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## **Rouse Hill Hospital – SSD**

### **Biodiversity Development Assessment Report**

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Health Infrastructure NSW

## Document Tracking

Project Name:	Rouse Hill Hospital SSDA
Project Number:	24WOL9088
Project Manager:	Bronwyn Callaghan
Accredited Assessor Certification:	BAAS20019 S. 6.15(1) of the <i>Biodiversity Conservation Act 2016</i> states that: <i>(1) A biodiversity assessment report cannot be submitted in connection with a relevant application, unless—</i>  <i>(a) the accredited person certifies in the report that the report has been prepared on the basis of the requirements of, and information given under, the biodiversity assessment method as at a specified date (the certification date), and</i>  <i>(b) the report is submitted within 14 days after the certification date.</i>  This Biodiversity Development Assessment Report was prepared by Bronwyn Callaghan on the basis of the requirements of (and information provided under) the biodiversity assessment method (BAM 2020). The BAM calculations or outputs from the calculator (BAM-C) pertaining to the development application were finalised on 27/10/2025 and this BDAR was completed on 27/10/2025 .  No actual, perceived, or potential conflict of interest exists between it or between any one or more of the author’s employees, consultants or agents and the project client, or is likely to arise in relation to the report that is submitted for this project.
Signature of Assessor:	 Date: 27/10/2025

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## Abbreviations

Abbreviation	Description
AOBV	Areas of Outstanding Biodiversity Value
ASL	Above Sea Level
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Credit Calculator
BAAS	Biodiversity Accredited Assessor System
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CPW	Cumberland Plain Woodland
DA	Development Application
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plan
DNG	Derived Native Grassland
DPIE	(former) NSW Department of Planning, Industry and Environment (now NSW DCCEEW)
DPHI	NSW Department of Planning, Housing and Infrastructure
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	NSW <i>Fisheries Management Act 1994</i>
GIS	Geographic Information System
GPS	Global Positioning System
ha	hectare
HI	Health Infrastructure (NSW)
HTW	High Threat Weed
IBRA	Interim Biogeographic Regionalisation for Australia
LEP	Local Environmental Plan
LGA	Local Government Area
LLS Act	NSW <i>Local Land Service Amendment Act 2016</i>
mm / cm / m	millimetres / centimetres / metres
MNES	Matter of National Environmental Significance
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
PCT	Plant Community Type
PMST	Protected Matters Search Tool
REF	Review of Environmental Factors
SEARs	Secretary's Environmental Assessment Requirements
SEC	Sediment and Erosion Control
SEPP	State Environmental Planning Policy
SSD	State Significant Development
SSDA	State Significant Development Application
TBDC	Threatened Biodiversity Data Collection

Abbreviation	Description
TEC	Threatened Ecological Community
VI	Vegetation Integrity
WM Act	NSW <i>Water Management Act 2000</i>

## Executive Summary

Eco Logical Australia Pty Ltd (ELA) was engaged by Health Infrastructure NSW (HI) to prepare a Biodiversity Development Assessment Report (BDAR) as a part of a State Significant Development Application (SSDA) for the construction and operation of a new hospital campus at the corner of Commercial Road and Windsor Road, Rouse Hill (Lots 311-312 DP1274392, part of Lot 229 DP 1249147, Lot 2011 DP 1131519 and Lot 101 DP1060353; the 'subject land'), within The Hills Local Government Area (LGA). This BDAR has been prepared consistent with the Biodiversity Assessment Method (BAM) 2020, under the NSW *Biodiversity Conservation Act 2016* (BC Act).

This BDAR assesses the proposed State Significant Development (SSD), which will comprise the following works:

- site preparation including earthworks and tree removal
- construction of internal roads with access from Commercial Road
- incoming electrical and communications services
- construction of hospital buildings up to eleven storeys
- construction of a ten storey above-ground car park
- pedestrian and cycle pathway connections
- landscaping
- ancillary works to Commercial Road, comprising:
  - minor works (including realignment of existing median strip, kerb and gutter, footpath and lane marking) to provide access from Commercial Road into Hospital Road; and
  - associated tree removal along Commercial Road.

The subject land is approximately 3.05 ha and is bordered by Commercial Road to the north and Windsor Road to the west, with cleared vacant land to the east and south. The majority of the subject land has been cleared of vegetation and excavation and earthworks have commenced as a part of the early site works for the new hospital. This was assessed under a previous Review of Environmental Factors (REF). Prior to the application of early works, the subject land was a highly modified vacant site with minimal native vegetation, having been previously used as a golf course. The subject land is located within a broader disturbed landscape, which includes a commercial and retail centre, major road infrastructure and residential developments.

This BDAR has been undertaken using the Streamlined Assessment Module – Small Area, as the total area of native vegetation proposed to be affected is under the relevant area clearing limit threshold of 1 hectare (ha). The Streamlined Assessment Module – Planted Native Vegetation, has also been applied within this BDAR as the proposal only affects vegetation that was assessed and mapped as planted native vegetation.

Following field survey, it was confirmed that the remaining vegetation within the subject land, which will be retained, comprises isolated individual planted native street trees, patches of planted native vegetation, along with exotic dominated, regularly mown grass. A narrow patch of native vegetation plantings occur along, but just outside, the north west boundary. These were found to be consistent with one native plant community type (PCT): PCT 3320 – Cumberland Shale Plains Woodland. However, this PCT patch will not be affected by the proposed SSD. As there are no PCTs, there are no threatened ecological communities present within the subject land.

No threatened species were detected during the field surveys. Under the Planted Native Vegetation Streamlined Assessment Module, the suitability of the planted native vegetation for use by threatened species must be assessed. Targeted surveys for threatened flora species were conducted for five species which the planted native vegetation provided potential habitat for: *Eucalyptus benthamii* (Camden white gum), *Grevillea juniperina* subsp. *juniperina* (juniper-leaved grevillea), *Micromyrtus minutiflora*, *Pimelea spicata* (spiked rice-flower) and *Pultenaea parviflora*. No threatened flora species were detected during the targeted surveys undertaken within and adjacent to the subject land.

Better quality vegetation and habitat would be retained along the northern and western edges of the subject land, where relatively mature revegetation plantings of native plant species have resulted in a community that is consistent with PCT 3320. After efforts to avoid or minimise impacts, residual impacts on biodiversity and habitats are minimal and include:

- removal of 0.04 ha of planted native vegetation
- removal of 0.04 ha of exotic dominated grassland.

Potential prescribed biodiversity impacts were assessed and, for the proposed SSD, the following were found to be relevant and have been avoided where possible, with the adoption of mitigation measures to minimise any remaining impacts:

- removal of non-native vegetation
- habitat connectivity
- water bodies, water quality and hydrological processes
- increase in vehicle strikes which may potentially affect native fauna.

Measures to minimise or mitigate impacts on biodiversity would include:

- pre-clearance surveys
- clearing protocols including staged felling of trees and removal of buildings and attendance by ecologists, where required
- timing works to avoid critical life cycle events
- sediment barriers to control water quality.

One matter of national environmental significance (MNES) was considered likely to occur within the development site: *Pteropus poliocephalus* (grey-headed flying fox). Application of the relevant EPBC Act significant impact criteria concluded that a significant impact, as a result of the proposed SSD, to this species was unlikely.

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## 1. Introduction

This Biodiversity Development Assessment Report (BDAR) has been prepared by Bronwyn Callaghan, an Accredited Person (BAAS20019) to apply the Biodiversity Assessment Method (BAM) under the NSW *Biodiversity Conservation Act 2016* (BC Act), with support from Kara Tuck. All credit calculations have been undertaken using the BAM Calculator (BAMC) version 1.5, with BAM data last updated 28/10/2024 (version 80), in case number 00051351/BAAS20019/25/00059096 using the Streamlined Assessment Module – Small Area. The report was reviewed by Meredith Henderson, a BAM Accredited Person (BAAS17001).

This BDAR has been prepared to support a State Significant Development Application (SSDA) being prepared by Health Infrastructure NSW (SSD-96248991) for the construction and operation of a new hospital campus at the corner of Commercial Road and Windsor Road, Rouse Hill, NSW 2155. This BDAR satisfies item 11 of the Secretary’s Environmental Assessment Requirements (SEARs), issued for the SSDA on 16 October 2025, as outlined in Table 1.

**Table 1: Secretary’s Environmental Assessment Requirements (SEARs) item 11 biodiversity requirements**

SEARS item 11	Response
Assess any biodiversity impacts associated with the development in accordance with the <i>Biodiversity Conservation Act 2016</i> and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the development is on biodiversity certified land.	Existing biodiversity values of the study area are described in Sections 4 and 5. Methods for avoiding and minimising biodiversity impacts are outlined in Section 6. Biodiversity impacts associated with the development and mitigation measures are assessed in Section 7, and summarised in Section 8.
If the development is on biodiversity certified land, provide information to identify the site (using associated mapping) and demonstrate the proposed development is consistent with the relevant biodiversity measure conferred by the biodiversity certification.	Not applicable. The proposed development is not on biodiversity certified land.

This BDAR has been prepared following the requirement of the ‘Streamlined assessment module – small area’ of the BAM (DPIE 2020a), as the proposal does not exceed the area clearing threshold for small area developments as outlined in Section 2 of this report.

Definitions of terminology used throughout this report are presented in Appendix A. However, the following definitions will be used throughout the BDAR:

- **Subject land** is the area of land subject to the SSDA. This comprises:
  - the hospital site boundary (Lots 311-312 DP1274392)
  - footpath connection (part of Lot 229 DP 1249147)
  - construction compounds (part of Lot 229 DP 1249147)
  - works to Commercial Road (parts of Lot 2011 DP 1131519 and Lot 101 DP1060353).
- **Development footprint** is the area of land within the subject land that will be affected to facilitate the development. It is noted that this excludes the majority of the subject land as this has been previously assessed through a separate BDAR, which formed a part of a Review of Environmental Factors (REF) for early works associated with this project (ELA 2025).

## 1.1. General description of the subject land

The subject land occurs on Dharug Country and is located approximately 35 km northwest of the Sydney Central Business District, in the suburb of Rouse Hill in The Hills Shire Local Government Area (LGA). The subject land is located on the corner of Commercial Road and Windsor Road, Rouse Hill, and comprises the following properties:

- Lots 311-312 DP 1274392, owned by Health Administration Corporation
- part of Lot 229 DP 1249147, owned by Department of Planning, Housing and Infrastructure
- parts of Lot 2011 DP 1131519 and Lot 101 DP 1060353.

The subject land is approximately 3.05 hectares (ha) and is bordered by Commercial Road to the north and Windsor Road to the west, with cleared vacant land to the east and south (Figure 1). The subject land is zoned MU1 Mixed Use under The Hills Local Environmental Plan (LEP) 2019. The adjacent land to the east and south of the site are likewise zoned as MU1 Mixed Use. The majority of the subject land has been cleared of vegetation, and excavation and earthworks have commenced as a part of the early site works for the new hospital. These early works were assessed under a previous Review of Environmental Factors (REF).

Prior to application of the Rouse Hill Hospital early works, the majority of the subject land was a cleared and unoccupied site, which was regularly maintained through mowing, having previously been used as a golf course. Following application of the early works, the subject land now contains minimal vegetation around the boundary, which is composed of planted native vegetation, and exotic dominated grassland.

This report includes two base maps, the Location Map (Figure 1) and the Site Map (Figure 2).

## 1.2. Brief description of the proposal

This BDAR assesses the works associated with the construction and operation of the new Rouse Hill hospital campus, which will complement existing hospitals in the region to deliver comprehensive health care throughout the growing north west suburbs of Sydney. This development will include:

- an emergency department and primary access clinic
- comprehensive birthing services including birthing rooms and a maternity inpatient unit
- inpatient beds and day surgery services
- short stay medical assessment services
- pathology, pharmacy, and medical imaging services
- outpatient and ambulatory care services including paediatrics and renal dialysis and antenatal and postnatal services
- virtual care and hospital in the home services
- prehabilitation, rehabilitation and lifestyle medicine
- administration, staff support, loading dock and back-of-house services
- ancillary commercial uses to support the hospital, including retail.

The proposed State Significant Development (SSD) will comprise the following works:

- site preparation including earthworks and tree removal

- construction of internal roads with connection to Commercial Road
- incoming electrical and communications services
- construction of hospital buildings up to eleven storeys
- construction of a ten storey above-ground car park
- pedestrian and cycle pathway connections
- landscaping
- ancillary works to Commercial Road, comprising:
  - minor works (including realignment of existing median strip, kerb and gutter, footpath and lane marking) to provide access from Commercial Road into Hospital Road; and
  - associated tree removal along Commercial Road.

The proposed site plan is provided in Figure 3.

### 1.3. Development site footprint

The proposal includes development of the majority of the subject land (Figure 4). However, the majority of the subject land was subject to a REF for early works associated with the Rouse Hill Hospital development, and following approval will no longer have any vegetation or structures present. This is delineated on all maps in this BDAR as “early works area assessed under REF”, and is not assessed under this BDAR. The remaining area of the subject land is the development footprint for the purpose of this BDAR. The development footprint consists of existing roads, footpaths, and road-side vegetation. This vegetation is composed of isolated street trees above mown grass and paved areas, and small patches of native vegetation plantings, which tend to be denser and have greater structural diversity. Many of the trees within the development footprint will be retained and protected, as detailed in the Draft Arboricultural Impact Assessment (AIA) completed by Creative Planning Solutions in August 2025 (CPS 2025). These retained trees, therefore, have not been included in the vegetation impact footprint. This delineation is shown in Figure 4. In total, eight trees will be removed:

- four *Corymbia maculata* (spotted gum)
- three *Acacia decurrens* (black wattle)
- one *Casuarina glauca* (swamp oak).

### 1.4. Sources of information used

The following literature and data sources were reviewed as part of this report:

- Biodiversity Assessment Method (BAM) 2020 (DPIE 2020a)
- NSW Planning Portal Spatial Viewer (NSW Government 2025g)
- NSW Biodiversity Values Map (NSW Government 2025b)
- NSW State Vegetation Type Map (SVTM) (NSW Government 2025h)
- BioNet Vegetation Classification System (NSW Government 2025d)
- BioNet Atlas of NSW Wildlife (NSW Government 2025c)
- Protected Matters Search Tool (PMST) database search (5 km radius) for threatened and migratory species, populations and Threatened Ecological Communities (TEC) listed as Matters

of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2025b)

- Biodiversity Assessment Methodology Calculator (BAMC) version 1.5, with BAM data last updated 28/10/2024 (version 80) (NSW Government 2025a)
- Threatened species profiles, final determinations, listing advice, conservation advice and recovery plans (NSW Government 2025j, DCCEEW 2025c)
- National Flying-fox Monitoring data (DCCEEW 2025a)
- Additional Geographic Information System (GIS) datasets including soil, topography, geology and drainage
- Arboricultural Impact Assessment for Rouse Hill Hospital – Rouse Hill Hospital – Main Works, Commercial Road & Windsor Road, Rouse Hill NSW 2155, prepared by Creative Planning Solutions (CPS), Project No: H357. DRAFT Date: 22 August 2025.

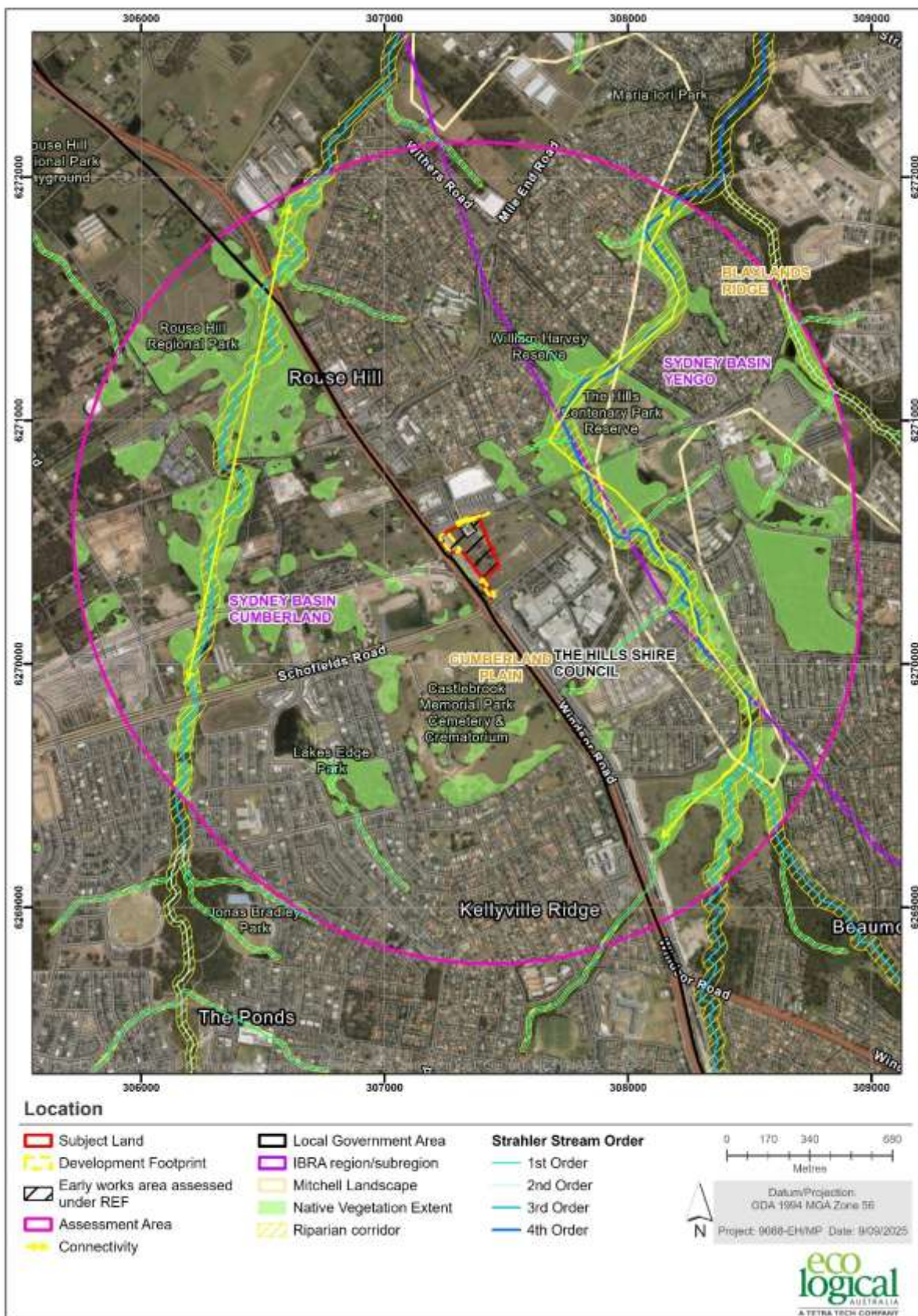


Figure 1: Location Map



Figure 2: Site Map



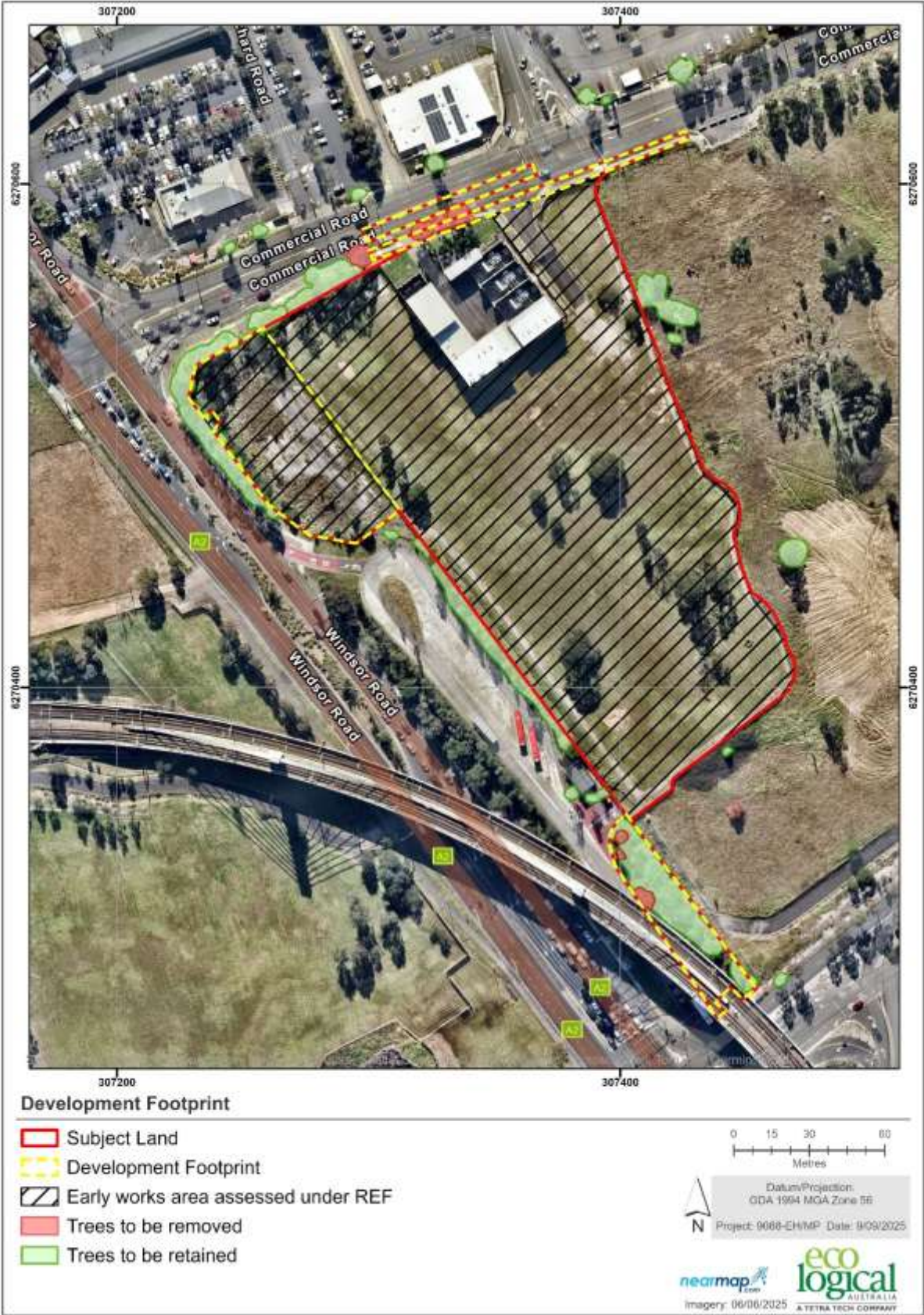


Figure 4: Proposed development footprint and vegetation impact footprint (trees to be removed)

## 1.5. Legislative context

Legislation relevant to the development site is outlined in Table 2.

