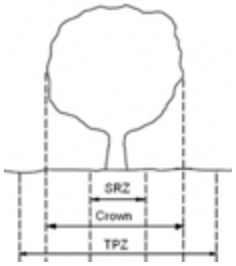
6.3 General Tree Management Specifications

Based on *Australian Standard® 4970-2009 Protection of Trees on Development Sites*.

Tree Protection Zones

Tree Protection Zone (TPZ) distances are measured as a radius from the center of the trunk at ground level and must be protected during construction. Structural Root Zone (SRZ) is a critical area for a tree's stability.

AS 4970-2009 Protection of Trees on Development Sites permits a 10% incursion into the TPZ (with Conditions) and incursions greater than 10% will require additional TPM.



Prohibitions for TPZ's

Prohibited activities within the TPZ of protected trees during demolition, excavation, and construction, include entry onto or across protected surfaces, disposal of chemicals and liquids (including concrete and mortar slurry, solvents, paint, fuel, or oil), stockpiling, storage or mixing of materials, refueling, parking, storing, washing and repairing tools, equipment, machinery and vehicles and disposal of building materials and waste.

Demolition

Tree Protection is to be installed around the retained trees and certified by the project arborist prior to any demolition, development, or soil stripping.

Post Construction

Tree Protection may be removed after the final certification is determined to be compliant.

Hoarding Waste & Amenities (HWA)

HWA's should be stored outside the TPZs of the retained trees.

Installing Underground Services Within TPZ

All services should be routed outside the TPZ. If underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches.

The directional drilling boring methods, such as horizontal drilling (HDD) may be at least 600 mm deep. The project arborist should assess the likely impacts of bore and bore pits on retained trees.

Excavations for entry/exit pits must be located outside the TPZ.

Excavation Within TPZ's

Excavations shall be undertaken under supervision of the project arborist, using sensitive, non-destructive methods (e.g., Manual excavation (hand tools), Air-spade or Hydro-vacuum excavations (sucker-truck).

Excavation is to be carried out in a manner that prevents tearing, splitting and displacement of the remaining roots; no roots greater than 40mm in diameter are damaged, pruned or removed. All care shall be taken to preserve and avoid damaging roots; excavation should not occur within the SRZ. Exposed roots shall be protected from direct sunlight by covering them with hessian or similar fabric and always kept moist.

Hand excavation and root mapping shall be undertaken along excavation lines within the TPZ Any conflicting roots (>40mm in diameter) shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears.

Backfilling is to be carried out as soon as possible.

Mulch Within TPZ

Maintain aged eucalyptus mulch to retained trees for the duration of the development in accordance with Australian Standards® AS 4454- 2003 Compost, Soil Conditioners and Mulches.

Mulch should have at least 70% by mass of its particles, with a maximum size of greater than 16 mm and spread 50-75mm deep to the extent of the dripline, (never exceed 100mm depth). Mulch should not have contact with the tree trunk, apply 200mm from trunk and shaping a soil berm dish close to the root ball to facilitate establishment of watering.

Mulch across the surface of the TPZ is at the discretion of the arborist.

CORRECT MULCH METHOD

Protective Fencing Specification

Tree Protection Fencing must be installed to fully enclose the TPZ prior to demolition.

Fencing in accordance with AS4687 Temporary fencing. Existing boundary fences or walls shall constitute part of the TPZ where appropriate.

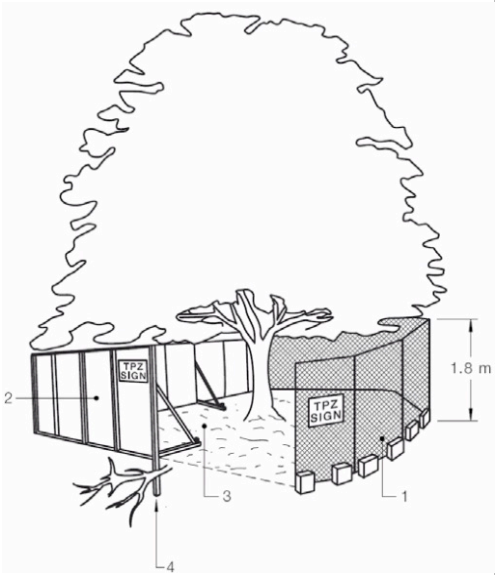
Fencing entails a 1.8-meter-high wire mesh fence, anchored with concrete.