Table 2: Legislative context

Name	Relevance to the project	Report Section
<b>Commonwealth</b>		
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Matters of National Environmental Significance (MNES) have been identified on or near the subject land. This report assesses impacts to MNES and concludes that the development is not likely to have a significant impact on MNES.	Chapter 9
<b>State</b>		
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals. The EP&A Act places a duty on the consent authority to adequately address a range of environmental matters including maintenance of biodiversity and the likely impact to threatened species, populations or ecological communities (under the BC Act– refer below).  The proposed development of the new Rouse Hill Hospital is a State Significant Development (SSD), to be assessed under Part 4 of the EP&A Act, with the Minister for Planning (Department of Planning, Housing and Infrastructure (DPHI)) as the consent authority.	Whole report
<i>Biodiversity Conservation Act 2016</i> (BC Act)	The BC Act establishes a framework for assessing and offsetting biodiversity impacts from proposed developments, including the Biodiversity Offsets Scheme (BOS). The BOS applies to a range of developments, land clearing and activities that meet certain thresholds, including all state significant development (SSD) and state significant infrastructure (SSI) projects. As an SSD, the Rouse Hill Hospital development is subject to the BOS and, as per Item 11 of the Secretary’s Environmental Assessment Requirements (SEARs) issued for this project, must:  “Assess any biodiversity impacts associated with the development in accordance with the Biodiversity Conservation Act 2016 and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report (BDAR)”.	Whole report
<i>Local Land Services Amendment Act 2016</i> (LLS Act)	The LLS Act repealed the <i>Native Vegetation Act 2003</i> and amended the LLS Act 2013 to deal with native vegetation land management in rural areas. The LLS Act does not apply to areas of the state to which the Chapter 2 of the Biodiversity and Conservation SEPP applies (see below). Chapter 2 of the Biodiversity and Conservation SEPP applies to land zoned RU5, R2, R5, C2, C3, SP2 and RE1. Therefore, the LLS Act does not apply to the land proposed for development.	N/A
<i>Fisheries Management Act 1994</i> (FM Act)	A permit under ss 201, 205 or 219 of the the FM Act is not required for SSD.	N/A
<i>Water Management Act 2000</i> (WM Act)	The object of the WM Act is the sustainable and integrated management of the state's water for the benefit of both present and future generations. To achieve this, the Act provides for the identification, mapping and regulation of waterfront land as a controlled activity. The project does not involve works within waterfront land, and a s91 Controlled Activity Approval (CAA) is not required for SSD.	N/A
<b>Environmental Planning Instruments</b>		
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The Biodiversity and Conservation SEPP consolidates the following SEPPs: <ul style="list-style-type: none"> <li>• The Vegetation in Non-Rural Areas SEPP 2017 (now chapter 2)</li> <li>• Koala Habitat Protection SEPP 2021 (now chapter 4).</li> </ul> <u>Chapter 2</u> of the Biodiversity and Conservation SEPP aims to protect the biodiversity values of trees and other vegetation in non-rural areas of the State,	N/A

Name	Relevance to the project	Report Section
(Biodiversity and Conservation SEPP)	<p>and to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation. The provisions of this SEPP have been included in the Biodiversity and Conservation SEPP in Chapter 2, which applies to development that does not require consent. As this project requires consent by the Minister for Planning (Department of Planning, Housing and Infrastructure) under the EP&amp;A Act, this chapter of the Biodiversity and Conservation SEPP is not relevant to the proposal.</p> <p><u>Chapter 4</u> of the Biodiversity and Conservation SEPP outlines the framework for ensuring the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. The Hills Local Government Area (LGA) is not in the list of lands to which the Koala Habitat Protection applies. This chapter of the SEPP is not considered further.</p>	
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)	This SEPP consolidates several SEPPs including the State Environmental Planning Policy (Coastal Management) 2018, known as the Coastal Management SEPP. Chapter 2 of the Resilience and Hazards SEPP covers how development proposals are assessed if they are in a coastal zone and is supported by detailed mapping. Land mapped under this SEPP as 'Coastal Wetlands and Littoral Rainforest' is found to the northeast of the subject land but does not intersect it. Therefore, this SEPP does not apply to the subject land.	N/A
The Hills Local Environmental Plan 2019 (The Hills LEP)	<p>The subject land is currently zoned MU1 Mixed Use (Lots 311 and 312 DP1274392) under The Hills LEP.</p> <p>Clause 7.4 of the Hills LEP provides controls for matters related to Terrestrial Biodiversity. However, the subject land is not mapped on the terrestrial biodiversity layer.</p>	N/A
The Hills Development Control Plan 2012 (The Hills DCP)	The Hills DCP contains Part D Section 6 Rouse Hill Regional Centre which is relevant to the proposed SSD as it contains site specific controls.	Whole report

## 2. Streamlined assessment modules

This BDAR has been prepared using the following two streamlined assessment modules provided in the BAM 2020:

1. Small Area
2. Planted Native Vegetation.

### 2.1. Small Area (Appendix C of BAM 2020)

Section 2.2 of the BAM (DPIE 2020a) provides for streamlined assessment modules which include specific requirements to assess the impacts on biodiversity values for the purpose of preparing a BDAR. Appendix C of the BAM sets out the circumstances in which the small area streamlined assessment can be used to assess a proposal. The requirements for the use of the streamlined assessment module – small area are:

- must only be used according to the area clearing threshold – compliance with this is shown in Table 3
- must still apply the hierarchy of avoiding and minimising impacts on biodiversity before considering offsetting residual impacts – this is addressed in Section 6
- may be used to assess the biodiversity values of land that is located within an area on the Biodiversity Values (BV) Map, except where the biodiversity value included on the BV Map is core koala habitat identified in a plan of management under Chapter 4 of SEPP (Biodiversity and Conservation) 2021 – Koala Habitat Protection 2021. No part of the development footprint is included on the BV Map. Therefore, the small area streamlined assessment can be applied to the proposed SSD with regard to this requirement.

The streamlined assessment module can be applied where the area clearing limits are under a certain threshold, outlined below in Table 3. The minimum lot size for the subject land is 600m<sup>2</sup>, which corresponds to the clearing threshold of 1 ha. As the area of native vegetation that will be cleared as a part of the proposed SSD is less than 1 ha (see Sections 4 and 7), the streamlined ‘small area’ assessment has been applied to this BDAR in accordance with Appendix C of the BAM 2020.

**Table 3: Area clearing limits for application of the small area development module**

Minimum lot size associated with the property *	Maximum area clearing limit for application of the small area development module
Less than 1 ha	≤1 ha
Less than 40 ha but not less than 1 ha	≤2 ha
Less than 1000 ha but not less than 40 ha	≤3 ha
1000 ha or more	≤5 ha

\*shown in the lot size maps made under the relevant local environmental plan (LEP), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

### 2.2. Planted Native Vegetation (Appendix D of BAM 2020)

Direct impacts within the development footprint will occur to vegetation that has been mapped and assessed as planted native vegetation. Therefore, this BDAR has been prepared using the streamlined assessment module for the planted native vegetation, consistent with Appendix D of BAM 2020. This

appendix contains a decision-making key which provides a framework for the assessment of planted native vegetation.

There were several patches of vegetation within the subject land where it is obvious the native species present had been planted in the past for amenity purposes and are not indicative of remnant native vegetation (Figure 8). Floristically these patches are highly variable, with the only common feature being that it is clear they have been planted at some stage as can be seen from historical imagery (Figure 5, Figure 6 and Figure 7), and the combinations of species do not allow for allocation to any appropriate PCT.

Isolated individual *Corymbia maculata* (spotted gum) trees are planted between the footpath and Commercial Road (Plate 1). Underneath these evenly spaced street trees is cement footpath, bare ground and mown grass, which is dominated by exotic grasses and weeds such as *Cenchrus clandestinus* (kikuyu grass), *Eragrostis curvula* (African lovegrass), *Hypochaeris radicata* (catsear) and *Plantago lanceolata* (lamb's tongues).

The patches on the south western edge of the subject land were dominated by *Casuarina glauca* (swamp she-oak), along with a mixture of commonly planted Acacias and Melaleucas, including *Acacia decurrens* (black wattle), *A. parramattensis* (Parramatta wattle), *A. saligna* (Golden Wreath Wattle), *Melaleuca decora*, *M. quinquenervia* (broad-leaved paperbark), and *M. styphelioides* (prickly-leaved tea tree) (Plate 2). *Acacia saligna* is a Western Australian species, which has become naturalised along parts of the coast and southern inland areas of NSW (Royal Botanic Gardens and Domain Trust 2025). While *Casuarina glauca* (swamp she-oak) is native to the Sydney region, it naturally occurs in brackish situations along coastal streams, within floodplain forest. The subject land does not occur on, or near any coast streams which would be considered brackish. Further, it is a popular tree species used extensively for landscape plantings, in particular along roads, and is listed on the widely cultivated native species list provided on the BAMC homepage (NSW Government 2025a).

The understorey of the south-western patches was dense and almost entirely composed of exotic grass and weed species, including mid-storey species such as *Araujia sericifera* (moth vine), *Lantana camara* (lantana), *Ricinus communis* (castor oil plant), *Senna pendula*, and *Solanum sisymbriifolium*. The ground layer was dominated by *Cenchrus clandestinus* (kikuyu grass), *Stenotaphrum secundatum* (buffalo grass), *Megathyrsus maximus* (Guinea grass), *Paspalum dilatatum* (paspalum), along with *Bromus catharticus* (prairie grass), *Cenchrus setaceus* (fountain grass), *Chloris gayana* (Rhode's grass), *Ehrharta erecta* (panic veldtgrass), *Setaria parviflora* (pigeon grass), *Sida rhombifolia* (Paddy's lucern) and *Verbena bonariensis* (purpletop). Two native ground layer species, *Lomandra hystrix* and *L. longifolia* (spiny-headed mat-rush), were common and provided a moderate cover in some places, having been planted in long rows along the edges of the planted native vegetation patches (Plate 3). The natural distribution of *L. hystrix* is north from Taree (Royal Botanic Gardens and Domain Trust, Sydney, 2025) and is not native to the Sydney basin bioregion, but is commonly planted in landscape plantings in this region as it is easily confused with *L. longifolia*. *L. longifolia* is listed on the widely cultivated native species list provided on the BAMC homepage (NSW Government 2025a).

Based on the above description and application of the BAM decision tool for planted native vegetation (Table 4), these patches were determined to be planted, and not remnant native vegetation.

**Table 4: Decision tool for Planted Native Vegetation consistent with Appendix D of BAM 2020**

Question	Response and justification
1. Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be	<b>No</b> – the planted vegetation does not occur in a mosaic of planted and remnant vegetation. Most patches of planted

Question	Response and justification
<p>reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?</p> <p>i Yes – the planted native vegetation must be allocated to the best-fit PCT and the BAM must be applied.</p> <p>ii <b>No – Go to 2.</b></p>	<p>native vegetation are isolated and significantly separated from any remnant native vegetation.</p> <p>The combination of planted native trees present in the subject land are not consistent with any of the PCTs found within the subject land and local area, and did not allow for assignment to any other PCT known to occur in this IBRA subregion. Some of the dominant tree species, whilst native to NSW, are not endemic to this IBRA subregion.</p>
<p>2. Is the planted native vegetation:</p> <p>a. Planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and</p> <p>b. The primary objective was to replace or regenerate a plant community type of a threatened plant species or its habitat?</p> <p>i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM</p> <p>ii <b>No – Go to 3.</b></p>	<p><b>No</b> – the tree and shrub species present are commonly used for landscaping or as screening along roads and property boundaries and in combination are not representative of a PCT or TEC, therefore it is unlikely that they were planted or translocated for any of the purposes listed.</p>
<p>3. Is the planted / translocated native vegetation individuals of a threatened species or other native species planted/ translocated for the purpose of providing threatened species habitat under one of the following:</p> <p>a. A species recovery project</p> <p>b. Saving our Species project</p> <p>c. Other types of government funded restoration project</p> <p>d. Condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat</p> <p>e. Legal obligation as part of a condition of ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act)</p> <p>f. Ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or</p> <p>g. Approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?</p> <p>i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM</p> <p>ii <b>No – Go to 4.</b></p>	<p><b>No</b> – the tree and shrub species present are commonly used for landscaping or as screening along roads and property boundaries and in combination are not representative of a PCT or TEC, therefore it is unlikely that they were planted or translocated for any of the purposes listed.</p>
<p>4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration within a legal obligation to secure or provide for management of the native vegetation?</p> <p>i. Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</p> <p>ii. <b>No – Go to 5.</b></p>	<p><b>No</b>, the planted native vegetation was not undertaken as part of any conservation or rehabilitation projects or to satisfy a legal obligation.</p>
<p>5. Is the planted native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as; windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?</p>	<p><b>Yes</b>, the planted native vegetation was established for landscaping for specific purposes, including street trees, screening or aesthetic purposes.</p>

Question	Response and justification
<ul style="list-style-type: none"> <li>i. <b>Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</b></li> <li>ii. No – Go to 6.</li> </ul>	
<p>6. Is the planted native vegetation a species listed as a widely cultivated native species on a list approved by the Secretary of the Department (or an officer authorised by the Secretary)?</p> <ul style="list-style-type: none"> <li>i. <b>Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</b></li> <li>ii. No – There may be other types of occurrences of planted native vegetation that do not easily fit into the decision-making key above.</li> </ul>	<p>Yes, the dominant tree species found in the patches of planted native vegetation, <i>Casuarina glauca</i> (swamp oak), is listed on the widely cultivated native species list (NSW Government 2025a). In addition, the dominant ground layer species, <i>Lomandra longifolia</i>, is also listed on the widely cultivated native species list</p>



Plate 1: Planted native *Corymbia maculata* trees along Commercial Rd in the north of the subject land



Plate 2: Planted native vegetation on the western edge of the subject land



Plate 3: Row of *Lomandra longifolia* and *L. hystrix* at edge of planted native vegetation on the western edge of the subject land

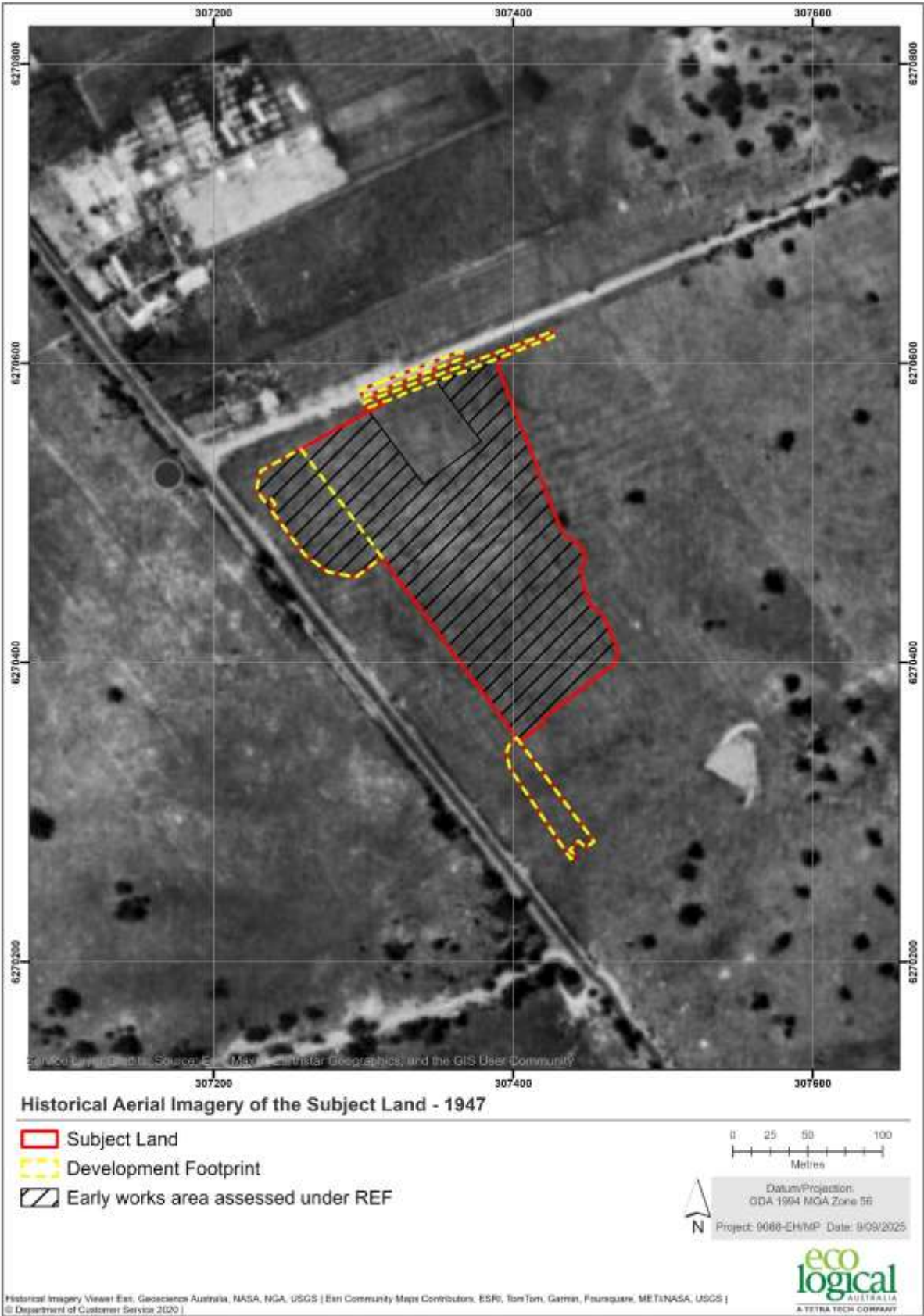


Figure 5: Historical imagery of subject land – 1947

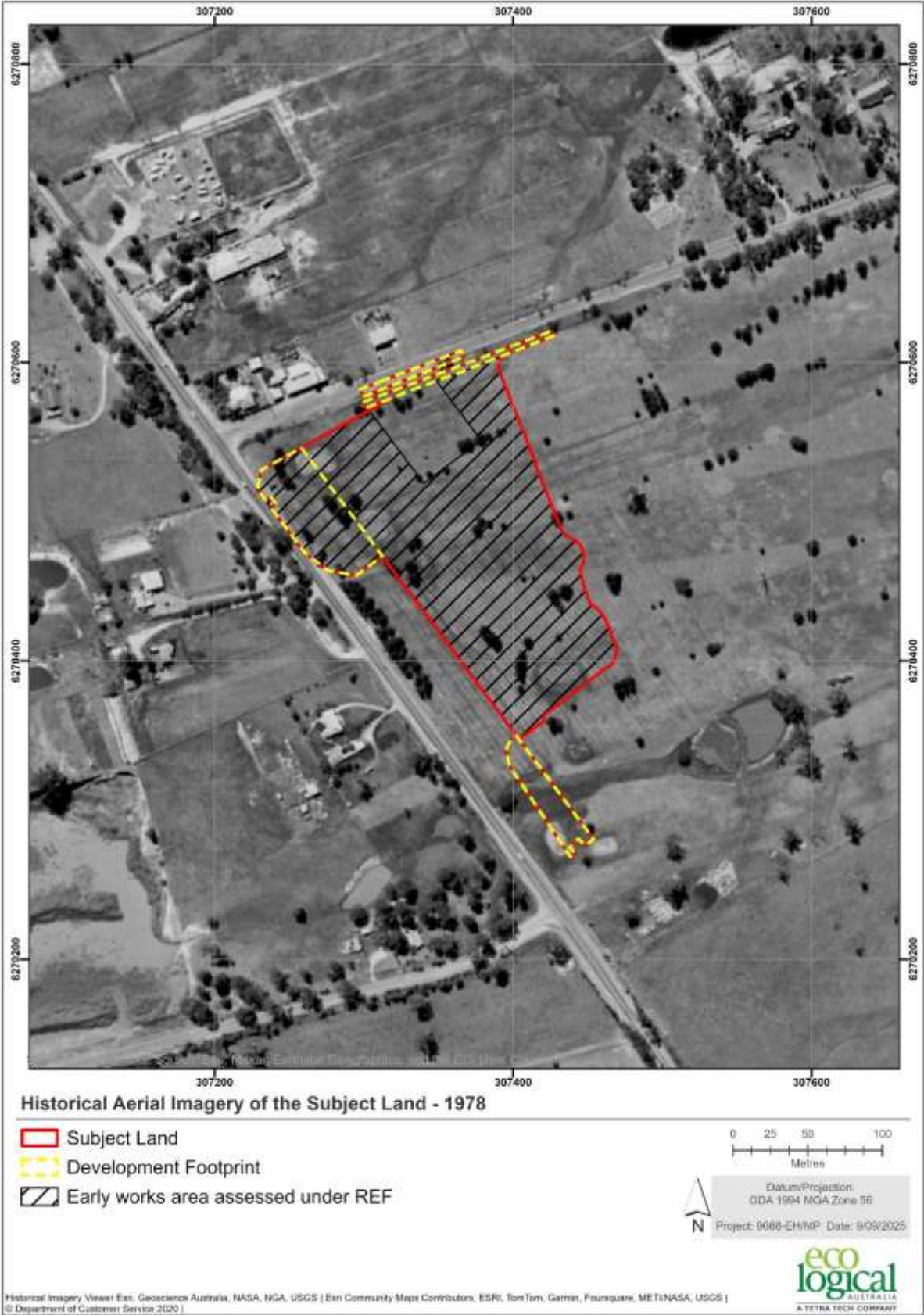


Figure 6: Historical imagery of subject land – 1978, showing use of subject land as a golf course

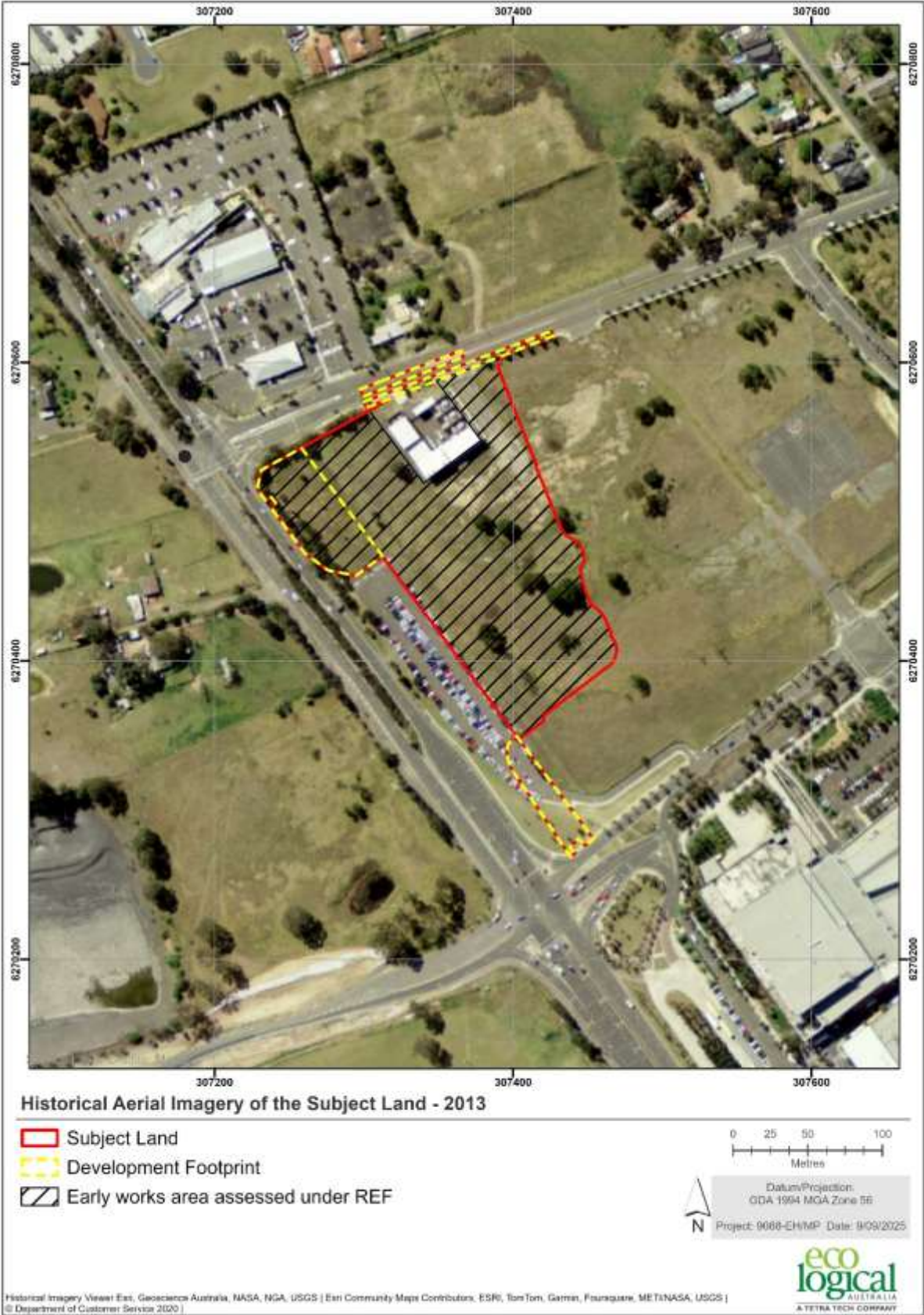


Figure 7: Historical imagery of subject land – 2013

### 3. Landscape features

The majority of the subject land, which will be cleared of vegetation as a part of the early works associated with the development of Rouse Hill Hospital, as assessed under the REF (see ELA 2025 for biodiversity component (BDAR) of REF), has been highly disturbed due to past clearing and historical use as a golf course (Figure 5 and Figure 6). The remaining vegetation within the subject land is exotic dominated grassland, with patches of planted native vegetation, small areas of which are developing characteristics of a native vegetation community. This is reflective of the history of anthropogenic disturbance and modification within the subject land and the surrounding assessment area.

The subject land is relatively flat, with a very gentle slope to the south-east. This is typical of the largely flat and predominantly cleared and developed Cumberland Plain IBRA subregion. The site is mapped under the Blacktown soil landscape, which occurs extensively on the Cumberland Plain on gently undulating rises on Wianamatta Group shales (NSW Government 2025f). The soil consists of shallow to moderately deep (>100 cm) hard setting mottled texture contrast soils, Red and Brown Podzolic Soils on crests grading to Yellow Podzolic Soils (NSW Government 2025f). The topography comprises of gently undulating rises on Wianamatta Shale with local relief 10–30 m and slopes generally >5% but occasionally up to 10% (NSW Government 2025f).

The site-based method was applied for this assessment; therefore the assessment area is the 1,500 m buffer surrounding the outside edge of the boundary of the subject land. Consistent with BAM, the landscape features within, and surrounding the subject land, were identified to form part of this assessment, including details related to IBRA region and subregion and NSW landscape regions (Mitchell Landscapes). Other features, such as rivers, streams, estuaries and wetlands, habitat connectivity, karst areas or areas of outstanding biodiversity value are considered where appropriate. The landscape features considered for this assessment are presented in Table 5, Figure 1 and Figure 2.

**Table 5: Landscape features**

Landscape feature	Subject Land / Development Site	Assessment Area	Data source
IBRA Region(s)	Sydney Basin	Sydney Basin	Interim Biogeographic Regionalisation for Australia, Version 7
IBRA subregion(s)	Cumberland	Cumberland	Interim Biogeographic Regionalisation for Australia, Version 7
Rivers and streams	Rivers and streams do not occur within the subject land.	There are two major watercourses within the assessment area (Figure 1). These include: <ul style="list-style-type: none"> <li>- The fourth order Strahler stream Caddies Creek occurs approx. 460 m to the east of the subject land.</li> <li>- The third order Strahler stream Second Ponds Creek occurs approx. 820 m to the west of the subject land.</li> </ul> In addition, there are numerous unnamed first order streams, majority of which are connected to one of these two larger waterways.	NSW LPI Waterway mapping
Estuaries and wetlands	The subject land does not contain any mapped	There are many small water bodies mapped within the assessment area.	NSW SEED spatial data portal – Resilience and Hazards SEPP 2021

Landscape feature	Subject Land / Development Site	Assessment Area	Data source
	important or local wetlands.	A Coastal Wetland, mapped under the SEPP (Resilience and Hazards) 2021 Coastal Wetlands and Littoral Rainforests Area Map, occurs approx. 9 km to the northwest of the subject land. In addition, the 100 m buffer around the wetland is mapped as 'Proximity Area for Coastal Wetlands' under this SEPP.	NSW directory of important wetlands Aerial imagery
Connectivity of different areas of habitat	There is minimal native vegetation within the subject land. Limited connectivity exists due to commercial development, roads and cleared land surrounding the subject land. Some fragmented connectivity may remain for highly mobile species such as birds and bats.	Habitat connectivity within the assessment area is present predominantly along narrow patches of native riparian vegetation. These riparian zones to the east and west of the subject land offer connectivity across the broader landscape to much larger patches of native vegetation to the north of the assessment area, however connectivity between the subject land and these riparian areas is fragmented.	Aerial imagery
Geological features of significance and soil hazard features	None	None	Aerial imagery NSW SEED spatial data portal – NSW 1500K Surface Geology NSW SEED spatial data portal – Acid sulphate soils risk map
Areas of Outstanding Biodiversity Value (AOBV)	There are no AOBV within the subject land	There are no AOBV within the assessment area.	Register of Declared Areas of Outstanding Biodiversity Value (NSW Government 2025i)
NSW (Mitchell) Landscapes	Cumberland Plain – which is estimated to be 89% cleared.	Cumberland Plain – which is estimated to be 89% cleared.	NSW (Mitchell) Landscapes – version 3.1 (NSW DCCEEW 2016)
Additional features required to be assessed	No additional features are required to be assessed.	N/A	N/A
Percent (%) native vegetation extent	The subject land is approximately 3.05 ha and contains approximately 0.10 ha of native vegetation, which is equal to 3.18% native vegetation extent.	The assessment area is approximately 821 ha and contains approximately 164 ha of native vegetation (19.93%).	Calculated using aerial imagery and ArcGIS software

## 4. Native Vegetation

The subject land has been entirely cleared of native vegetation in the past (Figure 5 and Figure 6). A linear patch of established native tree plantings exists just beyond the northwest boundary adjacent to Commercial Road as well as on the top end of the western boundary adjacent to Windsor Road. Dense plantings of native trees and shrubs occur on the south west edge of the subject land in an area managed for drainage, as evidenced by the imported rocky substrate. Widely spaced, isolated native street trees occur at regular intervals on both side of Commercial Road

### 4.1. Survey Effort

Vegetation surveys were undertaken within the subject land by Senior Botanist Bronwyn Callaghan and Ecologist Kara Tuck on 5 September 2024 and 18 December 2024, and by Ecologist Tim Finter on 25 June 2025. The weather conditions during these surveys were sunny and clear with daily maximum temperature ranging between 16.7°C and 26.5°C (Table 6).

A total of three full-floristic vegetation plots were surveyed to identify plant community types (PCT) and TECs on the subject land (Table 7). These were done in conjunction with the vegetation integrity (VI) survey plots, that were collected to stratify PCTs into vegetation zones and to assess the composition, structure and function components of each vegetation zone in accordance with the BAM (see Section 4.5). Figure 9 shows the location and orientation of the VI plots.

To further assist in determining the extent and boundaries of PCTs and TECs, a series of assessments in the form of rapid data points (RDPs) were conducted across the subject land. These RDPs involved recording vegetation structure detail (stratum heights and covers) along with compositional detail, including dominant and indicative flora species for each stratum within an approximate 20 m radius. Other details collected included landscape position, slope, aspect, and soils, where relevant. The RDPs, along with boundaries between different vegetation communities and conditions, were recorded in the field using the ArcGIS Field Maps app on a smart phone.

All plants were identified to species level where sufficient reproductive material was available. All nomenclature is as per the Flora of NSW (Harden 1990-1993) with subsequent taxonomic updates from NSW Flora Online on PlantNET (the NSW Plant Information Network System) (Royal Botanic Gardens and Domain Trust, Sydney, 2025).

All field data collected at full-floristic and vegetation integrity plots is provided in Appendix B and Appendix C.

**Table 6: Weather conditions during the vegetation survey (data recorded from Parramatta North (Mason Dr), BoM station no. 66124)**

Date	Rainfall (mm)	Minimum temperature °C	Maximum temperature °C
5/09/2024	0	10.2	26.5
18/12/2024	3.0	17.2	23.5
25/06/2025	2.0	12.0	16.7

**Table 7: Full-floristic PCT identification plots**

PCT ID	PCT Name	Number of plots surveyed
3320	Cumberland Shale Plains Woodland	2
N/A	Planted native vegetation	1

PCT ID	PCT Name	Number of plots surveyed
TOTAL		3

## 4.2. Native vegetation extent on the subject land

The extent of native vegetation on the subject land and immediate surrounds was mapped using the State Vegetation Type Map (SVTM) (NSW Government 2025h), with edits made to the layer where obvious changes to vegetation extent had occurred and were recorded during the field survey or were apparent from recent aerial imagery.

The extent of native vegetation within the development footprint and subject land was 0.10 ha (Figure 2). This equates to a native vegetation cover of 13.84% for the development footprint and 3.18% for the subject land (Table 8).

The native vegetation extent within the assessment area (1500 m buffer around the subject land) was approximately 164 ha, with the total area of the assessment area being 821 ha (Figure 1). This is a native vegetation cover of 19.93%, falling in the 10-30% class (Table 8).

There were no material differences in the most recent high resolution aerial images and the extent of native vegetation on the subject land. It is noted that all patches of vegetation within the subject land which had previously been mapped as PCT 3320 were found to be either planted exotic trees, or regenerating native trees, predominantly *Acacia* spp..

**Table 8: Native vegetation extent**

Location	Area (ha)	Extent of Native Vegetation (ha)	% native vegetation cover
Development footprint	0.70	0.10	13.84
Subject land	3.05	0.10	3.18
Assessment area	821	164	19.93

Non-native vegetation within the subject land has been mapped (Figure 8). These areas are highly modified and are dominated by regularly mown exotic grasses and weeds, in particular *Axonopus fissifolius* (narrow-leafed carpet grass), *Cenchrus clandestinus* (kikuyu grass), *Eragrostis curvula* (African lovegrass), *Hypochaeris radicata* (catsear), *Lotus subbiflorus* (hairy birds-foot trefoil), *Plantago lanceolata* (plantain), and *Trifolium repens* (white clover).

## 4.3. Plant Community Types present

No native plant community types (PCT) were identified within the subject land during the field survey. A narrow patch of native vegetation plantings occur along, but just outside, the north west boundary of the subject land. These were found to be consistent with one PCT: Cumberland Shale Plains Woodland (PCT 3320) (Table 9, Figure 8). Whilst none of this PCT will be affected as a result of the proposed SSD (Figure 8), a description of it is provided below. This best-fit community was generally well matched to descriptions provided in the BioNet Vegetation Classification database (NSW Government 2025d), based on landscape position, community structure, characteristic species present and the substrate. The subject land also contained 0.04 ha of exotic dominated grassland and 0.10 ha

of planted native vegetation (described above in Section 2), neither of which conforms to a native PCT. A description of the PCT and exotic grassland found within the subject land is provided below.

**Table 9: Plant Community Types**

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Percent cleared (%)	Area in development footprint (ha)	Area in subject land (ha)	Area in vegetation impact footprint (ha)	
3320	Cumberland Shale Plains Woodland	Grassy Woodland	Coastal Valley Grassy Woodlands	93.03	0	0	0	
N/A	Planted native vegetation	N/A	N/A	N/A	0.097	0.097	0.043	
N/A	Exotic grassland	N/A	N/A	N/A	0.039	0.039	N/A	
N/A	Cleared / built	N/A	N/A	N/A	0.565	2.910	N/A	
<b>TOTAL</b>						<b>0.701</b>	<b>3.047</b>	<b>0.043</b>

### **PCT 3320 – Cumberland Shale Plains Woodland**

A small narrow patch of native revegetation plantings occurs along the northern edge of the subject land adjacent to Commercial Road and along the northern end of the western boundary adjacent to Windsor Road (Figure 8). Based on the species composition and location, this vegetation, whilst planted, could be assigned to PCT 3320. The canopy was 10 – 15 m tall, and was dominated by *Eucalyptus tereticornis* (forest red gum), along with *E. crebra* (narrow-leaved ironbark), and *Acacia decurrens* (black wattle) (Plate 4). A relatively dense midstory consisted of native shrubs such as *Acacia binervia* (coast myall), *A. falcata* (hickory wattle), *A. longifolia* (Sydney golden wattle), *Bursaria spinosa* (blackthorn), *Cupaniopsis anacardioides* (tuckeroo), *Hardenbergia violacea* (false sarsaparilla), and *Melaleuca nodosa* (prickly-leaved paperbark), as well as exotic species such as *Cotoneaster* sp., *Ligustrum lucidum* (large-leaved privet), *L. sinense* (small-leaved privet), *Olea europaea* subsp. *cuspidata* (African olive), *Ochna serrulata* (mickey mouse plant) and *Solanum sisymbriifolium*. The ground layer was dominated by exotic species, in particular *Cenchrus clandestinus* (kikuyu), *Chloris gayana* (Rhodes grass), *Ehrharta erecta* (panic veldtgrass), *Eragrostis curvula* (African lovegrass), *Megathyrsus maximus* (Guinea grass) *Paspalum dilatatum* (paspalum) and *Verbena bonariensis* (purpletop). Other exotic weeds scattered throughout these patches included *Bromus catharticus* (prairie grass), *Cenchrus setaceus* (fountain grass), *Plantago lanceolata* (lamb's tongue), *Setaria parviflora*, and *Sida rhombifolia* (Paddy's lucerne). However, the ground layer still contained a low diversity of common native species, including *Convolvulus erubescens* (pink bindweed), *Dichondra repens* (kidney weed), *Glycine clandestina* (twining glycine), *Lomandra longifolia* (spiny-headed mat-rush), *Microlaena stipoides* var. *stipoides* (weeping grass) and *Oxalis perennans*.

### **Exotic vegetation**

The remaining parts of the subject land were regularly mown grass dominated by exotic species (Figure 8). These areas of exotic grassland were dominated by *Cenchrus clandestinus* (kikuyu grass), *Axonopus fissifolius* (narrow-leaved carpet grass), *Eragrostis curvula* (African lovegrass), *Trifolium repens* (white clover) and *Lotus subbiflorus* (hairy birds-foot trefoil) (Plate 5). Scattered throughout all patches of exotic dominated grassland was the high-threat weed, *Senecio madagascariensis* (fireweed), along with many other common weeds such as *Hypochaeris radicata* (catsear) and *Plantago lanceolata* (lamb's tongues). The shrub layer in these areas was absent. These areas of exotic vegetation could not be assigned to a native PCT.

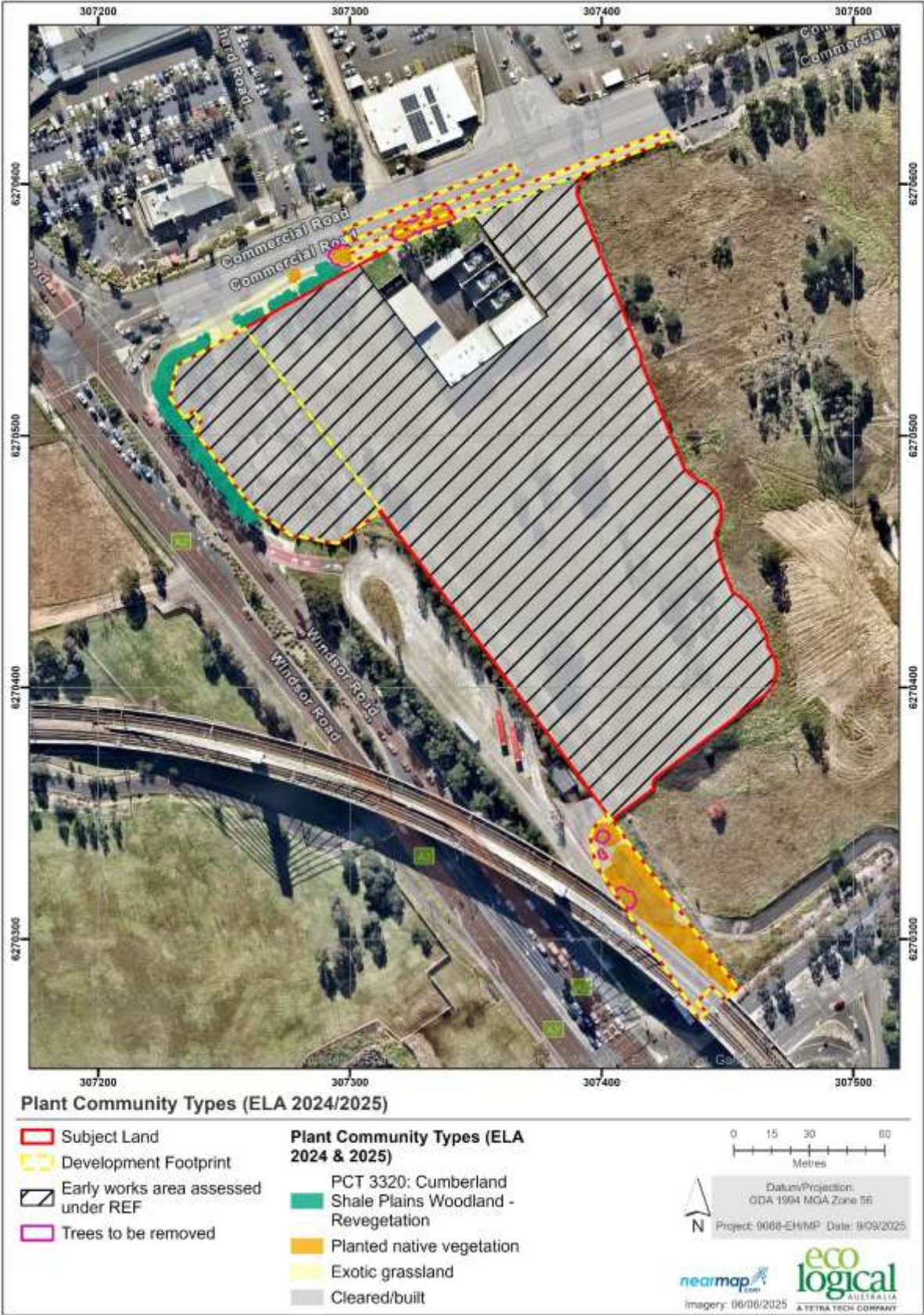


Figure 8: Plant Community Types



Plate 4: PCT 3320 revegetation along subject land boundary next to Windsor Rd



Plate 5: Mown exotic grass along paths

#### 4.3.1. Plant Community Type selection justification

In determining the PCT for the subject land, various attributes were considered in combination to assign vegetation to the best fit PCT. Attributes included dominant species in each stratum and relative abundance, community composition, soils and landscape position. Reference was made to the PCT descriptions in the BioNet Vegetation Classification and the final scientific determinations for TECs. The best fitting PCT selection and the other possible PCT options considered are provided in Table 10, along with an explanation for why the chosen PCT was selected in comparison to the other options.

Shortlisting of possible PCTs was conducted through a combined process of:

1. considering what had been previously mapped on the State Vegetation Type Map (SVTM) within the subject land and in the immediate surrounds (NSW Government 2025h); and
2. through an iterative approach of filtering the PCT description data (NSW Government 2025d) based on the following fields:
  - IBRA Sub-region = Cumberland
  - the various growth form species fields, based on the relevant detail provided in the PCT justifications in Table 10.

Quantitative analysis of plot data collected during field survey was also undertaken using the Eastern NSW Plot to PCT Assignment tool ('Plot to PCT tool', NSW Government 2025e). The tool was applied to plot data collected in the mapped PCT as well as in the planted native vegetation to check if this data predicted any likely PCTs. This tool did not generate clear results for any of the plot data (Results in Appendix D):

- The plots in the mapped PCT 3320 (Plots 4 and 6) did not return any PCTs with a 'distance to centroid' value below the recommended statistical threshold (0.695).
- The plot in the mapped planted native vegetation (Plot 5) did not return any PCTs within the threshold.

The lack of clear results for all plots is likely the result of past disturbance that has degraded the vegetation communities on site, resulting in plot data with fewer native species than is typical, a situation in which the tool does not work well. Nomination to a PCT in these situations was guided by the canopy species present, underlying geology, soils, landscape position and adjacent vegetation types and comparing this to descriptions of the community in the BioNet Vegetation Classification.

Table 10: Potential PCTs and PCT selection justification

Selected PCT ID	Selected PCT Name	Growth for species filtered <sup>1</sup>	PCTs shortlisted from iterative process <sup>2</sup>	Likely PCTs from Plot to PCT Tool	Selection justification
3320	Cumberland Shale Plains Woodland	Tree = <i>Eucalyptus tereticornis</i> , <i>E. crebra</i> , <i>Acacia decurrens</i> , <i>A. parramattensis</i> Shrub = <i>Acacia falcata</i> , <i>A. longifolia</i> Grass and grass-like = <i>Entolasia stricta</i> , <i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Sporobolus creber</i> Forb = <i>Dichondra repens</i> , <i>Einadia trigonos</i> , <i>Glycine clandestina</i> , <i>Hypericum gramineum</i> , <i>Oxalis perennans</i> , <i>Senecio quadridentatus</i>	3318, 3319, 3320, 3321	No potential PCT matches	<p><b>3318 Cumberland Moist Shale Woodland</b></p> <p>3318 is not likely to be present as it occurs on the steeper shale hills and rises of the southern half of the Cumberland Plain, which outside of the subject land region. In addition, whilst the canopy of PCT 3318 frequently includes <i>Eucalyptus tereticornis</i>, it differs from the grassy woodlands found in western Sydney by the prevalence of waxy-leaved shrubs and small trees in the mid-stratum and a ground cover of soft-leaved forbs, which were not present in the vegetation found in the subject land.</p> <p><b>3319 Cumberland Shale Hills Woodland</b></p> <p>Whilst there is considerable floristic overlap of the characteristic species found in PCTs 3319 and 3320, PCT 3319 occurs on rises and upper slopes of hills south from Cecil Hills, in the south-western part of the Cumberland Plain to the west of Sydney. It is most extensive in Campbelltown, Camden and Wollondilly local government areas, and therefore is not likely to occur within the subject land.</p> <p><b>3321 Cumberland Shale-Sandstone Ironbark Forest</b></p> <p>3321 is not likely to be present in the subject land as it occurs on the western edge of the Woronora Plateau, on the rim of the Nepean and Georges rivers, along the edge of the Lapstone Monocline. The canopy of this PCT almost always includes ironbark eucalypts (<i>Eucalyptus crebra</i>, <i>Eucalyptus fibrosa</i>) and commonly <i>Eucalyptus punctata</i> and stringybark eucalypts (<i>Eucalyptus globoidea</i> or <i>Eucalyptus eugenioides</i>) most of which were not observed within the subject land.</p> <p>The soil of this PCT consists of a subtle intergrade between clay-rich shale soil and the coarse sandy substrates of the sandstone plateau, which is not present within the subject land.</p> <p>While 3321 occurs in The Hills LGA and has an overlap in species with 3320, including <i>Acacia parramattensis</i> and <i>Acacia decurrens</i>, it is unlikely that 3321 is present within the subject land.</p>

1 Species chosen based on dominance or most commonly occurring across vegetation patches and plots within patches

2 Iterative process involved filtering PCT description data by a series of fields, including IBRA region, IBRA subregion, Vegetation formation (where appropriate and clear from field results) and the Growth form species listed

3 limited to PCTs which were within the distance to centroid threshold, ordered by the lowest (strongest match) to highest distance

#### 4.4. Threatened Ecological Communities

As there are no PCTs found in the subject land, there are no TECs present within the subject land or development footprint.

#### 4.5. Vegetation integrity assessment

##### 4.5.1. Vegetation zones

One native vegetation zone was identified within the subject land, planted native vegetation (Figure 9). A total of three vegetation integrity (VI) survey plots were collected in the subject land consistent with the BAM (Table 11). To capture the landscape context, two of these VI plots were in the PCT 3320 vegetation, which is entirely outside the subject land. It is noted that, as road side plantings these vegetation patches are very narrow, often less than 20 m wide, and not particularly long. This present difficulties in fitting in VI plots, which are 20 X 50 m. In this case plots were place so that the maximum amount of the vegetation zone fell within the plot, with preference given to the nested 20 X 20 m composition and structure plot (Figure 9). Descriptions of vegetation zones, including the PCT 3320, which occurs along the outside boundary of the subject land, are provided in Table 12 – Table 14.

Table 11: Vegetation zones and vegetation integrity (VI) survey plots collected on the subject land

Vegetation Zone	PCT ID	PCT Name	Condition	Area in development footprint (ha)	Patch Size (ha)	VI Plots required	VI Plots collected
1	3320	Cumberland Shale Plains Woodland	Revegetation	0	0.39	0	2
2	-	Planted native vegetation	N/A	0.097	N/A	N/A	1
3	-	Exotic grassland	N/A	0.039	N/A	N/A	0
<b>Total</b>				<b>0.136</b>		<b>1</b>	<b>3</b>