Fencing on sloping or uneven ground will entail a 1-meter-high wire mesh fence anchored with star pickets, spaced at 2m intervals, and connected by a continuous high-visibility plastic mesh fence.

Shade cloth must be affixed to the fencing.

Tree protection fencing must not be removed or altered but may be relocated with permission from the Project Arborists to access the work site.

Signage attached to the fencing and reads 'Tree Protection Zone: No Access' in accordance with AS 1319-1994 – Safety Signage.



Tree Trunk and Branch Specification

Tree Trunk Protection is required if tree protection fencing would be impractical and block access to the work site.

The method requires a layer of padding, geotextile or similar fabric wrapped around the trees' trunk.

Followed by a layer of 1.8-metre-long timber planks measuring 50mm x 100mm aligned vertically and spaced with small gaps (100mm) evenly around the trunk. The timber planks are securely fastened against the trunk using suitable strapping, must not be nailed, or screwed into the trees.

Branch Protection requires adequate clearance of 250mm provided between the structure (hoarding/scaffolding), tree branches, limbs, and trunk.

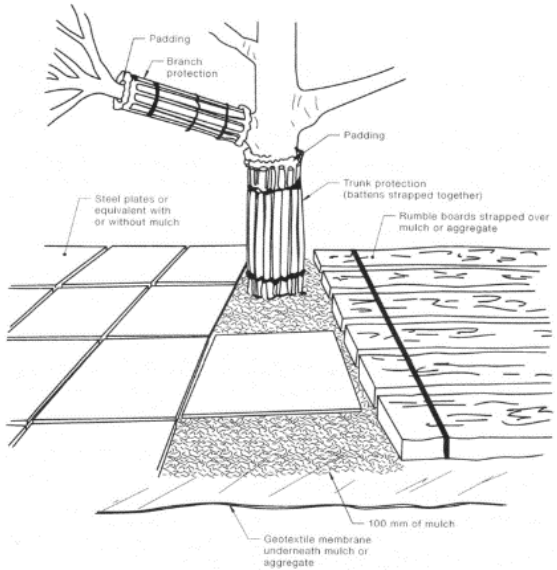
Tree trunks and or major branches located within 500mm of any hoarding or scaffolding must be protected by wrapped hessian or similar material to limit damage.

Ground / Root Protection Specification

Anticipate loads in the TPZ, to prevent root damage and soil compaction.

For foot traffic use a permeable membrane such as geotextile fabric beneath a layer of protective aggregate such as mulch or crushed rock (minimum depth of 75-100mm).

For loads over 3 tonnes use a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rocks (75-100mm) and a third layer of track mats (25mm thickness), steel plates or strapped rumble boards (120 x 65mm hardwood).



Scaffolding Specification / Canopy Protection

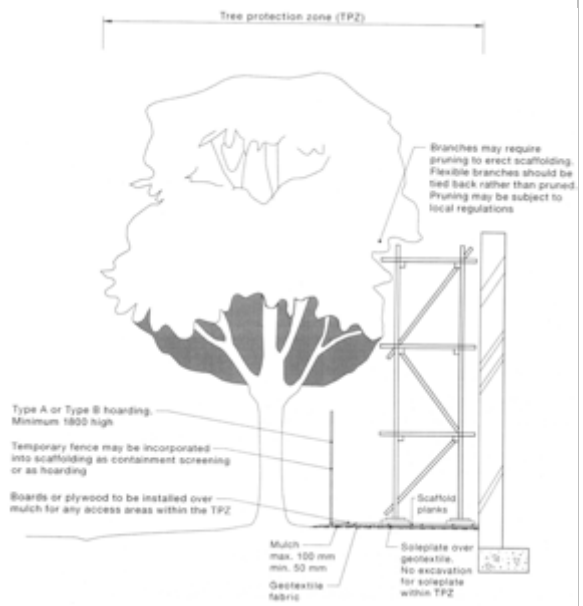
Type A hoarding may be installed directly adjacent to the tree trunk to a minimum height of 1.8m.

No branch is to be cut, broken, or removed without permission from AQF5.

Branches may require pruning to erect scaffolding.

Flexible branches may be gently pushed back and tied back rather than pruned.

Support post entering the TPZ must not cut roots greate
r than 20mm.



8. GLOSSARY

Aerial Inspection: Where a tree is climbed by an arborist to inspect upper stem and crown for signs or symptoms of defects and disease.
Branch collar: The ring of wood tissue which forms around the base of a branch (near the branch attachment).
Cavity: A void, initiated by a wound within the trunk, branches or roots. These voids are referred to as hollows.
Co-dominant: Stems or branches equal in size and relative importance.
Crown: All the parts of a tree arising above the trunk where it terminates by its division forming branches, e.g. the branches, leaves, flowers and fruit: or the total amount of foliage supported by branches.
Crown Lifting: The removal of the lower branches of the tree.
Dead wood: Refers to any whole limb that no longer contains living tissues
Decay: Process of degradation of woody tissues by fungi or bacteria through decomposition of cellulose and lignin.
Dieback: Tree deterioration where the branches and leaves die.
Drip line: Where the canopy releases water shed from the foliage during precipitation.
Epicormic Shoots: These shoots often have a weak point of attachment. Epicormic growth/shoots are generally a survival mechanism.
Inclusion: The pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet.
Maturity: Tree age, Assessed as over-mature (last 1/3 of life expectancy), mature (1/3 to 2/3 life expectancy) and semi mature (less than 1/3 life expectancy).
Resistograph® testing A Resistograph® is a specialised machine that measures timber density by drilling a 3mm diameter probe through the wood, simultaneously plotting the results on a graph at full scale.
Structural Integrity: Describes the internal supporting timber. (Substantial to frail)
Structural root zone (SRZ): Refers to the radial distance in metres, measured from the centre of the tree stem, which defines the critical area required to maintain stability of the tree.
Target: Are people, property, or activities that could be injured, damaged, or disrupted by a tree.
Tree Protection Zone (TPZ): Refers to the radius distance in metres, measured from the centre of the tree stem which defines the *tree protection zone* for a tree to be retained. This is generally the minimum distance from the centre of the tree trunk where protective fencing is to be installed to create an exclusion zone associated with construction works.
Vigour: Refers to the tree's health as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

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APPENDIXES

Appendix A Visual Tree Assessment (VTA)