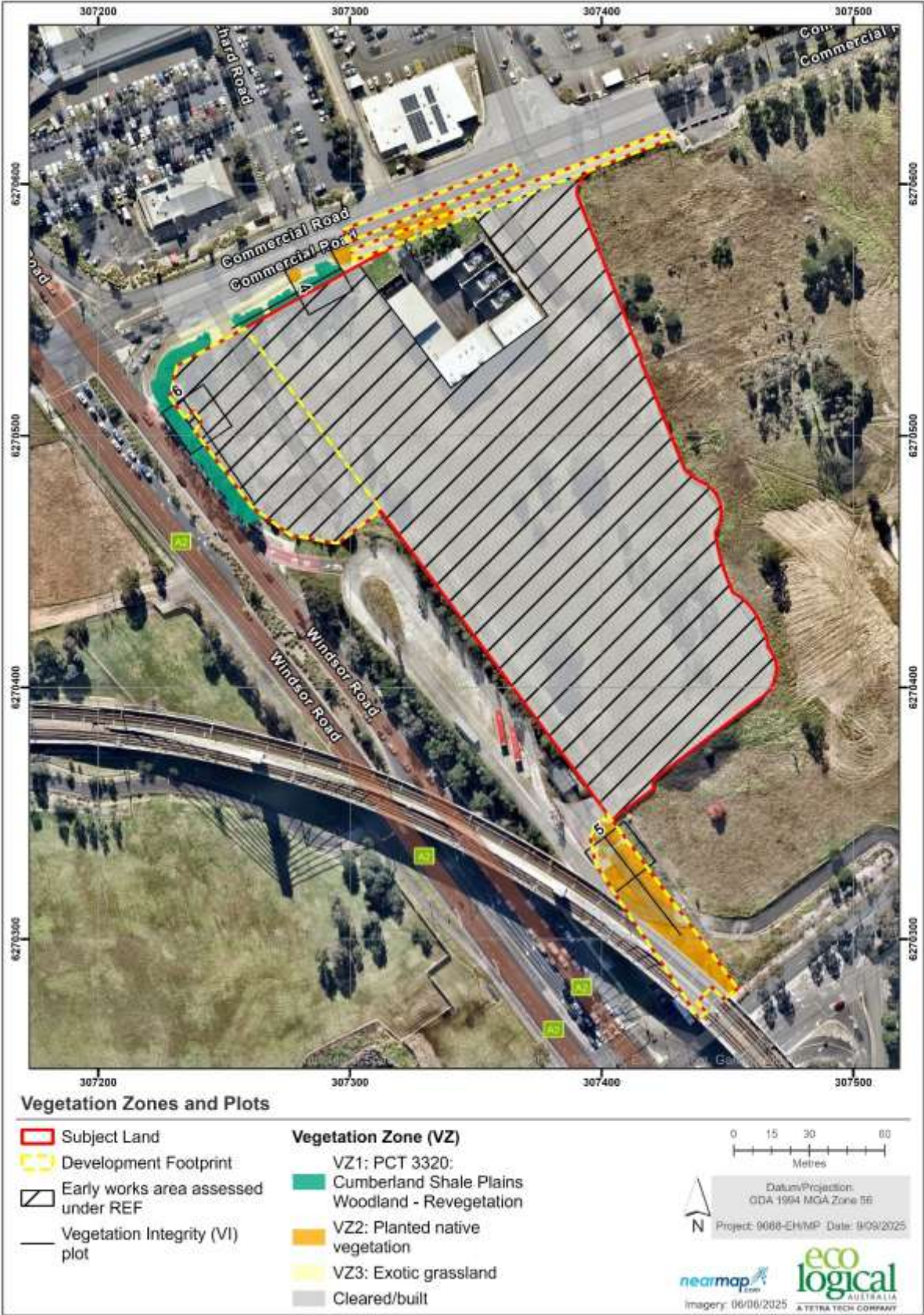


Figure 9: Vegetation Zones and Plots

Table 12: Vegetation Zone 1: PCT 3320 – Revegetation condition

PCT 3320 – Cumberland Shale Plains Woodland – Revegetation	
Vegetation formation/class	Grassy Woodlands / Coastal Valley Grassy Woodlands
Conservation status	Critically Endangered (BC Act) <i>Cumberland Plain Woodland in the Sydney Basin Bioregion</i> Does not meet the description for listing under the BC Act (Endangered) <i>Shale Gravel Transition Forest in the Sydney Basin Bioregion</i> . Does not meet the condition threshold for listing under the EPBC Act (Critically Endangered) <i>Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest</i> .
Description	From the PCT description: “A tall sclerophyll open forest or woodland with a sparse mid-stratum of soft-leaved shrubs and small trees with a grassy ground cover on the undulating Wianamatta Group shale plains of western Sydney.” Within the subject land, PCT 3320 (Revegetation condition) occurs as a very narrow patch of maturing revegetation plantings between the edge of the north west and western boundaries and the footpaths along Commercial and Windsor roads. It has a moderately tall open canopy to about 15, dominated by <i>Eucalyptus</i> spp., with a moderately dense mid storey to about 4 m, dominated by <i>Acacia</i> spp. and <i>Melaleuca</i> spp.. The cover of the ground layer is dependent on the density of the mid-storey, being very sparse where the mid-storey is dense but having a higher cover where the mid-storey is more open.
Characteristic canopy trees present in the subject land	<i>Corymbia maculata</i> (Spotted Gum), <i>Eucalyptus tereticornis</i> (Forest Red Gum), <i>E. crebra</i> (Narrow-leaved Ironbark) and <i>Acacia decurrens</i> (Black Wattle).
Characteristic mid-storey present in the subject land	Mid-storey species in the narrow strips of revegetation plantings included: <i>Acacia binervia</i> (Coast Myall), <i>Acacia falcata</i> (Hickory Wattle), <i>Acacia parramattensis</i> (Parramatta Wattle), <i>Bursaria spinosa</i> (Blackthorn), and <i>Melaleuca nodosa</i> (Prickly-leaved Paperbark).
Characteristic groundcovers present in the subject land	While the ground layer consisted of a dense cover of exotic grass (see below), native grass and forb species were still present, including <i>Convolvulus erubescens</i> (Pink Bindweed), <i>Cyperus gracilis</i> (Slender Flat-sedge), <i>Dianella caerulea</i> (Blue Flax-lily), <i>Dichondra repens</i> (Kidney Weed), <i>Einadia trigonos</i> (Fishweed), <i>Eriochloa procera</i> (Spring Grass), <i>Glycine clandestina</i> (Twining glycine), <i>Lomandra longifolia</i> (Spiny-headed Mat-rush), <i>Microlaena stipoides</i> var. <i>stipoides</i> (Weeping Grass), <i>Oxalis perennans</i> and <i>Sporobolus creber</i> (Slender Rat’s Tail Grass).
Exotic species / HTW cover	Many exotic species were present within these patches, often contributing a very high cover in the ground layer. Common exotic shrub species such as <i>Olea europaea</i> subsp. <i>cuspidata</i> (African Olive) and <i>Cotoneaster</i> sp. were scattered throughout the mid-storey. The ground layer was often dominated by exotic grasses and weeds, many of which were HTWs, in particular: <i>Cenchrus clandestinus</i> (Kikuyu), <i>Chloris gayana</i> (Rhodes Grass), <i>Eragrostis curvula</i> (African Lovegrass), <i>Megathyrsus maximus</i> (Guinea Grass), <i>Paspalum dilatatum</i> (Paspalum), <i>Plantago lanceolata</i> (Lamb's Tongues), <i>Setaria parviflora</i> , <i>Sida rhombifolia</i> (Paddy's Lucerne) and <i>Verbena bonariensis</i> (Purpletop). Other HTWs present include <i>Araujia sericifera</i> (Moth Vine), <i>Asparagus asparagoides</i> (Bridal Creeper), <i>Bidens pilosa</i> (Cobbler's Pegs), <i>Cenchrus setaceus</i> (Fountain Grass), <i>Ehrharta erecta</i> (Panic Veldtgrass), and <i>Senecio madagascariensis</i> (Fireweed). HTW cover = 11.3% (from plot data).
Variation and disturbance	Very narrow band of vegetation bordered by a busy multi-laned road to the north and west and cleared land with a high cover of exotic species to the south and east.
Condition	Regeneration plantings.
Threatened flora species	None observed.
Fauna habitats	Foraging habitat for birds.
No. VI plots	2 (Plots 4 and 6)
Mean native richness	15 (from plot data only)
Composition	24.9
Structure	38.3
Function	45
VI Score	35



Table 13: Vegetation Zone 2: Planted native vegetation

Planted native vegetation	
Vegetation formation/class	N/A
Conservation status	N/A
Description	Planted native vegetation occurred as isolated street trees along Commercial Rd in the north of the subject land, as well as more dense plantings along the southern edge of the western boundary of the subject land. The dominant trees and shrubs present were commonly planted species. The combinations of species which were observed did not allow for allocation to an appropriate PCT.
Characteristic canopy trees present in the subject land	<i>Casuarina glauca</i> (Swamp Oak), <i>Corymbia maculata</i> (Spotted Gum), <i>Acacia decurrens</i> (Black Wattle), and <i>Melaleuca quinquenervia</i> (broad-leaved paperbark)
Characteristic mid-storey present in the subject land	<i>Acacia parramattensis</i> (Parramatta Wattle), <i>A. saligna</i> (Golden Wreath Wattle), <i>Melaleuca decora</i> , and <i>Melaleuca styphelioides</i> (Prickly-leaved Tea Tree)
Characteristic groundcovers present in the subject land	The ground layer was almost entirely dominated by exotic species (see below), apart from rows of planted <i>Lomandra hystrix</i> and <i>L. longifolia</i> (spiny-headed mat-rush).
Exotic species / HTW cover	Exotic species were common in the mid and ground layer of this vegetation zone. The mid layer included scattered <i>Ricinus communis</i> (Castor Oil Plant) and <i>Solanum sisymbriifolium</i> along with the vine <i>Araujia sericifera</i> (Moth Vine). The ground layer was dominated by the HTWs <i>Cenchrus clandestinus</i> (Kikuyu), <i>Paspalum dilatatum</i> (Paspalum) and <i>Stenotaphrum secundatum</i> (Buffalo Grass). Other common HTW species present included: <i>Axonopus fissifolius</i> (Carpet Grass), <i>Bidens pilosa</i> (Cobblers Pegs), <i>Chloris gayana</i> (Rhodes Grass), <i>Ehrharta erecta</i> (Panic Veldtgrass), <i>Eragrostis curvula</i> (African Lovegrass), and <i>Senecio madagascariensis</i> (Fireweed). About 48.1% HTW cover.
Condition	Planted native vegetation
Variation and disturbance	N/A
Threatened flora species	Threatened flora species were not observed.
Fauna habitats	Minimal fauna habitat values. Trees provide possible foraging habitat for birds and possible grazing on grass by herbivores such as macropods.
No. VI plots	1 (Plot 5)
Mean native richness	17
Composition <sup>1</sup>	40.1
Structure <sup>1</sup>	53.7
Function <sup>1</sup>	10.6
Vegetation Integrity Score <sup>1</sup>	28.4



<sup>1</sup> for the purpose of calculating a VI score for the planted native vegetation, it was assigned as PCT 3320 based on landscape position and proximity to patches of this PCT.

Table 14: Vegetation Zone 3: Exotic grassland

Exotic Grassland	
Vegetation formation/class	N/A
Conservation status	N/A
Description	Cleared land with grassland dominated by exotic species.
Characteristic canopy trees present in the subject land	No trees in this vegetation zone
Characteristic mid-storey present in the subject land	The shrub layer was absent.
Characteristic groundcovers present in the subject land	Common across all areas were the exotic species: <i>Cenchrus clandestinus</i> (Kikuyu), <i>Eragrostis curvula</i> (African Lovegrass), <i>Lotus subbiflorus</i> (Hairy Birds-foot Trefoil), <i>Paspalum dilatatum</i> (Paspalum), <i>Plantago lanceolata</i> (Lamb's Tongues), <i>Trifolium repens</i> (White Clover), and <i>Vicia sativa</i> subsp. <i>sativa</i> (Common Vetch), together these species contributed a very high cover. Scattered throughout all patches of exotic dominated grassland was the high-threat weed, <i>Senecio madagascariensis</i> (Fireweed), along with many other common weeds such as <i>Hypochaeris radicata</i> (Catsear), <i>Sonchus oleraceus</i> (Common Sowthistle) and <i>Verbena bonariensis</i> (Purpletop).
Exotic species / HTW cover	The HTWs <i>Axonopus fissifolius</i> (Carpet Grass), <i>Cenchrus clandestinus</i> (Kikuyu) and <i>Eragrostis curvula</i> (African Lovegrass) dominated this zone. Other HTWs which were common across this zone included: <i>Paspalum dilatatum</i> (Paspalum) and <i>Senecio madagascariensis</i> (Fireweed).
Condition	Heavily disturbed, regularly mown, exotic grassland.
Variation and disturbance	Cleared land with a high cover of exotic species present.
Threatened flora species	Threatened flora species were not observed.
Fauna habitats	Minimal fauna habitat values. Possible grazing on grassland by herbivores such as macropods.
No. VI plots	0
Mean native richness	N/A
Composition	N/A
Structure	N/A
Function	N/A
Vegetation Integrity Score	N/A



#### 4.5.2. Patch size

Patch size was calculated using available vegetation mapping for all patches of intact native vegetation on and adjoining the subject land. Patch size was assigned to one of four classes (<5 ha, 5-24 ha, 25-100 ha or ≥100 ha). A patch size of 0.39 ha was determined for the development footprint and is therefore within the <5 ha class.

#### 4.5.3. Assessing vegetation integrity

As per Appendix D of the BAM, assessment of the vegetation integrity of planted native vegetation is not required. However, for context vegetation integrity assessment using the BAM Calculator (BAMC) was undertaken for both the planted native vegetation and the PCT 3320 vegetation, which was wholly outside the subject land (Figure 9). The results are outlined in Table 15.

Table 15: Vegetation integrity scores

Veg Zone	PCT ID	Condition	Area in development footprint (ha)	Vegetation impact footprint (ha)	Composition Condition Score	Structure Condition Score	Function Condition Score	Presence of Hollow bearing trees	Current vegetation integrity score
1	3320	Revegetation	0	0	24.9	38.3	45	No	35
2	-	Planted Native Vegetation <sup>1</sup>	0.097	0.043	40.1	53.7	10.6	No	28.4

<sup>1</sup> for the purpose of calculating a VI score for the planted native vegetation, it was assigned as PCT 3320 based on landscape position and proximity to patches of this PCT.

#### 4.6. Use of local data

No specific local data is being used in this assessment. All benchmark data within BioNet Vegetation Classification and BAMC is being used.

## 5. Threatened species

Under the planted native vegetation streamlined assessment module, application of Chapter 5 of the BAM is not required (see section 2). Planted native vegetation, however, must be assessed for threatened species habitat. In order to demonstrate a thorough and conservative approach, this BDAR has applied Section 5.1 of the BAM to identify potential threatened species to guide the habitat assessment of the planted native vegetation. BAM plot data collected from the subject land in both the planted native vegetation and the PCT 3320 vegetation (which is not being impacted by the development) was entered into the BAM-C in order to generate lists of ecosystem and species credit species. These lists were supplemented with additional threatened species data generated by both BioNet (Figure 10 and Figure 11) and PMST database searches (5 km radius) (Appendix E) to ensure a thorough assessment of potential threatened species habitat.

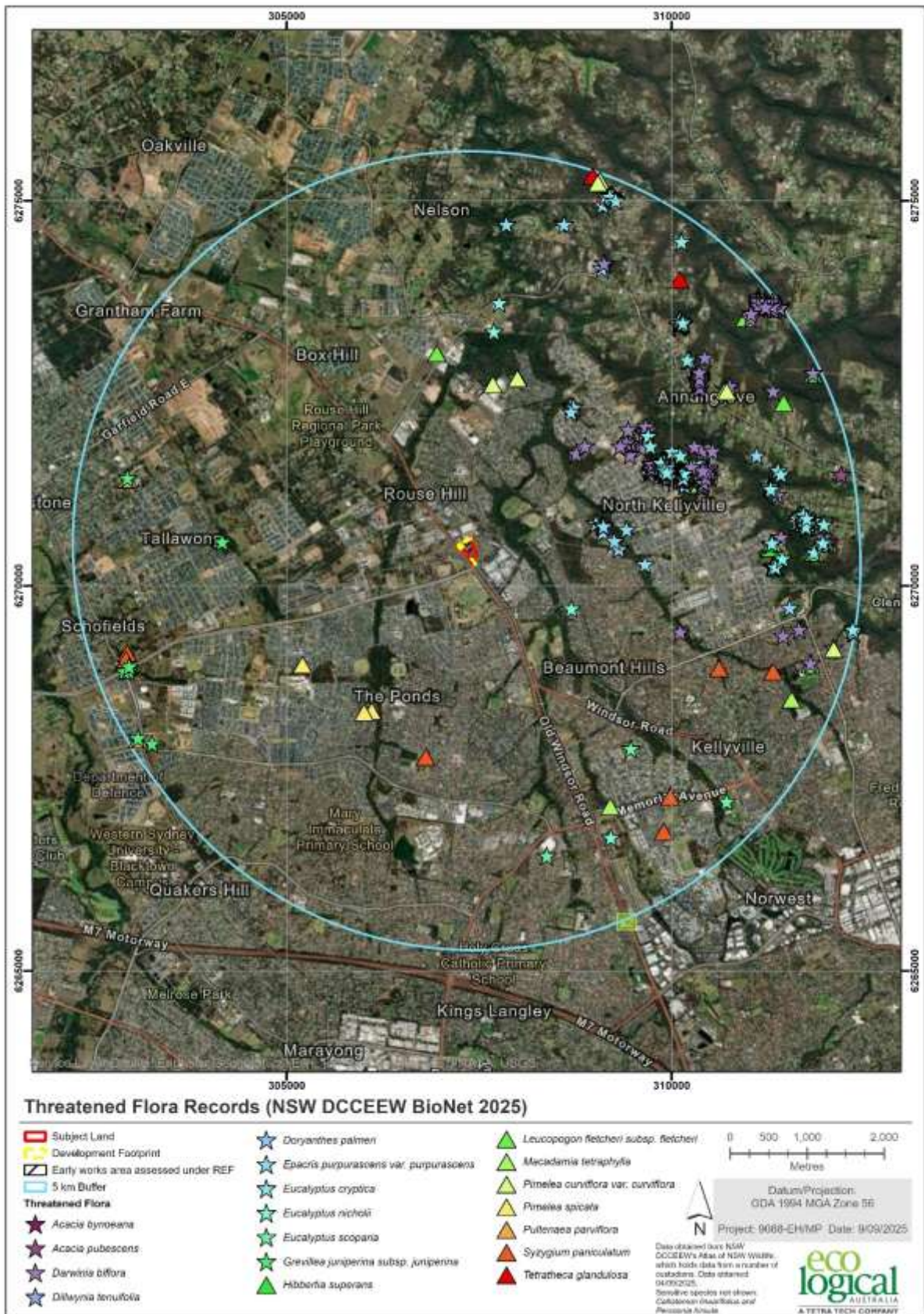


Figure 10: BioNet threatened flora records within a 5 km radius of the subject land

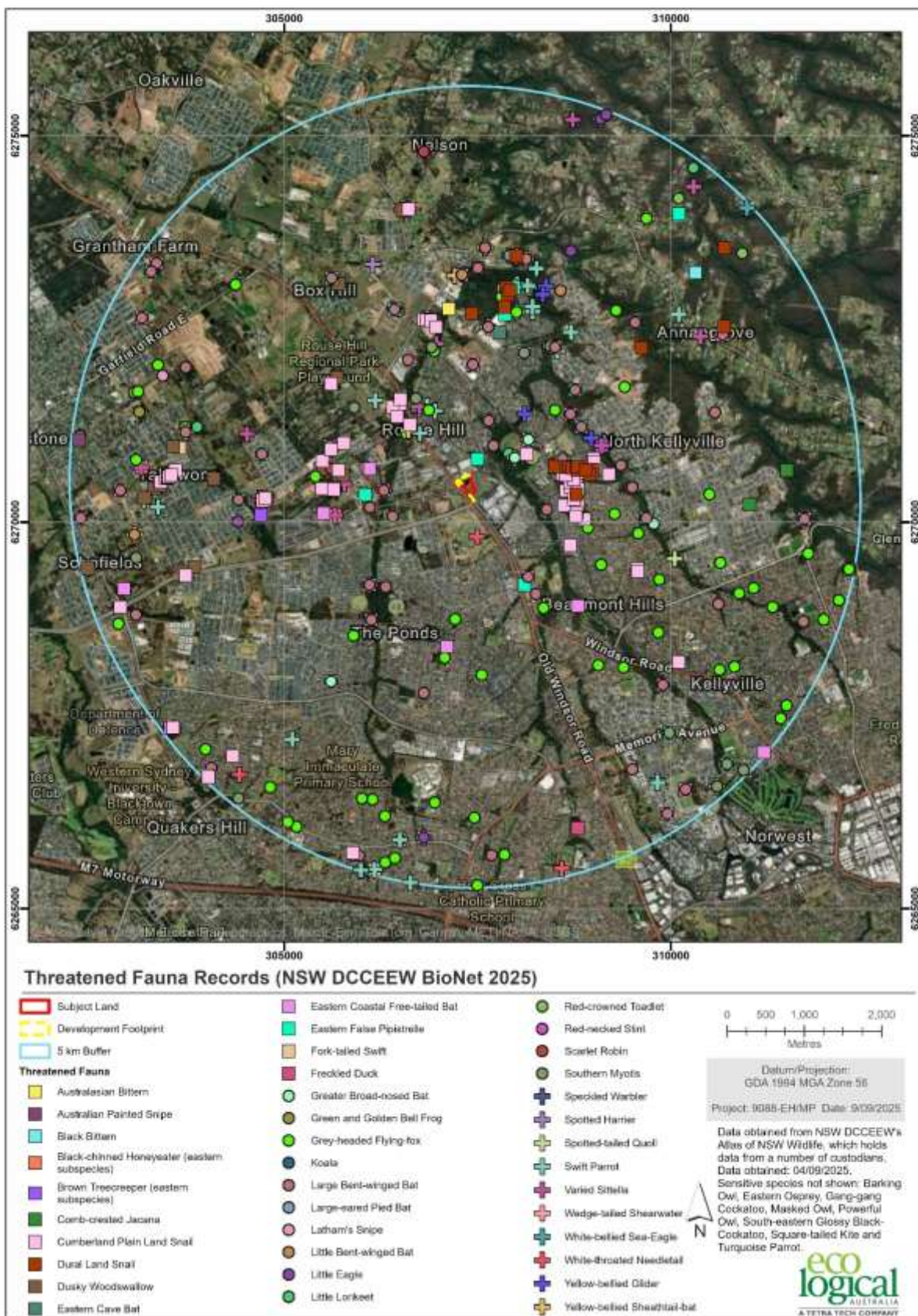


Figure 11: BioNet threatened fauna records within a 5 km radius of the subject land

## 5.1. Ecosystem credit species

Ecosystem credit species predicted to occur within the subject land are generated by the BAMC following input of the PCTs identified within Chapter 4, and calculation of VI scores from BAM plot data. Ecosystem credit species predicted to occur in the subject land, their associated habitat constraints, geographic limitations and sensitivity to gain class is included in Table 16. There were no geographic limitations for any of the species listed. As required by the planted native vegetation streamlined assessment module of the BAM (Appendix D), assessment of whether the planted native vegetation represent suitable habitat for any of these species has been addressed in Table 18.

Table 16: Predicted ecosystem credit species

Species	Common Name	Habitat Constraints	Sensitivity to gain class	BC Act listing status	EPBC Act listing status
<i>Anthochaera phrygia</i>	Regent Honeyeater	-	High	Critically Endangered	Critically Endangered
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	-	Moderate	Vulnerable	-
<i>Callocephalon fimbriatum</i> (foraging)	Gang-gang Cockatoo	-	Moderate	Vulnerable	Endangered
<i>Calyptorhynchus lathami lathami</i> (foraging)	South-eastern Glossy Black-Cockatoo	Presence of <i>Allocasuarina</i> and <i>Casuarina</i> species	High	Vulnerable	V
<i>Chthonicola sagittata</i>	Speckled Warbler	-	High	Vulnerable	-
<i>Circus assimilis</i>	Spotted Harrier	-	Moderate	Vulnerable	-
<i>Climacteris picumnus victoriae</i> (eastern subspecies)	Brown Treecreeper	-	High	Vulnerable	Vulnerable
<i>Daphoenositta chrysoptera</i>	Varied Sittella	-	Moderate	Vulnerable	-
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	-	High	Vulnerable	Endangered
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Swamps Shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 300m of these swamps. Waterbodies Shallow lakes, lake margins and estuaries within 300m of these waterbodies	Moderate	Endangered	-
<i>Falco subniger</i>	Black Falcon	-	Moderate	Vulnerable	-
<i>Glossopsitta pusilla</i>	Little Lorikeet	-	High	Vulnerable	-
<i>Haliaeetus leucogaster</i> (foraging)	White-bellied Sea-Eagle	Waterbodies Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines	High	Vulnerable	-
<i>Hieraaetus morphnoides</i> (foraging)	Little Eagle	-	Moderate	Vulnerable	-
<i>Hirundapus caudacutus</i>	White-throated Needle-tail	-	High	-	Vulnerable

Species	Common Name	Habitat Constraints	Sensitivity to gain class	BC Act listing status	EPBC Act listing status
<i>Lathamus discolor</i> (foraging)	Swift Parrot	-	Moderate	Endangered	Critically Endangered
<i>Lophoictinia isura</i> (foraging)	Square-tailed Kite	-	Moderate	Vulnerable	-
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	-	High	Vulnerable	-
<i>Miniopterus australis</i> (foraging)	Little Bent-winged Bat	-	High	Vulnerable	-
<i>Miniopterus orianae oceanensis</i> (foraging)	Large Bent-winged Bat	-	High	Vulnerable	-
<i>Neophema pulchella</i>	Turquoise Parrot	-	High	Vulnerable	-
<i>Pandion cristatus</i> (foraging)	Eastern Osprey	-	Moderate	Vulnerable	-
<i>Petroica boodang</i>	Scarlet Robin	-	Moderate	Vulnerable	-
<i>Petroica phoenicea</i>	Flame Robin	-	Moderate	Vulnerable	-
<i>Pteropus Poliocephalus</i> (foraging)	Grey-headed Flying-fox	-	High	Vulnerable	Vulnerable
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	-	High	Vulnerable	-
<i>Stagonopleura guttata</i>	Diamond Firetail	-	Moderate	Vulnerable	Vulnerable

## 5.2. Species credit species

Species credit species identified by the BAM-C, their associated habitat constraints, geographic limitations and sensitivity to gain class are included in Table 17. As this BDAR is being assessed via the streamlined (small area) assessment (BAM 2020, Appendix C), only those candidate species at risk of a serious and irreversible impact (SAIL) require assessment. There were no geographic limitations for any of the species listed. As required by the planted native vegetation streamlined assessment module of the BAM (Appendix D), assessment of whether the planted native vegetation represent suitable habitat for any of these species has been addressed in Table 18.

Table 17: Candidate species credit species

Species	Common Name	Habitat Constraints	Sensitivity to gain class	BC Act listing status	EPBC Act listing status	SAIL
<i>Anthochaera phrygia</i> (Breeding)	Regent Honeyeater	As per Important Habitat Map	High	CE	CE	Yes
<i>Chalinobus dwyeri</i>	Large-eared Pied Bat	Cliffs Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels	Very High	V	V	Yes
<i>Deyeuxia appressa</i>	Deyeuxia appressa	-	High	E	E	Yes
<i>Eucalyptus benthamii</i>	Camden White Gum	-	High	CE	V	Yes

Species	Common Name	Habitat Constraints	Sensitivity to gain class	BC Act listing status	EPBC Act listing status	SAII
<i>Lathamus discolor</i> (Breeding)	Swift Parrot	As per Important Habitat Map	Moderate	E	CE	Yes
<i>Micromyrtus minutiflora</i>	Micromyrtus minutiflora	-	High	E	V	Yes
<i>Miniopterus australis</i> (Breeding)	Little Bent-winged Bat	Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave' observation type code 'E nest-roost' with numbers of individuals >500 or from the scientific literature	Very High	V	Not Listed	Yes
<i>Miniopterus orianae oceanensis</i> (Breeding)	Large Bent-winged Bat	Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave" " observation type code "E nest-roost" " with numbers of individuals >500	Very High	V	Not Listed	Yes
<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	-	Very High	E	E	Yes

E = Endangered, CE = Critically Endangered, V = Vulnerable

### 5.3. Assessment of planted native vegetation for threatened species habitat

No threatened species were detected during the field surveys. Minimal threatened species habitat was present within the planted native vegetation, in the form of flowering and fruiting trees. Evidence of threatened species using, inhabiting or being part of the planted native vegetation (e.g. scats, stick nests) was not recorded during the field surveys. Specifically, the following potential habitat features were not present within the subject land:

- hollow-bearing trees
- stick nests
- coarse woody debris
- minimal leaf litter
- standing or running water
- rocky outcrops
- caves, culverts, bridges
- buildings.