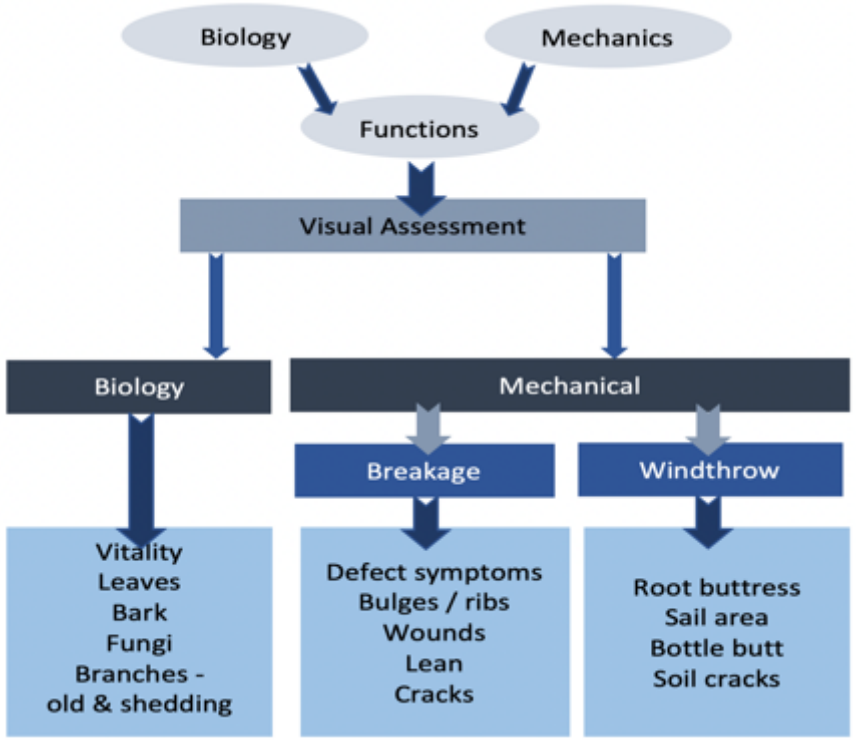

Diagram 1: VTA Chart by Claus Mattheck (1994) The Body Language of Trees, adapted.

Schedule 1: Categorises for VTA

VISUAL TREE DIAGNOSTICS **M**-Maturity: **J**-Juvenile; **IM**-Immature; **SM**-Semi-Mature; **M**-Mature	
Health & Vigour	**Condition of Tree**
	2 Good Condition
	3 Good Condition but poor development
	3b Moderate.
4 Dieback is more than 20%.	
4b Epicormics	
5 Sparse Foliage Crown	5b Unbalanced Canopy
	6 Physical Damage
7 Insect damage-foliage	
7b Borers	
8 Fungal Attack -pathogen	
	9 Cavity
10 Termite activity	10b Inclusions
	11 Lean
12b Dying	12 Heavily pruned
	13 Damage to roots
	13b Encroachment
14 Parasitic Vine Present	
15 Damage by Climbing Plant	
	16 Inclusions
17 Habitat Tree	
18 Endangered Species	

Appendix B Tree A-Z Categories

Schedule 2: Tree A-Z Categories Field Sheet (version 10.04-U8C)

Barrell (2019) Criteria for Assessing the importance of Trees on Development Sites.

TreeAZ Categories Field Sheet (Version 10.04-USC)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

A1	Trees that do not require any specific remedial works above those that would be required for normal maintenance.
A2	Trees with minor defects likely to recover from remedial works to be retainable in the long term, i.e. pollards with little decay.
A3	'Special' means unusual, rare or uncommon, i.e. a tree of some historical/cultural significance, etc.
A4	Trees can be a habitat that may be protected by legislation, which may be a material constraint on the type and timing of changes that can occur on a site. If an ecological assessment has not been carried out by the time of the survey, and the arborist suspects there may be habitat issues, the tree should be identified as A4, and specialist assessment should be sought.

Category Z1 – Z3: Unimportant trees not worthy of being a material constraint, due to size, proximity and species.

Category Z4 – Z6: Unimportant trees not worthy of being a material constraint, due to high risk of death or failure, declining health and structural defects.

Category Z7 & Z8: Unimportant trees not worthy of being a material constraint, due to unacceptable impacts to people.

Category Z9 – Z12: Unimportant trees not worthy of being a material constraint, due to responsible management of tree populations.

Category ZZ; Unsuitable for retention due to urgent risk, dead; irreversibly or, causing severe inconvenience to people or structural damage.

Heritage: A heritage tree is automatically categorized as AA.

Appendix C Tree Useful Life Expectancy – TULE

Schedule 2: Adapted from SULE with permission from Jeremy Barrell (2014) for TCAA consulting arborist.

	1 LONG TULE	2 MEDIUM TULE	3 SHORT TULE	4 REMOVE	5 MOVE OR REPLACE	6 SMALL, YOUNG OR REGULARLY CLIPPED
	Trees that appeared to be retainable for more than 40 years with an acceptable degree of risk, assuming reasonable maintenance. Or with low level of risk.	Trees that appeared to be retainable for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance. Or with low to medium level of risk.	Trees that appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance. Or with medium to high level of risk.	Trees which should be removed within the next 5 years. Or with high to very high level of risk.	No potential for retention. Trees which can be readily moved or replaced. Or with very high to extreme level of risk.	Trees that can be easily transplanted or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live for between 15 and 40 more years.	Trees that may only live for between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5 meters (m) in height.	Small trees less than 5 meters in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 1 5 years old but over 5m in height.	Young trees less than 15 years old but over 5 meters in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Dangerous trees through structural defects including cavities, decay, bark, wounds or poor form.	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain.	Dangerous trees through instability or recent loss of adjacent trees.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	High Toxicity Allegan trees, asthmatic and poisonous trees and must be removed immediately.	
F				Trees that may cause damage to existing structures within 5 years.	Dead, dying or declining trees diseased or inhospitable conditions.	
G				Trees that will become dangerous after removal of other trees for reasons given in A to F.	OTHER, with legitimate explanation	
INSPECTION FREQUENCY						
	Every 1-5 years by a competent inspector, or event monitored.	Every 1-5 years by a competent inspector, or event monitored.	Every 1-3 years by a competent inspector, or event monitored.	Ascertain timeframe up to 1 year. By a competent inspection, or event monitored.	Ascertain timeframe up to 7-12 days. By a competent inspection, or event monitored.	Bi-annually by a competent inspector.

Appendix D Landscape Significance Rating

Schedule 3: Criteria for Assessment of Landscape Significance. Morton, A (2006)

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state, or national level of significance or is listed on Council's Significant Tree Register.	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999.	The subject tree has a very large live crown size exceeding 300m^2 with normal to dense foliage cover, is in a visually prominent position in the landscape, exhibits very good form and habit typical of the species.
	The subject tree forms part of the curtilage of a Heritage Item (building/structure/artefact as defined under the LEP) and has a known or documented association with that item.	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter, or nesting tree for endangered or threatened fauna species.	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity.
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event.	The subject tree is a remnant tree, being a tree in existence prior to development of the area.	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
VERY HIGH	The tree has a strong historical association with heritage items (building/structure/artefact/garden etc..) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m^2, a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.
HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence.	The tree is a locally indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link/Wildlife Corridor or has known wildlife habitat value.	The subject tree has a large live crown size exceeding 100m^2; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g., crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.
MODERATE	The tree has no known or suspected historical association but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m^2; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc.) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties but is not visually prominent – the view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item.	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance, or position relative to building or other structures.	The subject tree has a small live crown size of less than 40m^2 and can be replaced within the short term (5-10 years) with new tree planting.
VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
INSIGNIFICANT	The tree is completely dead and has no visible habitat value.	The tree is a declared noxious weed under the Biosecurity Act 2015 (NSW) within the relevant Local Government Area.	The tree is completely dead and presents a potential hazard.

Appendix E Retention Value Rating

Schedule 4: Determining the Tree Retention Value. Morton, A (2011)

Evaluating Sustainability and Landscape Significance to Determine Retention Value.	
RETENTION VALUE	**CRITERIA AND CATEGORIES**
HIGH	These trees considered worthy of preservation. As such careful consideration should be given to their retention as a priority. Proposed site design and placement of buildings and infrastructure should consider the Tree Protection Zones as discussed in the following section to minimise any adverse impact. In addition to Tree Protection Zones, the extent of the canopy (canopy dripline) should also be considered, particularly in relation to a high-rise development. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
MODERATE	The retention of these trees is desirable. These trees should be retained as part of any proposed development if possible, however these trees are considered less critical for retention. If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
LOW	These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. These trees should not be considered as a constraint to the future development of the site.
VERY LOW	These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds. The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Appendix F Tree Planting Specifications

Tree planting specifications are in accordance with NATSPEC Specification for Trees, Ross Clark (2003) and Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use.

Before Planting

Don't plant trees too close to buildings, in-ground pools, avoid planting under power lines and over drainage pipes or near other large trees. A consider the effect on neighbouring properties (i.e. shade, loss of views, impact on foundations, fences and services). Plant deciduous trees if you want in summer shade and winter sun. Consider shadows cast from evergreen trees. Use locally native to attract native fauna and to reduce watering required.