These findings were used to assess the likelihood of occurrence for threatened species listed under the EPBC Act (Appendix E) and whether the subject land provided habitat for those threatened species identified through the BAM-C (Table 16 and Table 17) and BioNet Atlas searches (Figure 10 and Figure 11). The assessment of the suitability of the planted native vegetation for use by these threatened species is provided in Table 18.

**Table 18: Suitability of planted native vegetation as habitat for threatened species listed under the BC Act (combined Predicted and Candidate species from BAM-C and those previously recorded in BioNet within 5km) and justification for assessment**

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
<i>Acacia bynoeana</i>	Bynoe's Wattle	Endangered	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in heath or dry sclerophyll forest on sandy soils. The soils found in the subject land are clay-loams derived from Wianamatta Group shales (Section 3).	BioNet
<i>Acacia pubescens</i>	Downy Wattle	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs characteristically on gravely soils, often with ironstone.	BioNet
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered	Critically Endangered	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C. The subject land is not mapped on the Important Habitat Map.	BAM-C
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in dry open eucalypt forests and woodlands with an open or sparse understorey and diverse ground layer and fallen woody debris. The planted native vegetation does not fit this description, having a dense mid-story and lack of diversity and woody debris.	BAM-C
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	Endangered	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes ( <i>Typha</i> spp.) and spikerushes ( <i>Eleocharis</i> spp.), which it hides in during the day, feeding mainly at night on frogs, fish, yabbies, spiders, insects and snails. None of these habitat resources are present in the subject land.	BioNet
<i>Callistemon linearifolius</i>	Netted Bottle Brush	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in dry sclerophyll forest on sandy soils. The soils found in the subject land are clay-loams derived from Wianamatta Group shales (Section 3).	BioNet
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	Vulnerable	Endangered	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests, during summer, favouring old growth forest and woodland attributes for nesting and roosting. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages with an open or sparse understorey and diverse ground layer and fallen woody debris. The planted native vegetation does not fit any of these habitat requirements, being a dense planting of relatively young trees.	BAM-C
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	Vulnerable	Vulnerable	Whilst the planted native vegetation does contain Casuarina species, which may represent foraging habitat for this species, the individual trees are relatively small and young, which would produce minimal seed. In addition, the planted native vegetation patches in which these Casuarinas occur are very isolated from other potential habitat within a highly developed landscape, presenting an unlikely foraging resource for this large bird species.	BAM-C

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Endangered	Endangered	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C. The subject land does not contain cliffs and is not located within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, crevices, old mines or tunnels.	BAM-C
<i>Chthonicola sagittata</i>	Speckled Warbler	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it requires large, relatively undisturbed remnants to persist in an area. This includes a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. The planted native vegetation does not fit any of these descriptions.	BAM-C
<i>Circus assimilis</i>	Spotted Harrier	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as no large stick nests were identified within the subject land or surrounding vegetation. In addition, most of the trees in the planted native vegetation were relatively small and not likely to support a large stick nest. This species occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. The planted native vegetation has a dense mid-storey structure and minimal grassy understorey.	BAM-C
<i>Climacteris picumnus victoriae</i> (eastern subspecies)	Brown Treecreeper	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it is found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey. The planted native vegetation does not fit this description. In addition, fallen timber is an important habitat component for foraging for this species. There was no coarse woody debris within the planted native vegetation. Further, hollows in standing dead or live trees and tree stumps are essential for nesting for this species. The subject land contained no hollow-bearing trees.	BAM-C
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species due to the minimal foraging resources available in these small patches for this sedentary species.	BAM-C
<i>Darwinia biflora</i>	Darwinia biflora	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone, in woodland, open forest or scrub-heath dominated by <i>Eucalyptus haemastoma</i> , <i>Corymbia gummifera</i> and/or <i>E. squamosa</i> . This geology is not present in the subject land this vegetation community was not likely to have occurred in this location.	BioNet
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable	Endangered	The planted native vegetation is assessed as unsuitable habitat for this species based on the lack of essential den sites required for this species, which include hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops.	BAM-C
<i>Deyeuxia appressa</i>	Deyeuxia appressa	Endangered	Endangered	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat. This species is mesophytic (grows in moist conditions), and therefore is highly unlikely to occur within the subject land, which was well drained and exposed with no obvious areas where moisture would accumulate for any period of time. In addition, due to the degraded nature of the patches of vegetation that have been mapped as PCT 3320, and the highly modified vegetation of the subject land and immediate surrounds as a whole, that has resulted from	BAM-C

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
				ongoing intensive vegetation management required for an active golf course, it is highly unlikely for individuals or propagules of this species to have persisted within the subject land.	
<i>Dillwynia tenuifolia</i>	Dillwynia tenuifolia	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays. May also be common in transitional areas where these communities adjoin Castlereagh Scribbly Gum Woodland. At Yengo, is reported to occur in disturbed escarpment woodland on Narrabeen sandstone. These vegetation communities and geologies are not present in the subject land.	BioNet
<i>Doryanthes palmeri</i>	Giant Spear Lily	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs naturally in far north-east NSW and south-east Queensland.	BioNet
<i>Epacris purpurascens</i> var. <i>purpurascens</i>		Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it grows in dry sclerophyll forest and scrub and near creeks and swamps on sandstone.	BioNet
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Endangered	-	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C, which includes the requirement for the presence of: swamps; shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 300m of these swamps; waterbodies; shallow lakes, lake margins and estuaries within 300m of these waterbodies.	BAM-C
<i>Eucalyptus cryptica</i>		Endangered	Critically Endangered	The planted native vegetation is assessed as unsuitable habitat for this species as it grows in scrub, heath and low woodland, in sandstone-derived soils.	BioNet
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs naturally in the Nandewar, New England Tablelands and NSW North Coast regions from Niangala to Glen Innes.	BioNet
<i>Eucalyptus scoparia</i>	Wallangarra White Gum	Endangered	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs naturally in the New England Tablelands and Queensland from Tenterfield, to Girraween National Park.	BioNet
<i>Falco subniger</i>	Black Falcon	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs mostly in inland regions.	BAM-C
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it prefers moist habitat with trees taller than 20 m. Further, the planted native vegetation lacks roosting habitat for this species in the form of tree hollows or man-made structures.	BioNet
<i>Gallinago hardwickii</i>	Latham's Snipe	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it is found in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. The subject land does not contain any such habitat.	BioNet

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Vulnerable	-	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C, which includes the requirement for the presence of: waterbodies; within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines.	BAM-C
<i>Hibbertia superans</i>		Endangered	-	The planted native vegetation is assessed as unsuitable for this species as it occurs in dry sclerophyll forest on sandstone ridgetops.	BioNet
<i>Hieraetus morphnoides</i>	Little Eagle	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as no large stick nests were identified within the subject land or surrounding vegetation. In addition, this species nests in tall living trees within a remnant patch, whilst most of the trees in the planted native vegetation were relatively small and the patch is small and isolated from any remnant vegetation. This species occupies open eucalypt forests and woodland. The planted native vegetation has a dense mid-storey structure and minimal grassy understorey.	BAM-C
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species due to its isolation from other remnant native vegetation and the surrounding built-up, busy road network, which would present a disruption to foraging for these exclusively aerial foraging birds.	BAM-C
<i>Irediparra gallinacea</i>	Comb-crested Jacana	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as it inhabits permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation.	BioNet
<i>Ixobrychus flavicollis</i>	Black Bittern	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as it inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation.	BioNet
<i>Lasiopetalum joyceae</i>		Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable for this species as it grows in heath on sandstone.	BioNet
<i>Lathamus discolor</i>	Swift Parrot	Endangered	Critically Endangered	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C. The subject land is not mapped by the Important Habitat Map.	BAM-C
<i>Leucopogon fletcheri</i> subsp. <i>fletcheri</i>		Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs in dry eucalypt woodland or in shrubland on clayey lateritic soils	BioNet
<i>Litoria aurea</i>	Green and Golden Bell Frog	Endangered	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it inhabits marshes, dams and stream-sides, particularly those containing bullrushes ( <i>Typha</i> spp.) or spikerushes ( <i>Eleocharis</i> spp.).	BioNet
<i>Lophoictinia isura</i>	Square-tailed Kite	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as no large stick nests were identified within the subject land or surrounding vegetation. In addition, this species nests in large trees along or near watercourses, whilst most of the trees in the planted native vegetation were relatively small and the patch is small and isolated from any watercourses or remnant vegetation. This species occupies open eucalypt forests and dry woodland. The planted native vegetation has a dense mid-storey structure and minimal grassy understorey.	BAM-C

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
<i>Macadamia integrifolia</i>	Macadamia Nut	-	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs naturally in subtropical rainforest north from Currumbin in Qld. It is not known to occur naturally in the wild in N.S.W.	BioNet
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it occurs naturally to the north of the Richmond River in north-east NSW, extending just across the border into Queensland. Many records, particularly those further south, are thought to be propagated.	BioNet
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts.	BioNet
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species due to the lack of roosting habitat in the form of tree hollows or man-made structures.	BAM-C
<i>Miniopterus australis</i>	Little Bentwing-bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C, being that it breeds in caves, tunnels, mines, culverts or other structures known or suspected to be used for breeding. No breeding habitat is present on the site or within 100 m of the subject land.	BAM-C
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable for this species based on lack of habitat constraints listed in the BAM-C, being that it breeds in caves, tunnels, mines, culverts or other structures known or suspected to be used for breeding. No breeding habitat is present on the site or within 100 m of the subject land.	BAM-C
<i>Myotis macropus</i>	Southern Myotis	Vulnerable	-	The planted native vegetation is assessed as unsuitable for this species due to the lack of roosting and foraging habitat (roost close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, wharves, bridges and in dense foliage; forages over streams and pools catching insects and small fish by raking their feet across the water surface).	BioNet
<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species due to the lack of nesting habitat in the form of tree hollows. In addition, this species occurs in open eucalypt woodland, feeding on the ground on grass seed. The structure of the majority of the planted native vegetation includes a very dense mid-storey, with dense weedy ground layer, with minimal grass.	BAM-C
<i>Ninox connivens</i>	Barking Owl	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it requires very large permanent territories in most habitats due to sparse prey densities as well as hollows in large, old trees for nesting.	BioNet
<i>Ninox strenua</i>	Powerful Owl	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it requires very large permanent territories in most habitats due to sparse prey densities as well as hollows in large, old trees for nesting.	BioNet

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
<i>Pandion cristatus</i>	Eastern Osprey	Vulnerable	-	The planted native vegetation is assessed as unlikely habitat for this species as no large stick nests were identified within the subject land or surrounding vegetation. In addition, the nests are made high up in dead trees or in dead crowns of live trees, whilst most of the trees in the planted native vegetation were relatively small. There are no feeding resources for this species within or surrounding the subject land as it feeds on fish over clear, open water.	BAM-C
<i>Parvipsitta pusilla</i> (previously <i>Glossopsitta pusilla</i> )	Little Lorikeet	Vulnerable	-	Whilst the planted native vegetation does contain <i>Eucalyptus</i> and <i>Melaleuca</i> species, which may represent foraging habitat for this species, the individual trees are relatively small and young, which would produce minimal and sporadic flowers. In addition, the planted native vegetation patches in which these <i>Eucalyptus</i> and <i>Melaleuca</i> occur are very isolated from other potential habitat within a highly developed landscape, presenting an unlikely foraging resource for this species which requires large areas of flowering tree and shrub species for foraging. Further, this species requires hollows for nesting, a habitat resource not present in the subject land.	BioNet
<i>Persoonia hirsuta</i>	Hairy Geebung	Endangered	Endangered	The planted native vegetation is assessed as unsuitable for this species as it occurs in woodland to dry sclerophyll forest on sandstone.	BioNet
<i>Petaurus australis</i>	Yellow-bellied Glider	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable for this species as it occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils and requires large tree hollow for dens.	BioNet
<i>Petroica boodang</i>	Scarlet Robin	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it lives in dry eucalypt forests and woodlands, usually with an open grassy understorey. The planted native vegetation does not fit this description, being composed of a dense mid-storey with minimal grassy ground layer. In addition, abundant logs and fallen timber are important habitat component for this species. There was no coarse woody debris within the planted native vegetation.	BAM-C
<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it lives in upland tall moist eucalypt forests and woodlands with open understoreys, often on ridges and slopes. The planted native vegetation does not fit this description, being composed of relatively small young trees with a dense mid-storey with minimal grassy ground layer.	BAM-C
<i>Phascolarctos cinereus</i>	Koala	Endangered	Endangered	The planted native vegetation is assessed as unsuitable for this species due to the minimal foraging habitat within a very fragmented landscape of potential foraging trees.	BioNet
<i>Pimelea curviflora</i> var. <i>curviflora</i>		Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable for this species as it occurs coastal areas on sandstone.	BioNet
<i>Pluvialis squatarola</i>	Grey Plover	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable for this species as it inhabits coastal tidal flats and beaches.	BioNet
<i>Pseudophryne australis</i>	Red-crowned Toadlet	Vulnerable	-	The planted native vegetation is assessed as unsuitable for this species as it occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones, inhabiting periodically wet drainage lines below sandstone ridges.	BioNet
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Vulnerable	The planted native vegetation is assessed as potential habitat as it provides potential marginal seasonal foraging habitat for this highly mobile wide-ranging species. Mitigation measures per s8.4 of the BAM have	BAM-C

Species	Common Name	BC Act listing status	EPBC Act listing status	Suitability of planted native vegetation habitat and justification	Data Origin
				been recommended to minimise the impact of the removal of seven planted native trees that are potentially foraging habitat for this species.	
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as large, relatively undisturbed remnants are required for the species to persist in an area.	BioNet
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Endangered	The planted native vegetation is assessed as unsuitable habitat for this species as it prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	BioNet
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species due to the lack of roosting habitat in the form of tree hollows or man-made structures.	BAM-C
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species due to the lack of roosting habitat (tree hollows and buildings) and broader habitat (woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest).	BioNet
<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it is found in grassy eucalypt woodlands including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands. The planted native vegetation does not fit this description, being composed of a dense mid-storey with minimal grassy ground layer. In addition, it feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds. There is minimal such foraging resources available in these small patches for this largely sedentary species.	BAM-C
<i>Stictonetta naevosa</i>	Freckled Duck	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree.	BioNet
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	Vulnerable	Vulnerable	The planted native vegetation is assessed as unsuitable habitat for this species as it grows in subtropical and littoral rainforest on sandy soils or stabilized dunes, often near the sea.	BioNet
<i>Tetratheca glandulosa</i>		Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it grows in sandy or rocky heath or scrub	BioNet
<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	BioNet
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	Vulnerable	-	The planted native vegetation is assessed as unsuitable habitat for this species as it is found north of Kempsey.	BioNet

### 5.3.1. Targeted threatened flora surveys

Following the assessment of the suitability of the planted native vegetation for use by threatened species (Table 18), it could not be conclusively determined that the planted native vegetation did not provide suitable habitat for the following flora species:

- *Eucalyptus benthamii* (Camden white gum), which is listed as Critically Endangered under both the BC Act and EPBC Act
- *Grevillea juniperina* subsp. *juniperina* (juniper-leaved grevillea), which is listed as Vulnerable under the BC Act
- *Micromyrtus minutiflora*, which is listed as Endangered under the BC Act and as Vulnerable under the EPBC Act
- *Pimelea spicata* (spiked rice-flower), which is listed Endangered under both the BC Act and the EPBC Act
- *Pultenaea parviflora*, which is listed as Endangered under the BC Act and as Vulnerable under the EPBC Act.

Therefore, targeted surveys for these species were conducted. Targeted surveys were undertaken at the subject land on the dates outlined in Table 19. Weather conditions during the targeted surveys are outlined in Table 6.

Threatened flora surveys followed the *NSW Surveying threatened plants and their habitats guidelines* (DPIE 2020b), with searches carried out the mapped PCT and planted native vegetation. Parallel traverses were slowly walked approximately 5 metres apart. This is the smallest of the minimum widths required for targeted species based on their life form and the density of the vegetation (DPIE 2020b). Traverses were recorded using a GPS (Figure 12). Survey effort undertaken at the subject land is summarised in Table 19.

**Table 19: Targeted threatened species survey effort**

Method	Target species	Date	Habitat (ha)	Stratification units	Total effort	Surveyors
Parallel transects – 5 m apart	<b>Threatened flora:</b> <i>Eucalyptus benthamii</i> (Camden white gum) <i>Grevillea juniperina</i> subsp. <i>juniperina</i> (juniper-leaved grevillea) <i>Micromyrtus minutiflora</i> <i>Pimelea spicata</i> (spiked rice-flower) <i>Pultenaea parviflora</i>	18 December 2024	0.15	PCT 3320 Planted native vegetation	1 hours	Bronwyn Callaghan

### 5.3.2. Results of targeted surveys

No threatened flora species were detected within the subject land as a result of the targeted surveys.

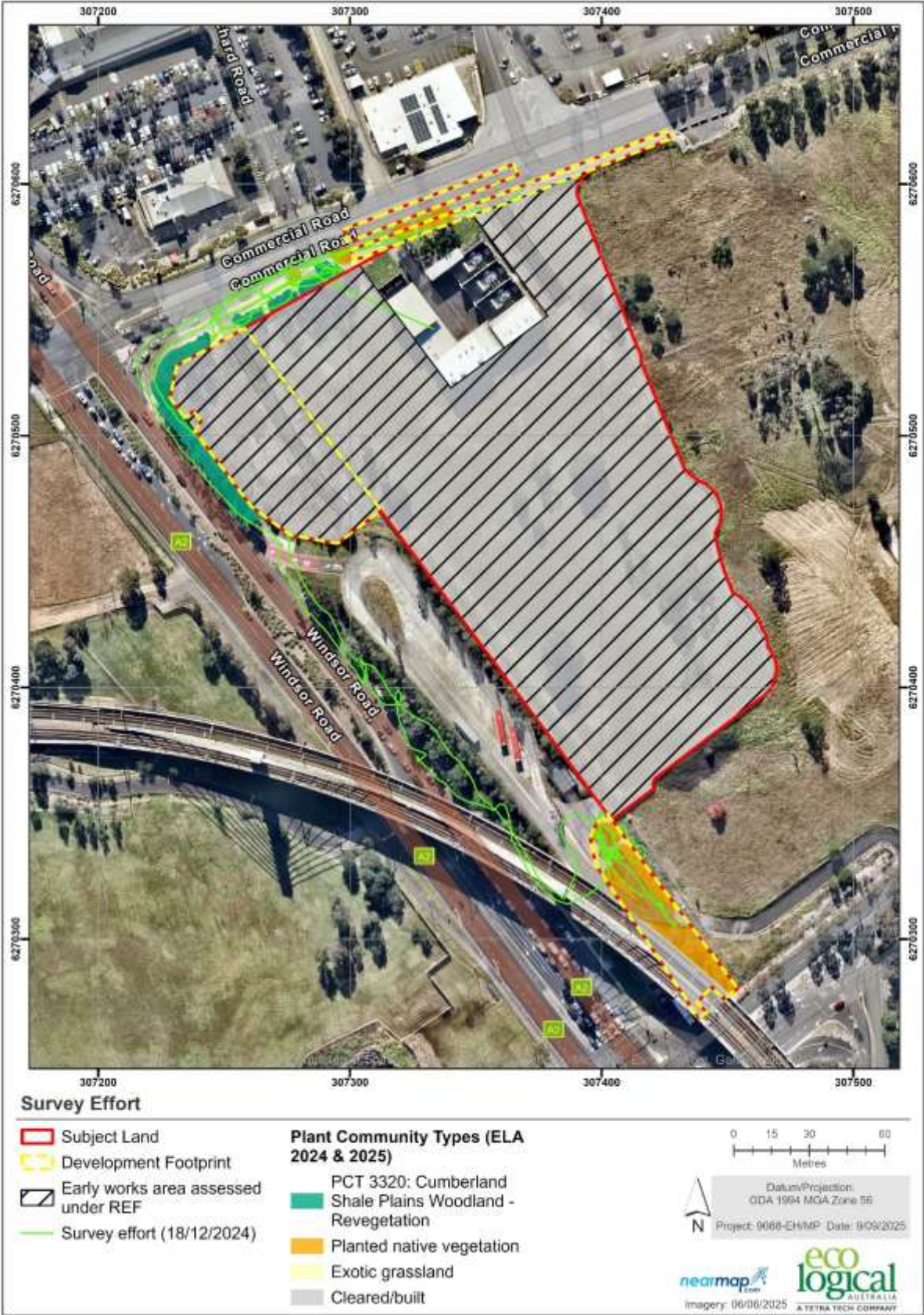


Figure 12: Targeted flora surveys

## **5.4. Identification of prescribed additional biodiversity impact entities**

### **5.4.1. Karst, caves, crevices, cliffs, rocks and other geological features of significance**

The subject land does not contain any karsts, caves, crevices, cliffs, rocks and other geological features of significance outlined in 6.1.1 of the BAM 2020.

### **5.4.2. Human-made structures and non-native vegetation**

There are no bridges, abandoned buildings or old farming infrastructure present within the subject land. A small, active electrical infrastructure building is present within the north of the subject land. This building is on a separate lot and DP to the subject land and will not be affected by the proposed SSD.

Exotic dominated grassland occurred in a narrow band around the north and western edges of the subject land, and has been described in Section 4.3. The grassland may provide habitat for invertebrates and species which forage on them. However, this non-native vegetation is unlikely to provide suitable habitat for threatened species.

### **5.4.3. Habitat connectivity**

The subject land provides very little native vegetation that would provide habitat connectivity. A continuous patch of riparian vegetation, running generally north-south, exists to the east of the subject land within approximately 300 m, following Caddies Creek which connects to continuous riparian vegetation patches along Small Creeks, Second Ponds Creek and Cattai Creek in the north, and Strangers Creek in the south. As well as providing continuous habitat for aquatic species, these creeklines and their riparian vegetation are likely to provide habitat for dispersive species such as bats, some birds, some insects, and larger macropods which can use landscape mosaics (Fischer and Lindenmayer 2006).

These riparian areas running to the east of the subject land offer some connectivity across the broader landscape, however the vegetation between the subject land and these riparian areas is highly fragmented.

### **5.4.4. Water bodies, water quality and hydrological processes**

The subject land does not contain any mapped watercourses. Within the Assessment area, there are two 4<sup>th</sup> order Strahler streams. The closest is known as Caddies Creek, which occurs approximately 450 m to the east of the subject land. This creek connects to Small Creeks, Second Ponds Creek and Cattai Creek in the north, and Strangers Creek in the south. A 4<sup>th</sup> order Strahler stream, known as Second Ponds Creek, is also present approximately 950 m west of the subject land. Caddies Creek and Second Ponds Creek appear to be permanent creeks with significant riparian vegetation. However, the development is not expected to directly or indirectly affect these watercourses as they are located approximately 450 m from the subject land.

### **5.4.5. Wind farm developments**

This is not a wind farm development.

#### **5.4.6. Vehicle strikes**

Commercial Road is a busy paved main road which abuts the northern boundary of the subject land. The subject land currently contains a small area of paved road in the northeast which connects the subject land to Commercial Road.

The proposed SSD would include numerous roads traversing the site and around the perimeter of the subject land. Therefore, there is a risk of increased vehicle strike following development. The types of species likely to be affected include common dispersive and peri-urban bird species, macropods and potentially microbats. The increase in vehicle strike is unlikely to affect threatened species.

## 6. Avoiding and Minimising Impacts on Biodiversity Values

### 6.1. Locating a project to avoid and minimise impacts on biodiversity values

#### 6.1.1. Direct and indirect impacts

The majority of the subject land contains no vegetation following the early works for the new hospital. The remaining areas contain exotic dominated grassland, and small patches of planted native vegetation, which represent a low biodiversity value. None of the PCT 3320, which occurs around the north-east boundary of the subject land, will be affected by the development (Figure 8). Only eight trees within the planted native vegetation patches will be affected (Section 1.3, Figure 4, Figure 8).

The proposed design avoids all the native revegetation plantings around the north and western boundaries of the subject land. As detailed in Section 4.3 and 4.4, these plantings are consistent with PCT 3320 and are therefore likely to represent the TEC *Cumberland Plain Woodland in the Sydney Basin Bioregion*. The decision to retain this patch as a part of the design, represents minimisation of biodiversity impacts to higher value native vegetation and habitat values.

Seven of the eight trees to be removed produced nectar bearing flowers, which are potential foraging habitat for the grey-headed flying-fox. Therefore, removal of these trees may represent an impact to this threatened species. Mitigation measures to reduce the impact to this species, including clearance surveys to prevent impact to any individuals present at the time of vegetation removal (Section 7.5). Measures to augment the available habitat within the subject land include planting of nectar and fruit bearing native trees, such as *Banksia* spp., *Eucalyptus* spp., *Melaleuca* spp., *Persoonia* spp., *Pittosporum* spp., *Syzygium* spp. and *Tristaniopsis laurina*, as detailed in the Landscape Report (Site Image Landscape Architects 2025).