Basic Tree Planting

Dig the hole at least twice as wide as the pot size. Loosen the soil at the sides of the hole. Fill hole with water and allow to drain away. Place the loosened root ball in the hole. Fill back soil. The top of the root ball should be level with the surrounding soil. Water the plant deeply after planting, once a week for the first two months.

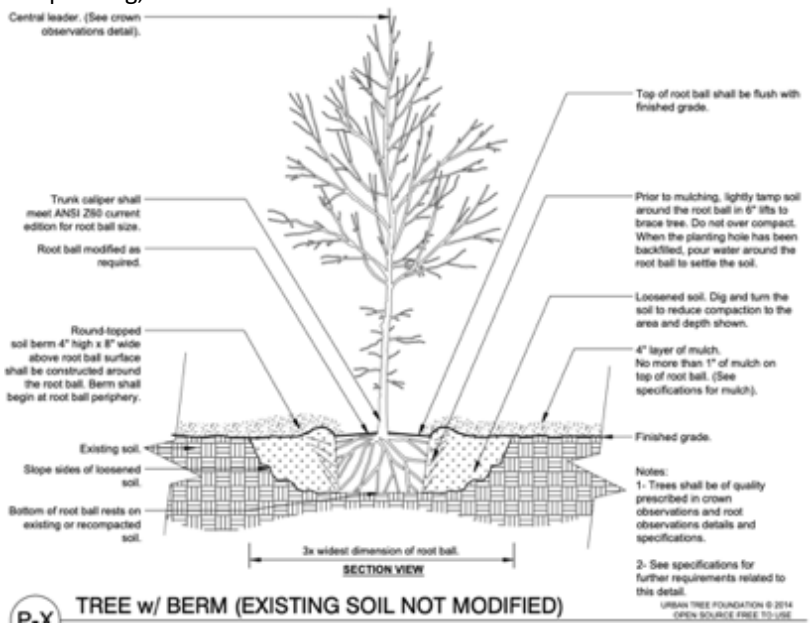

Diagram 2: *Urban J (2014) Tree Planting Specification diagram*

Watering Schedule a*dapted from Trees Impact: 2021*

		Watering Frequency		
Pot size	*Watering Amounts*	1-2 weeks	3-12 weeks	After 12 weeks
45L	3 to 6 Litres	Water daily	Water every 2-3 days	Weekly, until roots are established.
100L	5 to 8 Litres			

Water less in winter or after rain

Replenishment of Native Trees Species

Botanical Name	Common Name	Height at maturity (m)	Crown Spread at maturity (m)
Leptospermum petersonii	Lemon Scented Tea Tree	5-8	6-10
Tristaniopsis laurina	Water Gum	7-10	6-10
Corymbia ficifolia	Red-flowing Gum	7-10	3-6
Agonis flexuosa	Willow Maple	7-10	6-8
Melaleuca linariifolia	Snow in summer	8-12	8-10
Waterhousia floribunda	Weeping Lilly Pilly	8-12	5-8
Corymbia ficifolia	Red Flowering Gum	8-12	5-8
Syzygium leuhmannii	Riberry	8-12	5-8
Hymenosporum flavum	Native Frangipani	8-12	6-8
Acacia implexa	Lightwood	8-12	6-8
Elaeocarpus Eumundi	Eumundi Quandong	8-12	4-8
Tristaniopsis laurina	Water gum	9-12	6-10
Callistemon viminalis	Weeping Bottlebrush	10-14	8-10
Melaleuca linariifolia	Flax-leaved Paperbark	10-14	8-10
Corymbia exemia	Yellow Bloodwood	10-14	7-10
Cupaniopsis anacardioides	Tuckeroo	10-14	10-14
Eucalyptus cinerea	Argyle Apple	12-14	7-9
Callistemon salignus	Willow Bottlebrush	12-14	6-8
Eucalyptus cinerea	Argyle Apple	12-14	7-10
Elaeocarpus reticulatus	Blueberry Ash	15-18	8-12
Brachychiton populneus	Kurrajong Tree	15-18	12-15
Flindersia australis	Australian Teak	15-18	10-12
Backhousia citriodora	Lemon Scented Myrtle	18-20	6-8
Lophostemon confertus	Brush Box	20-22	16-20
Angophora costata	Smooth Bark Apple	20-22	10-12

Appendix G GPS of Tree Locations

ID	Latitude	Longitude
1	-33.962245	151.135928
2	-33.962193	151.135897
3	-33.962156	151.135901
4	-33.96216	151.135864
5	-33.962161	151.135867
6	-33.962163	151.13584
7	-33.962169	151.135827
8	-33.962082	151.135803
9	-33.962104	151.135789
10	-33.96209	151.135792
11	-33.962097	151.135764
12	-33.962036	151.135764
13	-33.961994	151.135745
14	-33.961993	151.135643
15	-33.961913	151.135655
16	-33.961789	151.135691
17	-33.961811	151.135675
18	-33.962254	151.136098
19	-33.962178	151.136143
20	-33.962059	151.136214
21	-33.962067	151.136216
22	-33.962065	151.13636
23	-33.962353	151.136181
24	-33.962408	151.136156
25	-33.96242	151.136184
26	-33.962425	151.136226
27	-33.962489	151.136625
28	-33.962291	151.1367
29	-33.962309	151.136717
30	-33.962318	151.136672
31	-33.962222	151.136756
32	-33.962238	151.136734
33	-33.962235	151.136735
34	-33.962205	151.136752
35	-33.962088	151.136765
36	-33.962076	151.136769
37	-33.962054	151.136761
38	-33.962032	151.136746
39	-33.962013	151.136742
40	-33.961982	151.136732
41	-33.961992	151.137023
42	-33.9616	151.135901
43	-33.961501	151.136038
44	-33.961494	151.136058
45	-33.961517	151.136059
46	-33.961535	151.136088
47	-33.961559	151.136076
48	-33.961567	151.136099
49	-33.961571	151.13612
50	-33.961579	151.136156
51	-33.961562	151.136173
52	-33.96155	151.136183
53	-33.96155	151.136261
54	-33.961557	151.136266
55	-33.961557	151.136311
56	-33.961539	151.136573
57	-33.961616	151.136669
58	-33.961614	151.136639
59	-33.96161	151.136649
60	-33.961605	151.136676
61	-33.96161	151.136683
62	-33.961635	151.136702
63	-33.961749	151.1372
64	-33.961797	151.13719
65	-33.96177	151.135402
66	-33.961663	151.137552
67	-33.961674	151.137551
68	-33.961683	151.137569
69	-33.9617	151.137578
70	-33.961732	151.137599
71	-33.961747	151.137597
72	-33.961767	151.137521
73	-33.961799	151.137524
74	-33.961823	151.137519
75	-33.961846	151.137511
76	-33.961867	151.137506
77	-33.961901	151.137511
78	-33.96193	151.137507
79	-33.961967	151.137495
80	-33.962012	151.137499
81	-33.962029	151.137403

DISCLAIMER

McArdle Arboricultural Consultancy Pty Ltd does not assume responsibility for liability associated with the tree on/or adjacent to this project site, the future demise and/or any damage which may result therefrom. They take care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

The address should inform the company if any of the data or information provided is incorrect or insufficient, which may impact the findings and proposals mentioned in the report.

McArdle Arboricultural Consultancy Pty Ltd cannot be held responsible for any consequences as result of work carried out outside specifications, not in compliance with Australian Standards ® or by inappropriately qualified staff. If further investigations such as, aerial, drill and root test are recommended, the report shall not be considered final until all investigations have been completed, as further defects may be found.

STATEMENT OF LIMITATIONS

McArdle Arboricultural Consultancy Pty Ltd makes every effort to accurately identify current tree health and hazards. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure. Not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure. All standing trees have an element of unpredictable risk.

The inspection was limited to a visual ground examination of the tree, without aerial inspections and below ground excavations. The assessments are limited and do not include specialised analysis. No internal diagnostics, aerial inspection and pathology test were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

Due to the variable nature of living organisms and the factors that can impact their health and wellbeing, the report will only be deemed valid for a period of five months from the date it was issued.

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