Indirect impacts may include hydrological changes, increase in runoff, inadvertent damage to vegetation outside the subject land, noise disturbance, dust generation and erosion and sedimentation. It is recommended that a site Construction Environment Management Plan (CEMP) be prepared prior to any construction works taking place to address these indirect impacts.

#### 6.1.2. Prescribed biodiversity impacts

Prescribed biodiversity impacts identified in Section 5.4 include removal of non-native vegetation, impacts to habitat connectivity, reduction in water quality and changes in flow to water bodies outside the subject land, and increased risk of vehicle strike.

The proposed SSD has been located and designed to avoid and minimise prescribed biodiversity impacts as follows:

- **Non-native vegetation:** as non-native vegetation in the form of exotic dominated grassland covers the much of the development footprint, it is not possible to avoid all impacts on non-native vegetation. The development design has favoured removing non-native vegetation in preference to native vegetation. The focus therefore is on minimising potential impacts by utilising areas previously cleared of native vegetation and now dominated by non-native vegetation. There were no threatened species identified as likely to be using the non-native vegetation that is proposed for clearing.
- **Habitat connectivity:** The majority of the PCT 3320 and planted native vegetation is being retained (Figure 4 and Figure 8). Impacts to eight of the planted native trees within the subject land, which represent marginal habitat connectivity to larger patches of vegetation outside

the subject land are not able to be avoided. No threatened species were identified as likely to be using the planted native vegetation for foraging, roosting or breeding. Further, no threatened native plants occurred within the area mapped as planted native vegetation. The impact to habitat connectivity can be minimised and improved through landscape planting that utilise tree, shrub and ground layer species characteristic of PCT 3320. Landscape planting detailed in the Landscape Report (Site Image Landscape Architects 2025), will improve connectivity across the landscape and provide additional threatened species habitat, particularly in the form of nectar and fruit producing native species.

- Vehicle strike: As most roads associated with the proposed SSD will be located within areas of low biodiversity value, i.e. cleared areas, the risk of fauna vehicle strike during construction is low. Any residual minor risk of vehicle strike during construction can be avoided and minimised through instigating a low travel speed for construction vehicles. To reduce fauna mortality arising from vehicle strike on internal roads within the Hospital site, speed reduction, road lighting, and devices installed to reduce speed (e.g., raised crossings, chicanes and rumble strips) can assist.
- Water bodies, water quality and hydrological processes: Water bodies do not occur within the subject land. The nearest water body occurs within 450 m of the subject land and is unlikely to experience direct or indirect impacts as a result of the development. During construction, a CEMP will guide work practices and structures that will assist with avoiding and minimising impacts to water quality and hydrological processes. This will include industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures, including the use of sediment fences, covering exposed spoil, and use of water trucks as well as detailing compulsory site inductions to raise awareness of high biodiversity value areas being retained within and beyond the boundary of the subject land and mitigation / management measures required to avoid sedimentation and erosion.

## 7. Assessment of Impacts

### 7.1. Direct impacts

The direct impacts of the development on:

- native vegetation is outlined in Table 20
- prescribed biodiversity impacts are outlined in Section 6.4.

Direct impacts including the final project footprint (construction and operation) are shown on Figure 3 and Figure 4.

**Table 20: Direct impacts to native vegetation**

PCT ID	PCT Name	BC Act listing	EPBC Act listing	Direct impact (ha)
-	Planted native vegetation	N/A	N/A	0.043

### 7.2. Change in vegetation integrity

As the planted native vegetation streamlined assessment module is being applied for this BDAR, Chapter 4 of the BAM is not required to be applied, including calculation of changes in vegetation integrity scores.

### 7.3. Indirect impacts

The indirect impacts of the development are outlined in Table 21. Indirect impact zones are shown on Figure 12. Indirect impacts were mapped at 10 m for areas upslope of the proposed development and to 20 m downslope of the proposed development.

Table 21: Indirect impacts

Indirect impact	Description (nature, extent and frequency)	Biodiversity affected	Duration / Timing	Consequence
inadvertent impacts on adjacent habitat or vegetation	Native vegetation and habitats retained adjacent to the subject land could be temporarily affected by intrusions by humans or machinery into these areas. The extent likely are areas adjacent to the proposed development. The risk is greatest during construction, but could also extend to operation, when activity associated with the hospital may encroach on adjacent vegetation.	Revegetated native vegetation communities and associated habitat including Cumberland Plain Woodland.	Long term during construction and operation.	Accidental removal or smothering of vegetation or temporary displacement of fauna could occur during construction. During operation, decline in habitat quality could result from ongoing incursions by humans, pets and bikes.
Reduced viability of adjacent habitat due to edge effects	Changing light and soil moisture from increased exposure and / or runoff. May extend to the whole of the remaining vegetation and would be ongoing.	Habitat in the form of revegetated native vegetation including Cumberland Plain Woodland.	Long term during construction and operation.	Changes to soil conditions and potential changes to species composition.
Reduced viability of adjacent habitat due to noise, dust or light spill	Noise and dust from machinery movement during construction. No night works proposed and therefore light spill unlikely during construction. Increased noise from increased utilisation and traffic activity. Light spill from hospital buildings and street lighting during operation.	Habitat in the form of revegetated native vegetation including Cumberland Plain Woodland. Increased light and noise may affect microbats.	Daily during bulk earthworks and construction, particularly during truck movement, dry periods or heavy winds. Ongoing increased light and noise from residential and street lighting.	Loss of habitat quality.
transport of weeds and pathogens from the site to adjacent vegetation	Spread of weeds from adjacent areas. Minor impacts as vegetation in adjacent areas already contain high cover of exotic species. May extend to the whole of the remaining vegetation and would be ongoing	Native vegetation communities including Cumberland Plain Woodland.	Daily during bulk earthworks due to vehicle movement and dust and water movement.	Minor increases in weed cover.
Increased risk of starvation or exposure and loss of shade or shelter	Potential loss of habitat that would be used on occasion, and as part of a larger network of resources, due to the removal of vegetation, including exotic pasture which provides marginal foraging for insectivorous species. Minor loss of shade or shelter impact as the existing canopy is already highly fragmented and isolated. Would be permanent loss of the trees to be removed, therefore occurring once.	Common fauna species such as urban and peri-urban birds and microbats.	Long term during construction and operation.	Minor reduction in foraging resources available.

Indirect impact	Description (nature, extent and frequency)	Biodiversity affected	Duration / Timing	Consequence
loss of breeding habitat	Significant or obvious breeding habitat, including hollow bearing trees, stick nests, dens or substantial understorey vegetation, are not present within the development footprint.	N/A	N/A	N/A
trampling of threatened flora species	Negligible chance of trampling since no threatened flora was observed in the subject land.	N/A	N/A	N/A
Inhibition of nitrogen fixation and increased soil salinity	Not likely to occur, as nitrogen fixating species (generally from the family Fabaceae) were very sparse across the subject land, and most of the site is already cleared of woody vegetation, so development is not likely to exacerbate soil salinity.	N/A	N/A	N/A
Fertiliser drift	Not likely to occur as part of the development. During operation, establishment and ongoing maintenance of landscape planting may require application of fertiliser to lawns, trees and gardens. May extend to the whole of the remaining vegetation and would be ongoing.	Waterways. Native vegetation and off-target species.	Ongoing during operation.	Influx of nutrients into waterways may cause algal blooms and reduction / loss of native aquatic species. Increased nutrient levels in soil can favour exotic plant species over native species.
rubbish dumping	Rubbish dumping from workers during bulk earthworks and construction. Rubbish dumping during operation by hospital staff and patients. May extend to the whole of the remaining vegetation and would be ongoing.	Native vegetation.	Intermittently when contractors are on site. During operation of hospital. Drivers accessing the site.	Shading of plants Microplastics increase in the environment Plastic leachate enters the food chain Choking of native wildlife
wood collection	Woody debris absent from the subject land.	N/A	N/A	N/A
removal and disturbance of rocks including bush rock	Bush rock absent from the subject land.	N/A	N/A	N/A
increase in predators	Increase presence of predator species such as foxes and cats is possible due to increased human activity which may provide increased resources for prey species such as rats and mice. May extend to the whole of the remaining vegetation and would be ongoing.	Native reptiles, birds and ground dwelling fauna.	During operation.	Losses of biodiversity due to predation by exotic species such as foxes and cats.
increase in pest animal populations	Increased presence of exotic fauna species such as <i>Acridotheres tristis</i> (Common Myna), or other aggressive non-native species.	Native birds.	During operation.	Loss of common native urban species due to resource competition with aggressive non-native bird species.

Indirect impact	Description (nature, extent and frequency)	Biodiversity affected	Duration / Timing	Consequence
	May extend to the whole of the remaining vegetation and would be ongoing.			
changed fire regimes	Not likely to occur, however introducing human activities close to native vegetation always increases the likelihood and frequency of ignitions.	Native vegetation and wildlife.	During operation.	Unplanned fires can be particularly damaging to isolated patches of native vegetation and wildlife populations. Increased frequency of fires can result in loss of fire sensitive species, and increase the spread and density of exotic species.
disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	There are no specialist breeding habitats present within the subject land.	Negligible to none	N/A	Little to no consequence as there are no specialist breeding habitats present.
sedimentation and contaminated and/or nutrient rich run-off	Runoff during construction resulting in changes to soil and groundcover vegetation. Increased volume and nutrient load of stormwater during operation.	Adjacent soils and groundcover vegetation.	During construction and operation.	Nutrient enrichment in retained vegetation.

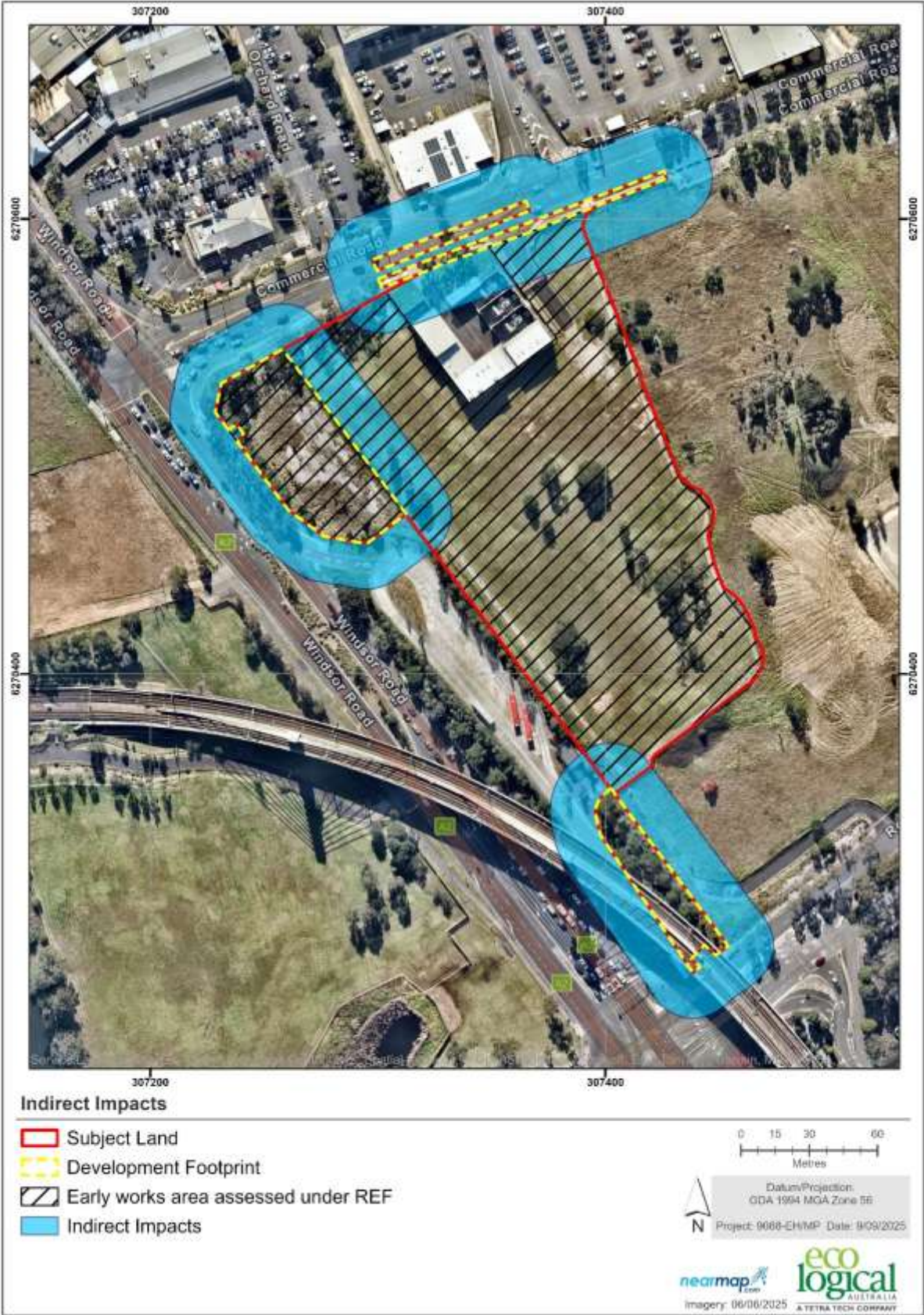


Figure 13: Indirect impact zones

## 7.4. Prescribed biodiversity impacts

The subject land has the prescribed biodiversity impacts as outlined in Table 22.

Table 22: Direct impacts on prescribed biodiversity impacts

Prescribed biodiversity impact	Description (Nature, extent and frequency)	Consequences	Justification	Additional information
Karst, caves, crevices, cliffs, rocks and other geological features of significance	These features were not present within the subject land.	N/A	N/A	N/A
Human made structures or non-native vegetation	Human made structures were not present within the subject land. Permanent removal of non-native grass vegetation. Removal to occur during the construction phase only and would not be ongoing.	Removal of marginal foraging habitat (exotic dominated grassland) for insectivorous birds and microbats.	Removal of exotic vegetation favoured over native vegetation as it represents poor potential habitat compared to native vegetation.	N/A
Habitat connectivity	There is a lack of connectivity to large patches of habitat, so only highly mobile fauna species are likely to occur within the subject land (e.g. bats and birds). There may be indirect impacts on habitat connectivity through changes to water quality, erosion and edge effects.	Minor loss of foraging habitat	The proposed development does not interfere with habitat connectivity in the broader assessment area as riparian corridors and larger patches of vegetation exist outside of the subject land, thus maintaining the links north to south.	N/A
Water bodies, water quality and hydrological processes	The subject land does not contain any mapped watercourses. The closest watercourse is a 4 <sup>th</sup> order Strahler stream known as Caddies Creek which is located approximately 450 m to the east of the subject land. This water course will not be directly impacted by the development. Increased stormwater from a larger area of hard surfaces would be collected and deposited in receiving environments.	Condition and composition of vegetation could be reduced due to impacts from changes in amount and frequency of water flow as well as nutrient level and sedimentation changes.	The proposed development would manage water quality, erosion and sedimentation into receiving environments during construction via a CEMP.	Water quality targets and stormwater management are required for the development.
Wind turbine strikes on protected animals	Not a prescribed impact relevant to this project.	N/A	N/A	N/A
Vehicle strikes	Vehicles striking fauna, especially where roads are adjacent to habitat.	Fauna being struck and injured or killed by the increase in vehicle numbers and movements.	While habitat for ground dwelling fauna is poor and minimal, there is a risk that dispersive	Consider a range of options at the design stage for traffic features which will reduce vehicle speeds and likelihood of impact

Prescribed biodiversity impact	Description (Nature, extent and frequency)	Consequences	Justification	Additional information
			fauna will be affected.	with animals, such as lighting, raised crossings, rumble strips and speed limits.

## 7.5. Mitigating and managing direct and indirect impacts

Measures proposed to mitigate and manage impacts at the subject land before, during and after construction are outlined in Table 23.

Table 23: Measures proposed to mitigate and manage impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
timing works to avoid critical life cycle events such as breeding or nursing	Moderate	Low	Pre-clearance surveys should be undertaken prior to vegetation removal to identify any fauna and works re-scheduled if breeding fauna detected.	Ensuring animal welfare and protection	Prior to and during vegetation removal	Project manager
instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or licensed wildlife handler during clearing events	Moderate – potential habitat trees occur within development footprint. However, preclearance surveys will confirm fauna presence.	Low	Clearing protocols to manage wildlife.	Risk to wildlife reduced	During construction	Project manager and ecologist
installing artificial habitats for fauna in adjacent retained vegetation and habitat or human made structures to replace the habitat resources lost and encourage animals to move from the impacted site, e.g. nest boxes	N/A – no important habitat features are being removed as part of the proposed SSD. As such, artificial roost structures or nest boxes are not required.	Negligible	No critical habitat is proposed for removal. No nest boxes or other artificial structures are proposed.	No change	Nil	Nil
clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chain-saw, rather than heavy machinery, is preferable in situations where partial clearing is proposed	Moderate – the majority of the native vegetation within the development footprint is to be retained.	Low	Only the trees to be removed will be impacted by removal activity.	Native vegetation to be retained is not impacted	Nil	Nil
sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	High	Low	Erect, check and maintain erosion and sediment fence, and checked after periods of heavy rainfall (e.g., more than 25 mm in 24 hours).	Waterways and other receiving environments not impacted by high sediment and nutrient loads.	Before construction During construction	Contractor
noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise	Moderate	Low	No noise barriers proposed during construction as clearing and operation of machinery will be limited to daylight hours.	Minimise noise disturbance to fauna and neighbouring communities.	Before construction During construction	Contractor

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
			Increased noise as a result of operation will be dispersed across the site and difficult to control through a noise barrier. Minimisation of traffic noise will be achieved by low speed limits and traffic calming measures such as speed humps.			
light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill	Low	Low	Consideration of directional and fauna sensitive lighting in the design for use during operation. Clearing and operation of machinery will be limited to daylight hours.	Avoid light disturbance to nocturnal fauna.	At design and during construction and operation	Architect Contractor
adaptive dust monitoring programs to control air quality	High	Low	Implement industry practice controls of dust during bulk earth works.	Dust impacts on adjacent habitats is minimised	Construction	Contractor
programming construction activities to avoid impacts; for example, timing construction activities for when migratory species are absent from the site, or when particular species known to or likely to use the habitat on the site are not breeding or nesting	Low	Low	Avoid vegetation removal during microbat breeding season.	Risk to microbats reduced.	During construction	Contractor
temporary fencing to protect significant environmental features such as riparian zones	Moderate – no significant environmental features present in development footprint. Small revegetated patches of native vegetation adjacent to development footprint.	Low	Erect, check and maintain construction fence.	Accidental incursions minimised.	Before and during construction	Contractor
hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Moderate	Low	Adopt 'come clean, leave clean' process for all construction vehicles and personnel.	Accidental weed spread minimised.	Before and during construction.	Contractor

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
staff training and site briefing to communicate environmental features to be protected and measures to be implemented	Moderate	Low	Carry out site inductions to explain environmental significance of the development footprint and surrounding revegetated native vegetation.	Accidental incursions minimised.	Before and during construction.	Contractor
development control measures to regulate activity in vegetation and habitat adjacent to residential development including controls on pet ownership, rubbish disposal, wood collection, fire management and disturbance to nests and other niche habitats	Moderate	Low	Relevant conditions from The Hills DCP apply to the site to limit vegetation clearance.	Reduce unnecessary clearing or degradation of vegetation and habitat adjacent to development footprint post construction.	Operation	Council Contractor
making provision for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on or adjacent to the development site	Moderate	Low	Retained vegetation is managed for weed control and promotion of native diversity, in particular nectar and fruit producing species.	Condition of retained native vegetation within the development footprint is improved, and habitat for threatened species augmented.	Operation	Council Contractor

## **7.6. Mitigating prescribed impacts**

Measures proposed to mitigate and manage prescribed biodiversity impacts at the subject land before, during and after construction are outlined in Table 24.

Table 24: Mitigation measures for prescribed biodiversity impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Scheduling timing of construction activities to avoid critical life cycle events	Low	Low	Preclearance surveys should be undertaken prior to removal vegetation to identify any trees containing nests.	Ensuring animal welfare and protection	Prior to vegetation removal	Project ecologist
Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecological or licensed wildlife handler during clearing, construction and maintenance activities for human made structures and non-native vegetation	Nil – no human made structures or non-native trees will be impacted	No change	-	-	-	-
Retaining habitat features within the subject land or relocating them to adjacent retained remnant vegetation	Nil – no specific habitat features such as hollows, coarse woody debris or nests present in development footprint	No change	-	-	-	-
Installing artificial connectivity measures to re-establish connections between habitat and favoured transport corridors	Low – the connectivity of native vegetation within the subject land and its immediate vicinity of is currently marginal and isolated.	Low	After construction, vegetation will be planted across the subject land. This will offer some habitat connectivity within the broader assessment area.	Connecting features of the subject land will improve due to vegetation plantings post construction.	At design phase and during construction	Designers, contractor
Erecting temporary fencing to protect significant environmental features such as karst, caves, rock outcrops and water bodies	Low – no significant environmental features present in the subject land. Water courses present within 450 m of subject land.	Low	Clearly marked fencing must be erected to eliminate the risk of accidental incursions into sensitive environments	Sensitive environments are protected	Before and during construction	Contractor Project ecologist
Replacing habitat provided by human made structures and non-native vegetation with alternative habitat	Nil– no human made structures or non-native trees will be impacted	No change	-	-	-	-
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	Moderate	Low	Standard sediment and erosion control (SEC) measures and dust control measures should be	Contain sediments within the site to avoid	Establish SEC measures prior to	Contractor

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
			outlined in the CEMP and implemented.	entering stormwater	works commencing	
<b>Staff training and site briefing to communicate environmental features to be protected and measures implemented to protect them</b>	Moderate	Low	Train staff regarding the protection of retained vegetation within the indirect impact areas.	Staff aware of no-go zones and vegetation protection zones	Prior to works commencing onsite	Contractor
<b>Ecological restoration, rehabilitation actions and/or maintenance of retained native vegetation on or adjacent to the subject land</b>	Moderate	Low	Retained vegetation is managed for weed control and promotion of native diversity.	Condition of retained native vegetation within the development footprint improved.	During operation	Contractor
<b>Development control measures that regulate the types of activities that can occur in native vegetation and habitat adjacent to residential development including prohibiting the collection of bush rocks</b>	N/A – Limited native vegetation and habitat present adjacent to development.	No change	Vegetation adjacent to development footprint does not contain any bush rock or woody debris that would invite collection.	No change	-	-

## **7.7. Adaptive management strategy**

An adaptive management strategy for uncertain biodiversity impacts (that are infrequent or difficult to measure) is not relevant or required for this proposed development. It is anticipated that the potential impacts would be suitably managed via a CEMP, incorporating measures to manage biodiversity impacts.

## 8. Impact summary

Following implementation of the BAM and the BAMC, the following impacts have been determined.

### 8.1. Impacts requiring offsets

As this BDAR is being prepared using the planted native vegetation streamlined assessment module, impacts are not required to be offset.

### 8.2. Impacts not requiring offsets

The impacts of the development not requiring offset for native vegetation are outlined in Table 25 and shown on Figure 14.

Table 25: Impacts to native vegetation that do not require offsets

Vegetation Zone	PCT ID	PCT Name	Direct impact (ha)	Rationale
2	-	Planted native vegetation	0.04	Planted native vegetation does not attract an offset obligation and cannot be entered in the BAMC

### 8.3. Areas not requiring assessment

The subject land contains areas that do not require assessment under BAM. These include areas which had been historically cleared, were covered with exotic dominated grassland, or were existing infrastructure. Areas not requiring assessment are shown on Figure 15.

### 8.4. Credit summary

As this BDAR is being prepared using the planted native vegetation streamlined assessment module, no credits are required.



Figure 14: Impacts not requiring offset



Figure 15: Areas not requiring assessment

## 9. Consistency with legislation and policy

Additional matters relating to impacts on flora and fauna which are not covered by the BC Act must also be addressed for the proposed development. Potential Matters of National Environmental Significance (MNES) consistent with the EPBC Act have been addressed in Section 9.1.

### 9.1. Matters of National Environmental Significance

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. Under the Act, any action which ‘has, will have, or is likely to have a significant impact on a matter of MNES’ is defined as a controlled action, and requires approval from the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), which is responsible for administering the EPBC Act.

The process includes undertaking an Assessment of Significance for listed threatened species and ecological communities that represent a matter of MNES that will be affected because of the proposed action. Significant impact guidelines that outline several criteria have been developed by the Commonwealth of Australia (2013) to aid in conducting the Assessment of Significance and help decide whether a referral to the Commonwealth is required.

Following an assessment of the likelihood of occurrence of all threatened species and ecological communities generated by the PMST (Appendix E), it was determined that one MNES was considered to potentially occur in the development footprint:

- The vulnerable *Pteropus poliocephalus* (Grey-headed Flying Fox) is being considered for direct impacts to potential foraging habitat (0.04 ha of low condition habitat).

The significant impact criteria have been applied to this MNES below, and it was concluded that the proposed development was unlikely to constitute a significant impact on this MNES.

#### 9.1.1. *Pteropus poliocephalus* (grey-headed flying fox)

The grey-headed flying-fox is listed as a vulnerable species under the EPBC Act. This species uses a wide variety of habitats (including disturbed areas) for foraging and have been recorded travelling long distances on feeding forays. Fruits and flowering plants of a wide variety of species are the main food source. The species roosts in large ‘camps’ of up to 200,000 individuals. Camps are usually formed close to water and along gullies, however, the species has been known to form camps in urban areas.

This species was not identified within the subject land during the field survey. No camps were identified within the subject land. The nearest flying-fox camp is located approximately 15 km southwest of the subject land at Ropes Creek where recent records indicate it was occupied by 1 – 499 individuals in 2021 (DCCEEW 2025a). The second nearest camp is located approximately 15 km southeast from the subject land at Parramatta Park where it was occupied by 2,500-9,999 in 2021 (DCCEEW 20224a). No camps will be affected by the proposed action.

The proposed action will modify up to 0.04 ha of potential foraging habitat for this species. The vegetation within the development footprint provides potential marginal seasonal foraging habitat, in the form of planted native vegetation (eight trees). An EPBC Act impact assessment has been undertaken for this species (Table 26).

Table 26: Assessment of impacts on Grey-headed Flying Fox under the EPBC Act

Criterion	Assessment
Criterion a: lead to a long-term decrease in the size of an important population of a species	<p>The Matters of National Environmental Significance Impact Guidelines 1.1 (Commonwealth of Australia, 2013) defines an important population as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:</p> <ul style="list-style-type: none"> <li>• Key source populations either for breeding or dispersal</li> <li>• Populations that are necessary for maintaining genetic diversity, and/or</li> <li>• Populations that are near the limit of the species range.</li> </ul> <p>There is one large and dynamic population of grey-headed flying foxes in Australia (DAWE 2021). This population, which is important, responds to changes in resources as a result of climate and flowering and fruiting events. Any individuals of this species that may forage within the subject land would be part of the important population.</p> <p>No roosting habitat (camps) will be affected by the proposed action as camps have not been recorded within the subject land. The grey-headed flying-fox forages widely and is dispersive in response to changes in foraging resources. The species is recorded as travelling long distances (up to 50 km) on feeding forays. Approximately 0.04 ha of potential foraging habitat corresponding to planted native vegetation, which may provide a foraging resource for the grey-headed flying-fox would be removed. While the species may forage occasionally within the vegetation present, the removal of 0.04 ha of poor condition foraging habitat is not likely to result in a long-term decrease in the size of an important population. The potential foraging habitat is likely to be a negligible portion of the total foraging range for a single bat.</p>
Criterion b: reduce the area of occupancy of an important population	<p>The removal of 0.04 ha of poor condition potential foraging habitat will reduce the area of occupancy by this amount as this resource is no longer available for this species to use. However, as the grey-headed flying-fox is highly mobile, and travel long distances across the broader landscape in response to resource fluctuations, this reduction in area of occupancy in the context of their range, approximately Adelaide to the Fraser Coast in Queensland (DAWE 2021), does not represent a significant reduction.</p>
Criterion c: fragment an existing important population into two or more populations	<p>According to the Recovery Plan for the Grey-headed Flying-fox (DAWE 2021) "the grey-headed flying-fox is considered to be a single, mobile population with individuals distributed across Queensland, New South Wales, Victoria, South Australia, Tasmania and the ACT." The potential seasonal foraging habitat to be removed is considered marginal as it consists of a few scattered regrowth Eucalypt trees and Acacia spp.. The potential foraging habitat may function as a 'stepping stone' for this highly dispersive species, and therefore the proposed action may increase the distance between stepping stone habitat. No barrier to movement would be erected as part of the action and the important population should remain free to forage across its entire distribution. Therefore, the proposed works are unlikely to fragment an existing important population into two or more populations.</p>
Criterion d: adversely affect habitat critical to the survival of a species	<p>Foraging habitat critical to the survival of this species includes native vegetation communities that contain diet plants that flower during winter and spring when food bottlenecks have been identified. One of the most commonly found tree species in the development footprint, <i>Corymbia maculata</i>, is identified as a species that is an important winter and spring flowering species (DAWE 2021). Therefore, the habitat within the development footprint meets the definition of critical habitat. The removal of eight trees of the planted native vegetation within the development footprint represents a small amount of critical habitat within a mosaic of resources which will be retained in the immediate landscape and the broader region which will not be adversely affected.</p>
Criterion e: disrupt the breeding cycle of an important population	<p>The two nearest active grey-headed flying-fox camp occur approximately 15 km to the southeast and southwest of the subject land (DCCEE 2025a). There are foraging resources such as patches of native vegetation and planted native vegetation in the development footprint. In addition, there are foraging resources surrounding the development footprint in all directions. Therefore, given the highly dispersive nature of this species, and that they are known to forage across long distances, the loss of foraging resources as a result of the proposed action would not disrupt foraging activity that would be a part of the breeding cycle of the nearby camps. The camp could remain and forage within the locality. The breeding cycle of an important population would not be disrupted by the proposed action.</p>

Criterion	Assessment
Criterion f: modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Potential foraging habitat will persist adjacent to the development footprint and across the locality. This species is highly dispersive, and it is unlikely that the habitat to be removed would cause the species to decline. Furthermore, according to the National Flying-fox Monitoring Program, no grey-headed flying-fox camps currently occur or have ever been recorded within the development footprint (DCCEEW 2025a).
Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Approximately 0.04 ha of poor-quality potential foraging habitat would be removed. It is unlikely that the extent of this vegetation removal will cause the species to decline.
Criterion h: Introduce disease that may cause the species to decline	The proposed action will not result in the establishment of an invasive species that is harmful to grey-headed flying-fox.
Criterion i: Interfere substantially with the recovery of the species	The proposed action will not result in the introduction of a disease that is harmful to the grey-headed flying-fox.
<b>Conclusion</b>	<p>In consideration of the above, the proposed action is considered unlikely to have a significant impact on the grey-headed flying-fox because:</p> <ul style="list-style-type: none"> <li>- This species is known to have extensive foraging ranges from their camps and use a wide variety of habitats.</li> <li>- The areas of potential foraging habitat that will be impacted are very small, degraded patches of native vegetation, which are surrounded by many larger and more intact patches of native vegetation in the broader landscape, which will be retained.</li> </ul>

## 10. Conclusion

This BDAR has been prepared to assess biodiversity impacts of the proposed state significant development (SSD) of the new Rouse Hill Hospital at Commercial Road and Windsor Road, Rouse Hill, NSW (the 'Subject Land'). It was prepared using the Streamlined Assessment Module – Small Area, as the total area of native vegetation proposed to be impacted is under the relevant area clearing limit threshold of 1 ha. The Streamlined Assessment Module – Planted Native Vegetation, has also been applied to this BDAR as the proposed SSD will only impact planted native vegetation within the development footprint.

Following field survey, it was confirmed that the majority of the vegetation within the subject land comprises exotic dominated grassland, with isolated and small patches of planted native trees. Small patches of native revegetation plantings occur along, but outside, the boundary of the subject land, which was found to be consistent with one native plant community types (PCT): PCT 3320 – Cumberland Shale Plains Woodland. As there is no PCTs within the subject land, there are no TECs present within the subject land.

No threatened species were detected during the field surveys. The planted native vegetation was assessed for its suitability as habitat for threatened species, as required under Appendix D2 of the BAM. This assessment found that the planted native vegetation did not provide suitable habitat for all but five threatened flora species, and one threatened fauna species. Targeted surveys for these threatened flora species were conducted: *Eucalyptus benthamii* (Camden White Gum), *Grevillea juniperina* subsp. *juniperina* (Juniper-leaved Grevillea), *Micromyrtus minutiflora*, *Pimelea spicata* (Spiked Rice-flower) and *Pultenaea parviflora*. No threatened flora species were detected during the targeted surveys undertaken within and adjacent to the subject land. Mitigation measures have been detailed to minimise the impact on the threatened fauna species, *Pteropus poliocephalus* (grey-headed flying fox) that the removal of seven potential foraging trees might have on this species.

Better quality vegetation and habitat would be retained along the northern edge of the subject land, where revegetation plantings of native plant species has resulted in a community that is consistent with PCT 3320. After efforts to avoid or minimise impacts, residual impacts on biodiversity and habitats are minimal and include:

- removal of 0.04 ha of planted native vegetation
- removal of 0.04 ha of exotic dominated grassland.

Potential prescribed biodiversity impacts were assessed and, for the proposed development, the following were found to be relevant and have been avoided where possible, with the adoption of mitigation measures to minimise any remaining impacts:

- removal of non-native vegetation
- habitat connectivity
- water bodies, water quality and hydrological processes
- increase in vehicle strikes which may potentially affect native fauna.

Measures to minimise or mitigate impacts on biodiversity would include:

- pre-clearance surveys
- clearing protocols including staged felling of trees and removal of buildings and attendance by ecologists, where required

- timing works to avoid critical life cycle events
- sediment barriers to control water quality.

One matter of national environmental significance (MNES) was considered to potentially occur within the development site: *Pteropus poliocephalus* (grey-headed flying fox). Application of the relevant EPBC Act significant impact criteria concluded that a significant impact, as a result of the proposed development, to this species was unlikely.

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## Appendix A Definitions

The following terminology has been used throughout this report for the purposes of describing the impacts of the proposal in the context of a biodiversity assessment in accordance with the NSW Biodiversity Assessment Method 2020. This terminology may or may not align with other technical documents associated with the proposed development.

Terminology	Definition
Biodiversity credit report	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site.
BioNet Atlas	The BioNet Atlas (formerly known as the NSW Wildlife Atlas) is the OEH database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails) and some fish
Broad condition state:	Areas of the same PCT that are in relatively homogenous condition. Broad condition is used for stratifying areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score.
Connectivity	The measure of the degree to which an area(s) of native vegetation is linked with other areas of vegetation.
Credit Calculator	The computer program that provides decision support to assessors and proponents by applying the BAM, and which calculates the number and class of biodiversity credits required to offset the impacts of a development or created at a biodiversity stewardship site.
Development	Has the same meaning as development at section 4 of the EP&A Act, or an activity in Part 5 of the EP&A Act. It also includes development as defined in section 115T of the EP&A Act.
Development footprint	The area of land that is directly impacted on by a proposed development, including access roads, and areas used to store construction materials.
Development site	An area of land that is subject to a proposed development that is under the EP&A Act.
Ecosystem credits	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development site and the gain in biodiversity values at a biodiversity stewardship site.
Extent of occurrence (EOO)	Measures the spatial spread of a taxon to determine the degree to which risks from threatening factors could impact an entire population, and is not intended to be an estimate of the amount of occupied or potential habitat.
High threat exotic plant cover	Plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species.
Hollow bearing tree	A living or dead tree that has at least one hollow. A tree is considered to contain a hollow if: (a) the entrance can be seen; (b) the minimum entrance width is at least 5 cm; (c) the hollow appears to have depth (i.e. you cannot see solid wood beyond the entrance); (d) the hollow is at least 1 m above the ground. Trees must be examined from all angles.
Important wetland	A wetland that is listed in the Directory of Important Wetlands of Australia (DIWA) and SEPP 14 Coastal Wetlands
Linear shaped development	Development that is generally narrow in width and extends across the landscape for a distance greater than 3.5 kilometres in length
Local population	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately.
Local wetland	Any wetland that is not identified as an important wetland (refer to definition of Important wetland).
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000.

Terminology	Definition
Multiple fragmentation impact development	Developments such as wind farms and coal seam gas extraction that require multiple extraction points (wells) or turbines and a network of associated development including roads, tracks, gathering systems/flow lines, transmission lines
Operational Manual	The Operational Manual published from time to time by DPIE, which is a guide to assist assessors when using the BAM
Patch size	An area of intact native vegetation that: a) occurs on the development site or biodiversity stewardship site, and b) includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or $\leq 30$ m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or stewardship site..
Proponent	A person who intends to apply for consent to carry out development or for approval for an activity.
Reference sites	The relatively unmodified sites that are assessed to obtain local benchmark information when benchmarks in the Vegetation Benchmarks Database are too broad or otherwise incorrect for the PCT and/or local situation. Benchmarks can also be obtained from published sources.
Regeneration	The proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height $< 5$ cm within a vegetation zone.
Residual impact	An impact on biodiversity values after all reasonable measures have been taken to avoid, minimise or mitigate the impacts of development. Under the BAM, an offset requirement is determined for the remaining impacts on biodiversity values.
Retirement of credits	The purchase and retirement of biodiversity credits from an already-established biobank site or a biodiversity stewardship site secured by a biodiversity stewardship agreement.
Riparian buffer	Riparian buffers applied to water bodies in accordance with the BAM
Sensitive biodiversity values land map	Development within an area identified on the map requires assessment using the BAM.
Site attributes	The matters assessed to determine vegetation integrity. They include: native plant species richness, native over-storey cover, native mid-storey cover, native ground cover (grasses), native ground cover (shrubs), native ground cover (other), exotic plant cover (as a percentage of total ground and mid-storey cover), number of trees with hollows, proportion of over-storey species occurring as regeneration, and total length of fallen logs.
Site-based development	a development other than a linear shaped development, or a multiple fragmentation impact development
Species credits	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.
Subject land	Is land to which the BAM is applied in Stage 1 to assess the biodiversity values of the land. It includes land that may be a development site, clearing site, proposed for biodiversity certification or land that is proposed for a biodiversity stewardship agreement.
Threatened Biodiversity Data Collection	Part of the BioNet database, published by DPIE and accessible from the BioNet website.
Threatened species	Critically Endangered, Endangered or Vulnerable threatened species as defined by Schedule 1 of the BC Act, or any additional threatened species listed under Part 13 of the EPBC Act as Critically Endangered, Endangered or Vulnerable.
Vegetation Benchmarks Database	A database of benchmarks for vegetation classes and some PCTs. The Vegetation Benchmarks Database is published by OEH and is part of the BioNet Vegetation Classification.
Vegetation zone	A relatively homogenous area of native vegetation on a development site, land to be biodiversity certified or a biodiversity stewardship site that is the same PCT and broad condition state.
Wetland	An area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and depend on, moist conditions

Terminology	Definition
	for at least part of their life cycle. Wetlands may exhibit wet and dry phases and may be wet permanently, cyclically or intermittently with fresh, brackish or saline water
<b>Woody native vegetation</b>	Native vegetation that contains an over-storey and/or mid-storey that predominantly consists of trees and/or shrubs

## Appendix B Vegetation Floristic Plot Data

Table 27: Floristic plot data

Family	Species	Common Name	Growth Form Group	Plot 4			Plot 5			Plot 6		
				Stratum	Cover	Abundance	Stratum	Cover	Abundance	Stratum	Cover	Abundance
Fabaceae (Mimosoideae)	<i>Acacia binervia</i>	Coast Myall	Tree (TG)	M	10	1	-	-	-	-	-	-
Fabaceae (Mimosoideae)	<i>Acacia decurrens</i>	Black Wattle	Tree (TG)	M	10	5	U	25	20	M	5	5
Fabaceae (Mimosoideae)	<i>Acacia falcata</i>		Shrub (SG)	-	-	-	M	0.2	3	-	-	-
Fabaceae (Mimosoideae)	<i>Acacia saligna</i> *	Golden Wreath Wattle		-	-	-	-	-	-	M	15	50
Poaceae	<i>Aira spp.*</i>	A Hairgrass		G	0.1	5	-	-	-	-	-	-
Apocynaceae	<i>Araujia sericifera</i> *^	Moth Vine		M	0.1	10	M	0.2	10	G	0.1	10
Asparagaceae	<i>Asparagus asparagoides</i> *^	Bridal Creeper		G	0.1	1	-	-	-	G	0.2	2
Poaceae	<i>Avena fatua</i> *	Wild Oats		G	0.3	100	-	-	-	-	-	-
Asteraceae	<i>Bidens pilosa</i> *^	Cobbler's Pegs		-	-	-	G	0.2	100	G	0.2	100
Brassicaceae	<i>Brassica rapa</i> subsp. <i>campestris</i> *	Turnip		G	0.1	20	G	0.2	50	G	0.2	20
Poaceae	<i>Bromus catharticus</i> *	Prairie Grass		G	0.5	100	G	0.5	50	-	-	-
Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Native Blackthorn	Shrub (SG)	-	-	-	M	0.5	5	M	3	20
Casuarinaceae	<i>Casuarina glauca</i>	Swamp Oak	Tree (TG)	-	-	-	U	5	7	-	-	-
Poaceae	<i>Cenchrus pennisetiformis</i> *^	Buffel Grass		G	2	500	G	40	1000	G	1	100
Poaceae	<i>Cenchrus pennisetiformis</i> *^	Buffel Grass		G	1	50	G	0.5	500	-	-	-
Chenopodiaceae	<i>Chenopodium</i> sp.	Goosefoot, Crumbweed	Shrub (SG)	-	-	-	-	-	-	G	0.1	5
Poaceae	<i>Chloris gayana</i> *^	Rhodes Grass		-	-	-	G	0.5	500	G	3	100
Asteraceae	<i>Cirsium vulgare</i> *	Spear Thistle		-	-	-	G	0.2	50	-	-	-
Convolvulaceae	<i>Convolvulus erubescens</i>	Pink Bindweed	Other (OG)	G	0.1	2	-	-	-	-	-	-
Asteraceae	<i>Conyza</i> sp.*	A Fleabane		-	-	-	G	0.3	100	-	-	-
Myrtaceae	<i>Corymbia maculata</i>	Spotted Gum	Tree (TG)	U	10	3	-	-	-	-	-	-

Family	Species	Common Name	Growth Form Group	Plot 4			Plot 5			Plot 6		
				Stratum	Cover	Abundance	Stratum	Cover	Abundance	Stratum	Cover	Abundance
Sapindaceae	<i>Cupaniopsis anacardioides</i>	Tuckeroo	Tree (TG)	M	0.1	1	-	-	-	-	-	-
Poaceae	<i>Cynodon dactylon</i>	Common Couch	Grass & grasslike (GG)	G	0.5	500	G	0.3	100	G	1	100
Cyperaceae	<i>Cyperus gracilis</i>	Slender Flat-sedge	Grass & grasslike (GG)	-	-	-	-	-	-	G	0.1	5
Phormiaceae	<i>Dianella caerulea</i> var. <i>caerulea</i>		Forb (FG)	-	-	-	G	2	50	-	-	-
Phormiaceae	<i>Dianella caerulea</i> var. <i>producta</i>		Forb (FG)	-	-	-	-	-	-	G	0.1	3
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed	Forb (FG)	G	0.1	10	G	0.1	20	G	1	100
Sapindaceae	<i>Dodonaea viscosa</i> subsp. <i>spatulata</i>	Broad-leaf Hopbush	Shrub (SG)	-	-	-	M	0.2	1	-	-	-
Poaceae	<i>Ehrharta erecta</i> *^	Panic Veldtgrass		G	0.2	50	G	0.5	500	G	0.5	50
Chenopodiaceae	<i>Einadia polygonoides</i>	Knotweed Goosefoot	Forb (FG)	G	0.1	1	-	-	-	-	-	-
Chenopodiaceae	<i>Einadia trigonos</i> subsp. <i>trigonos</i>		Forb (FG)	G	0.1	1	G	0.1	10	-	-	-
Poaceae	<i>Eragrostis curvula</i> *^	African Lovegrass		G	5	500	-	-	-	G	3	500
Poaceae	<i>Eriochloa procer</i>	Spring Grass	Grass & grasslike (GG)	G	0.1	5	-	-	-	-	-	-
Myrtaceae	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	Tree (TG)	U	5	2	-	-	-	U	0.5	2
Myrtaceae	<i>Eucalyptus tereticornis</i>	Forest Red Gum	Tree (TG)	U	10	6	U	3	2	U	20	50
Fabaceae (Faboideae)	<i>Glycine clandestina</i>	Twining glycine	Other (OG)	G	0.1	5	-	-	-	-	-	-
Asteraceae	<i>Hypochaeris radicata</i> *	Catsear		-	-	-	-	-	-	G	0.1	1
Fabaceae (Faboideae)	<i>Indigofera australis</i>	Australian Indigo	Shrub (SG)	-	-	-	M	2	10	-	-	-
Asteraceae	<i>Lactuca serriola</i> f. <i>serriola</i> *			-	-	-	G	0.1	10	-	-	-
Oleaceae	<i>Ligustrum lucidum</i> *^	Large-leaved Privet		M	2	20	-	-	-	G	0.1	2
Oleaceae	<i>Ligustrum sinense</i> *^	Small-leaved Privet		M	1	20	-	-	-	-	-	-
Lomandraceae	<i>Lomandra hystrix</i>		Grass & grasslike (GG)	-	-	-	G	25	100	-	-	-
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Grass & grasslike (GG)	G	0.3	5	G	0.3	10	-	-	-
Fabaceae (Faboideae)	<i>Medicago polymorpha</i> *	Burr Medic		-	-	-	G	0.2	50	-	-	-
Myrtaceae	<i>Melaleuca decora</i>		Shrub (SG)	-	-	-	M	1	10	-	-	-

Family	Species	Common Name	Growth Form Group	Plot 4			Plot 5			Plot 6		
				Stratum	Cover	Abundance	Stratum	Cover	Abundance	Stratum	Cover	Abundance
Myrtaceae	<i>Melaleuca nodosa</i>		Shrub (SG)	M	2	5	-	-	-	M	10	50
Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass	Grass & grasslike (GG)	-	-	-	-	-	-	G	0.5	50
Malvaceae	<i>Modiola caroliniana</i> *	Red-flowered Mallow		G	0.1	1	G	0.1	10	-	-	-
Ochnaceae	<i>Ochna serrulata</i> *^	Mickey Mouse Plant		M	0.3	2	-	-	-	-	-	-
Oleaceae	<i>Olea europaea</i> subsp. <i>cuspidata</i> *	African Olive		M	2	10	-	-	-	M	3	10
Cactaceae	<i>Opuntia stricta</i> var. <i>stricta</i> *^	Common Prickly Pear		G	0.1	1	-	-	-	-	-	-
Oxalidaceae	<i>Oxalis perennans</i>		Forb (FG)	G	0.1	5	G	0.1	10	-	-	-
Poaceae	<i>Panicum capillare</i> var. <i>capillare</i> *	Witchgrass		-	-	-	-	-	-	G	40	1000
Poaceae	<i>Panicum capillare</i> var. <i>capillare</i> *	Witchgrass		G	5	500	G	1	500	-	-	-
Poaceae	<i>Paspalum dilatatum</i> *^	Paspalum		G	2	500	G	1	500	-	-	-
Plantaginaceae	<i>Plantago lanceolata</i> *	Lamb's Tongues		G	0.1	5	G	0.1	20	G	1	100
Euphorbiaceae	<i>Ricinus communis</i> *^	Castor Oil Plant		-	-	-	M	0.1	2	-	-	-
Rosaceae	<i>Rubus anglocandicans</i> *^	Blackberry		M	0.3	10	-	-	-	-	-	-
Poaceae	<i>Rytidosperma penicillatum</i>	Slender Wallaby Grass	Grass & grasslike (GG)	-	-	-	G	0.1	10	-	-	-
Gentianaceae	<i>Schenkia australis</i>	Spike Centaury	Forb (FG)	G	0.1	1	-	-	-	-	-	-
Asteraceae	<i>Senecio madagascariensis</i> *^	Fireweed		G	0.1	1	G	0.1	10	G	0.3	100
Poaceae	<i>Setaria parviflora</i> *			G	1	500	G	0.5	100	G	0.5	50
Malvaceae	<i>Sida rhombifolia</i> *	Paddy's Lucerne		G	0.3	50	G	0.5	500	G	1	100
Solanaceae	<i>Solanum sisymbriifolium</i> *			M	0.1	1	M	0.4	10	-	-	-
Asteraceae	<i>Sonchus oleraceus</i> *	Common Sowthistle		G	0.1	5	G	0.1	5	-	-	-
Poaceae	<i>Sporobolus creber</i>	Slender Rat's Tail Grass	Grass & grasslike (GG)	G	0.2	50	-	-	-	-	-	-
Poaceae	<i>Stenotaphrum secundatum</i> *^	Buffalo Grass		-	-	-	G	5	500	-	-	-

Family	Species	Common Name	Growth Form Group	Plot 4			Plot 5			Plot 6		
				Stratum	Cover	Abundance	Stratum	Cover	Abundance	Stratum	Cover	Abundance
Asteraceae	<i>Taraxacum officinale</i> *	Dandelion		G	0.1	10	-	-	-	-	-	-
Poaceae	<i>Themeda triandra</i>		Grass & grasslike (GG)	-	-	-	G	1	500	-	-	-
Fabaceae (Faboideae)	<i>Trifolium sp.</i> *	A Clover		-	-	-	-	-	-	G	0.1	100
Verbenaceae	<i>Verbena bonariensis</i> *	Purpletop		G	0.2	10	G	0.5	500	G	3	100
Fabaceae (Faboideae)	<i>Vicia tetrasperma</i> *	Slender Vetch		-	-	-	-	-	-	G	0.1	100

\* exotic species

^ high threat weed

## Appendix C Vegetation Integrity Plot Data

Table 28: Vegetation Integrity plot details

Plot name	PCT	Condition	Zone	Easting	Northing
Plot 4	3320	Revegetation	56	307296	6270566
Plot 5	-	Planted Native Vegetation	56	307400	6270343
Plot 6	3320	Revegetation	56	307233	6270518

Table 29: Vegetation Integrity plot data – Species Richness

Plot	Tree	Shrub	Grass & grass like	Forb	Fern	Other
4	6	1	4	5	0	2
5	3	5	5	4	0	0
6	3	3	3	2	0	0

Table 30: Vegetation Integrity plot data – percent cover for each growth form group

Plot	Tree Cover	Shrub Cover	Grass & grass like Cover	Forb Cover	Fern Cover	Cover Other
4	45.1	2	1.1	0.5	0	0.2
5	33	3.9	26.7	2.3	0	0
6	25.5	13.1	1.6	1.1	0	0

Table 31: Vegetation Integrity plot data – Function data

Plot	Large Trees	Hollow trees	Litter Cover	Logs	Tree 5-9	Tree 10-19	Tree 20-29	Tree 30-49	Tree 50-79	Tree 80+	Regen	HTW
4	0	0	16	0	1	1	1	1	0	0	1	14.2%
5	0	0	9	0	1	1	0	0	0	0	0	48.1%
6	0	0	60.2	4.5	1	1	1	1	0	0	1	8.4%

## Appendix D Plot to PCT results

Table 32: Eastern NSW Plot to PCT Assignment Tool Centroid Match results; sites are highlighted where distance to centroid is within the threshold for the matched PCT

Plot	Mapped PCT	Condition	PCT Match 1	Distance to Centroid 1	PCT Match 2	Distance to Centroid 2	PCT Match 3	Distance to Centroid 3	PCT Match 4	Distance to Centroid 4	PCT Match 5	Distance to Centroid 5
Plot 4	3320	Revegetation	4024	0.810	3319	0.815	4025	0.817	3336	0.827	3145	0.832
Plot 5	N/A	Planted Native Vegetation	4023	0.783	3407	0.793	3330	0.796	4024	0.798	3328	0.816
Plot 6	3320	Revegetation	3328	0.745	4138	0.748	4024	0.752	4025	0.756	3319	0.761

## Appendix E EPBC Act matters likelihood of occurrence

An assessment of likelihood of occurrence was made for threatened species, populations, ecological communities and migratory species identified from the PMST database search. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the development site, results of the site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- 'known' = the species was or has been observed on the site;
- 'likely' = a medium to high probability that a species uses the site;
- 'potential' = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur;
- 'unlikely' = a very low to low probability that a species uses the site; and
- 'no' = habitat within the proposed impact area and in the vicinity is unsuitable for the species.

Significant Impact Assessment criteria was applied to threatened species that were recorded within the proposed impact area, or had a high likelihood of occurring and were not recorded during the site visit. It is noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the development site area intermittently for foraging. For these fauna species, the habitat present and likely to be affected is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, a test of significance in reference to State or Commonwealth legislation was not considered necessary.

Information provided in the habitat associations' column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Profile Database.

Table 33: Likelihood of occurrence for TECs

Threatened Ecological Community Name	EPBC Act Status	Distribution	Habitat	Likelihood of occurrence	Impact Assessment Required
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	E	Sydney Basin Bioregion, mostly in the Cumberland IBRA sub-region, with small occurrences in the Sydney Cataract, Wollemi and Burratorang sub-regions. It occurs primarily in the Castlereagh area in the north-west of the Cumberland Plain with other known occurrences near Holsworthy, Kemps Creek and Longneck Lagoon.	Occurs primarily on Tertiary sands and gravels of the Hawkesbury-Nepean river system. At Agnes Banks it primarily occurs on aeolian (wind-blown) sands overlying Tertiary alluvium. Found on flat or gently undulating terrain in rain shadow areas typically receiving 700–900 mm annual rainfall. The ecological community occurs primarily at low elevations up to 80 m above sea level (ASL), including old ridges, dunes and terraces.	No. Ecological community not identified within subject land.	No
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queensland ecological community	E	This ecological community is found within the South Eastern Queensland, NSW North Coast, Sydney Basin and South East Corner IBRA7 bioregions and is found in coastal catchments, mostly at elevations of less than 20 m above sea-level (ASL) that are typically found within 30 km of the coast.	Coastal Swamp Oak Forest is often found in association with other vegetation types such as coastal saltmarsh, mangroves, freshwater wetlands, littoral rainforests or swamp sclerophyll forests in a 'mosaic' of coastal floodplain communities. The structure of Coastal Swamp Oak Forest can vary from forest to woodland depending on its location in the landscape and disturbance history (OEH 2022).	No. Ecological community not identified within subject land.	No
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	E	This ecological community occurs between the Great Dividing Range and the coastline from near Gladstone in Queensland, through to the South Coast of New South Wales.	It has a layered canopy, dominated by melaleucas and or <i>Eucalyptus robusta</i> . Species found in this community are typically associated with forested palustrine wetlands, or swamp forests, found in the temperate to subtropical coastal valleys of Australia's east coast (OEH 2022).	No. Ecological community not identified within subject land.	No
Coastal Upland Swamps in the Sydney Basin Bioregion	E	The Coastal Upland Swamp is endemic to NSW and confined to the Sydney Basin Bioregion. It occurs in the eastern Sydney Basin from the Somersby district in the north to the Robertson district in the south. In the north it occurs on the Somersby-Hornsby plateaux, in the south it occurs on the Woronora plateau. It occurs in elevations from 20 metres to over 600 metres above sea level, with the majority of swamps occurring within 200 and 450 metres elevation.	Coastal Upland Swamps occur primarily on impermeable sandstone plateaux with shallow groundwater aquifers in the headwaters and impeded drainage lines of streams, and on sandstone benches with abundant seepage moisture. generally associated with soils that are acidic and vary from yellow to grey mineral sandy loams with a shallow organic horizon to highly organic spongy black peats with pallid subsoils.	No. Ecological community not identified within subject land.	No
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	CE	Occurs in western Sydney, with the most extensive stands occurring in the Castlereagh and Holsworthy areas. Smaller remnants occur in the	Mainly occurs on clay soils derived from the deposits of ancient river systems (alluvium), or on shale soils of the Wianamatta Shales.	No. Ecological community not	No

Threatened Ecological Community Name	EPBC Act Status	Distribution	Habitat	Likelihood of occurrence	Impact Assessment Required
		Kemps Creek area and in the eastern section of the Cumberland Plain.		identified within subject land.	
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	CE	Endemic to the shale hills and plains of the Sydney Basin Bioregion in NSW, occurring primarily in, but not limited to, the Cumberland Sub-region.	Flat to undulating or hilly terrain, at elevations up to approximately 350 metres above sea level. Predominantly associated with clay soils, that are derived from Wianamatta Shale geology. Minor occurrences may be present on other soil groups, notably Holocene Alluvium and soils derived from the Mittagong Formation.	No. The associated PCT 3320 is present within the subject land, however these patches did not meet the condition threshold for the EPBC listed TEC.	No
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	CE	This encompasses the area from around Sale on the south-east coast of Victoria to around Raymond Terrace, just north of Newcastle on the New South Wales east coast.	Occurs on alluvial landforms related to coastal river floodplains and associated sites where transient water accumulates, including floodplains, river-banks, riparian zones, lake foreshores, creek lines (including the floors of tributary gullies), floodplain pockets, depressions, alluvial flats, fans, terraces, and localised colluvial fans.	No. Ecological community not identified within subject land.	No
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	CE	Occurs at the edges of the Cumberland Plain in western Sydney, most now occurs in the Hawkesbury, Baulkham Hills, Liverpool, Parramatta, Penrith, Campbelltown and Wollondilly local government areas.	Intergrade between clay soils from the shale rock and earthy and sandy soils from sandstone, or where shale caps overlay sandstone.	No. The associated PCT 3320 is present within the subject land, however these patches did not meet the key diagnostic characteristics for this TEC.	No
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	CE	Limited to the Sydney Basin Bioregion. Its occurrence is transitional between the Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest that occupies drier areas on the plain, and the Blue Gum High Forest that occurs on the higher rainfall ridges. predominantly associated with relatively fertile	The tree canopy of the Turpentine-Ironbark Forest in the Sydney Basin Bioregion is typically dominated to co-dominated by <i>Syncarpia glomulifera</i> turpentine). Turpentine occurs throughout the ecological community but the associated tree species varies with local site conditions. Ironbark species are commonly present, such as <i>Eucalyptus paniculata</i> (grey ironbark), <i>E. crebra</i>	No. Ecological community not identified within subject land.	No

Threatened Ecological Community Name	EPBC Act Status	Distribution	Habitat	Likelihood of occurrence	Impact Assessment Required
		clay soils derived from Wianamatta shale, and clay lenses of shale within Hawkesbury sandstone, less commonly occurring on transitional areas between soils derived from the Wianamatta shale and Hawkesbury sandstone, or on soils derived from Holocene alluvium, or the Mittagong formation.	(narrow-leaved ironbark) and/or <i>E. fibrosa</i> (red ironbark). On the Cumberland Plain, grey ironbark, narrow-leaved ironbark and red ironbark are common dominants, as is <i>E. punctata</i> (grey gum).		
Western Sydney Dry Rainforest and Moist Woodland on Shale	CE	Cumberland Plain Sub-region of the Sydney Basin Bioregion.	It generally occurs in rugged terrain and other patches may occur on undulating terrain, with dry rainforest patches typically occupying steep lower slopes and gullies, and moist woodland patches typically occupying upper sections of the slope Occurs almost exclusively on clay soils derived from Wianamatta Group shales.	No. Ecological community not identified within subject land.	No

E = Endangered Ecological Community, CE = Critically Endangered Ecological Community, V = Vulnerable Ecological Community

Table 34: Likelihood of occurrence for threatened flora species

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Acacia bynoeana</i>	Bynoe's Wattle	V	Found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. Heath or dry sclerophyll forest on sandy soils.	No – lack of suitable habitat.	No
<i>Acacia gordonii</i>	Null	E	Restricted to the north-west of Sydney, it has a disjunct distribution occurring in the lower Blue Mountains in the west, and in the Maroota/Glenorie area in the east. A relatively large proportion of individuals (approximately 850) occur on conservation reserve within Blue Mountains National Park. This species is found within the Hawkesbury, Blue Mountains and Baulkham Hills local government areas. Grows in dry sclerophyll forest and heathlands amongst or within rock platforms on sandstone outcrops.	No – lack of suitable habitat.	No
<i>Acacia pubescens</i>	Downy Wattle, Hairy Stemmed Wattle	V	Concentrated around the Bankstown-Fairfield-Rookwood area and the Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Occurs on alluviums, shales and at the intergrade between shales and sandstones. The soils are characteristically gravelly soils, often with ironstone. Occurs in open woodland and forest, in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland	No – lack of suitable habitat.	No
<i>Allocasuarina glareicola</i>	Null	E	Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool. Castlereagh woodland on lateritic soil. Found in open woodland with <i>Eucalyptus parramattensis</i> , <i>Eucalyptus fibrosa</i> , <i>Angophora bakeri</i> , <i>Eucalyptus sclerophylla</i> and <i>Melaleuca decora</i> .	No – lack of suitable habitat.	No
<i>Asterolasia elegans</i>	Null	E	Occurs north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Also likely to occur in the western part of Gosford local government area. Known from only seven populations, only one of which is wholly within a conservation reserve. Occurs on Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest.	No – lack of suitable habitat.	No
<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	V	Currently known from two disjunct areas; one population near Braidwood on the Southern Tablelands and three populations in the Wyong area on the Central Coast. Occurs on grassy sclerophyll woodland on clay loam or sandy soils, or low woodland with stony soil.	No – lack of suitable habitat.	No
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	V	In NSW, recorded mainly on coastal and near coastal ranges north from Victoria to near Forster, with two isolated occurrences inland north-west of Grafton.	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			Occurs in coastal heathlands, margins of coastal swamps and sedgelands, coastal forest, dry woodland, and lowland forest.		
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	Restricted to eastern NSW, from Brunswick Heads on the north coast to Gerroa in the Illawarra region, and as far west as Merriwa in the upper Hunter River valley. Dry rainforest; littoral rainforest; <i>Leptospermum laevigatum</i> - <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> (Coastal Tea-tree– Coastal Banksia) coastal scrub; <i>Eucalyptus tereticornis</i> (Forest Red Gum) or <i>Corymbia maculata</i> (Spotted Gum) open forest and woodland; and <i>Melaleuca armillaris</i> (Bracelet Honeymyrtle) scrub.	No – lack of suitable habitat.	No
<i>Darwinia biflora</i>	Null	V	Recorded in Ku-ring-gai, Hornsby, Baulkham Hills and Ryde local government areas. The northern, southern, eastern and western limits of the range are at Maroota, North Ryde, Cowan and Kellyville, respectively. Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. Associated overstorey species include <i>Eucalyptus haemastoma</i> , <i>Corymbia gummifera</i> and/or <i>E. squamosa</i> . The vegetation structure is usually woodland, open forest or scrub-heath.	No – lack of suitable habitat.	No
<i>Eucalyptus cryptica</i> / <i>Eucalyptus</i> sp. <i>Cattai</i>	Null	CE	Known from north-western Sydney between Castle Hill and Cattai. This species grows as isolated trees or small groups of trees in scrub, heath and low woodland, on sandstone-derived soils. The habitat may also be associated with the edges of the Mittagong Formation, which may include Mittagong sandstone and shale, and at some sites with the presence of laterised loose stones.	No – lack of suitable habitat.	No
<i>Genoplesium baueri</i>	Bauer's Midge Orchid	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens. Dry sclerophyll forest and moss gardens over sandstone. Currently the species is known from just over 200 plants across 13 sites. The species has been recorded at locations now likely to be within the following conservation reserves: Berowra Valley Regional Park, Royal National Park and Lane Cove National Park. May occur in the Woronora, O'Hares, Metropolitan and Warragamba Catchments.	No – lack of suitable habitat.	No
<i>Haloragis exalata</i> subsp. <i>exalata</i>	Square Raspwort	V	Disjunct distribution in the Central Coast, South Coast and North-Western Slopes botanical subdivisions of NSW. Protected and shaded damp situations in riparian habitats.	No – lack of suitable habitat.	No
<i>Haloragodendron lucasii</i>	Hal	E	The known locations of this species are confined to a very narrow distribution on the north shore of Sydney. Associated with dry sclerophyll forest. Reported to grow in moist sandy loam soils in sheltered aspects, and on gentle slopes below cliff-lines near creeks in low open woodland.	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Kunzea rupestris</i>	Null	V	Restricted, with most locations in the Maroota - Sackville - Glenorie area and one outlier in Ku-ring-gai Chase National Park, all within the Central Coast botanical subdivision of NSW. Currently known to exist in 20 populations, 6 of which are reserved. Grows in shallow depressions on large flat sandstone rock outcrops. Characteristically found in short to tall shrubland or heathland.	No – lack of suitable habitat.	No
<i>Lasiopetalum joyceae</i>	Null	V	Has a restricted range occurring on lateritic to shaley ridgetops on the Hornsby Plateau south of the Hawkesbury River. It is currently known from 34 sites between Berrilee and Duffys Forest. Seventeen of these are reserved. Grows in heath on sandstone.	No – lack of suitable habitat.	No
<i>Leucopogon exolasius</i>	Woronora Beard-heath	V	Woronora Beard-heath is found along the upper Georges River area and in Heathcote National Park. Habitat includes woodland on sandstone.	No – lack of suitable habitat.	No
<i>Melaleuca deanei</i>	Deane's Melaleuca	V	Deane's Paperbark occurs in two distinct areas, in the Ku-ring-gai/Berowra and Holsworthy/Wedderburn areas respectively. There are also more isolated occurrences at Springwood (in the Blue Mountains), Wollemi National Park, Yalwal (west of Nowra) and Central Coast (Hawkesbury River) areas. The species occurs mostly in ridgetop woodland, with only 5% of sites in heath on sandstone.	No – lack of suitable habitat.	No
<i>Micromyrtus blakelyi</i>	Null	V	Restricted to areas near the Hawkesbury River, north of Sydney. Distribution extends from north of Maroota in the north, to Cowan in the south. All known populations occur within the Baulkham Hills and Hornsby local government areas. Typically occurs within heathlands in shallow sandy soil in cracks and depressions of sandstone rock platforms.	No – lack of suitable habitat.	No
<i>Micromyrtus minutiflora</i>	Null	V	Restricted to the general area between Richmond and Penrith, western Sydney. Grows in Castlereagh Scribbly Gum Woodland, Ironbark Forest, Shale/Gravel Transition Forest, open forest on tertiary alluvium and consolidated river sediments.	No – lack of suitable habitat.	No
<i>Olearia cordata</i>	Null	V	A NSW endemic with a scattered distribution generally restricted to the south-western Hunter Plateau, eastern Colo Plateau, and the far north-west of the Hornsby Plateau near Wisemans Ferry east of Maroota. Most known populations occur within conservation reserves (Wollemi National Park, Yengo National Park and Wisemans Ferry Historic Site). Populations are typically small and scattered. Grows in dry open sclerophyll forest and open shrubland, on sandstone ridges.	No – lack of suitable habitat.	No
<i>Persicaria elatior</i>	Tall Knotweed	V	In south-eastern NSW recorded from Mt Dromedary, Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. In northern NSW known from Raymond Terrace (near Newcastle)	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			and the Grafton area (Cherry Tree and Gibberagee State Forests). Occurs beside streams and lakes, swamp forest or disturbed areas.		
<i>Persicaria elatior</i>	Knotweed, Tall Knotweed	V	Tall Knotweed has been recorded in south-eastern NSW (Mt Dromedary (an old record), Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. In northern NSW it is known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). The species also occurs in Queensland. This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	No – lack of suitable habitat.	No
<i>Persoonia hirsuta</i>	Hairy Geebung, Hairy Persoonia	E	This species is distributed from Singleton in the north, along the east coast to Hilltop in the southwest, Dombarton in the southeast and the Blue Mountains to the west. The Hairy Geebung is found in clayey and sandy soils in dry sclerophyll open forest, woodland and heath, primarily on the Mittagong Formation and on the upper Hawkesbury Sandstone.	No – lack of suitable habitat.	No
<i>Persoonia mollis</i> subsp. <i>maxima</i>	Null	E	Highly restricted, known from the Hornsby Heights-Mt Colah area north of Sydney in the Sydney Basin Bioregion. Occurs in sheltered aspects of deep gullies or on the steep upper hillsides of narrow gullies on Hawkesbury Sandstone. These habitats support relatively moist, tall forest vegetation communities, often with warm temperate rainforest influences.	No – lack of suitable habitat.	No
<i>Persoonia nutans</i>	Nodding Geebung	E	Restricted to the Cumberland Plain in western Sydney, between Richmond in the north and Macquarie Fields in the south. The species has a disjunct distribution, with the majority of populations (and 99% of individuals) occurring in the north of the species range in the Agnes Banks, Londonderry, Castlereagh, Berkshire Park and Windsor Downs areas. Core distribution occurs within the Penrith, and to a lesser extent Hawkesbury, local government areas, with isolated and relatively small populations also occurring in the Liverpool, Campbelltown, Bankstown and Blacktown local government areas. Northern populations are confined to aeolian and alluvial sediments and occur in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland and some in Cooks River / Castlereagh Ironbark Forests. Southern populations also occupy tertiary alluvium, but extend onto shale sandstone transition communities and into Cooks River / Castlereagh Ironbark Forest.	No – lack of suitable habitat.	No
<i>Pimelea curviflora</i> var. <i>curviflora</i>	Null	V	Confined to the coastal area of the Sydney and Illawarra regions. Populations are known between northern Sydney and Maroota in the north-west. New population discovered at Croom Reserve near Albion Park in Shellharbour LGA in August	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			2011. Formerly recorded around the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. Also recorded in Illawarra Lowland Grassy Woodland habitat at Albion Park on the Illawarra coastal plain. Flowers October to May.		
<i>Pimelea spicata</i>	Spiked Rice-flower	E	Two disjunct areas; the Cumberland Plain (Marayong and Prospect Reservoir south to Narellan and Douglas Park) and the Illawarra (Landsdowne to Shellharbour to northern Kiama). Well-structured clay soils. <i>Eucalyptus moluccana</i> (Grey Box) communities and in areas of ironbark on the Cumberland Plain. Coastal <i>Banksia</i> open woodland or coastal grassland in the Illawarra.	No – lack of suitable habitat.	No
<i>Pomaderris brunnea</i>	Brown Pomaderris	V	Brown Pomaderris is found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It also occurs near Walcha on the New England tablelands and in far eastern Gippsland in Victoria. Brown Pomaderris grows in moist woodland or forest on clay and alluvial soils of flood plains and creek lines. Flowers appear in September and October.	No – lack of suitable habitat.	No
<i>Pterostylis gibbosa</i>	Illawarra Greenhood	E	Known from a small number of populations in the Hunter region (Milbrodale), the Illawarra region (Albion Park and Yallah) and the Shoalhaven region (near Nowra). Open forest or woodland, on flat or gently sloping land with poor drainage.	No – lack of suitable habitat.	No
<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	E	Restricted to western Sydney between Freemans Reach in the north and Picton in the south. Two populations occur within a conservation reserve (Georges River National Park; Scheyville NP). Occurs primarily on the Cumberland Plain along an ecological gradient from clay soils derived from Ashfield Shale to thin accumulations of humus rich sandy soils on Hawkesbury Sandstone sheets and rock shelves. Habitat ranges from grassy woodland on flat to gently sloping landscapes on shale soils, to open-forest on hilly landscapes on transitional soils, and woodland on the rims and steep sides of river valleys on sandstone soils.	No – lack of suitable habitat.	No
<i>Pultenaea parviflora</i>	Null	V	Endemic to the Cumberland Plain. Core distribution is from Windsor to Penrith and east to Dean Park. Outlier populations are recorded from Kemps Creek and Wilberforce. May be locally abundant, particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays.	No – lack of suitable habitat.	No
<i>Rhizanthella slateri</i>	Eastern Australian Underground Orchid	E	In NSW, currently known from fewer than 10 locations, including near Bulahdelah, the Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra. Sclerophyll forest in shallow to deep loams.	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	Occurs in coastal districts north from Batemans Bay in New South Wales, approximately 280 km south of Sydney, to areas inland of Bundaberg in Queensland. Populations of <i>R. rubescens</i> typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate, subtropical rainforests, and wet sclerophyll forests.	No – lack of suitable habitat.	No
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW.	No – lack of suitable habitat.	No
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	V	Only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest. On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	No – lack of suitable habitat.	No
<i>Thesium australe</i>	Austral Toadflax	V	In eastern NSW it is found in very small populations scattered along the coast, and from the Northern to Southern Tablelands. Grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass ( <i>Themeda australis</i> ).	No – lack of suitable habitat.	No
<i>Zieria involucreta</i>	Null	V	Has a disjunct distribution north and west of Sydney, in the Baulkham Hills, Hawkesbury, Hornsby and Blue Mountains local government areas. Recent records for the species come from 22 populations in the catchments of the Macdonald, Colo and Hawkesbury Rivers between Melon Creek and Mogo Creek in the north to Little Cattai Creek (Hillside) and Wheeny Creek (Colo) in the south and from a single population in the upper Blue Mountains north of Katoomba. Occurs primarily on Hawkesbury sandstone. Also occurs on Narrabeen Group sandstone and on Quaternary alluvium. Found primarily in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest, although some populations extend upslope into drier vegetation.	No – lack of suitable habitat.	No

E = Endangered Ecological Community, CE = Critically Endangered Ecological Community, V = Vulnerable Ecological Community

Table 35: Likelihood of occurrence for threatened fauna species

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Actitis hypoleucos</i>	Common Sandpiper	M	Summer migrant. In NSW, widespread along coastline and also occurs in many areas inland. Coastal wetlands and some inland wetlands, especially muddy margins or rocky shores. Also estuaries and deltas, lakes, pools, billabongs, reservoirs, dams and claypans, mangroves.	No – lack of suitable habitat.	No
<i>Aphelocephala leucopsis</i>	Southern Whiteface	V	Southern whiteface occur across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range. Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains.	No – lack of suitable habitat.	No
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions. Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of <i>Casuarina cunninghamiana</i> (River Oak). This species prefers woodlands that have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	No – lack of suitable habitat.	No
<i>Apus pacificus</i>	Fork-tailed Swift	M	This migratory species has been recorded in all regions of NSW. Riparian woodland, swamps, low scrub, heathland, saltmarsh, grassland, <i>Spinifex</i> sandplains, open farmland and inland and coastal sand-dunes.	No – lack of suitable habitat.	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	Found over most of NSW except for the far north-west. Permanent freshwater wetlands with tall, dense vegetation, particularly <i>Typha</i> spp. (bullrushes) and <i>Eleocharis</i> spp. (spikerushes).	No – lack of suitable habitat.	No
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	No – lack of suitable habitat.	No
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Calidris melanotos</i>	Pectoral Sandpiper	M	Summer migrant to Australia. Widespread but scattered in NSW. East of the Great Divide, recorded from Casino and Ballina, south to Ulladulla. West of the Great Divide, widespread in the Riverina and Lower Western regions. Shallow fresh to saline wetlands, including coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	No – lack of suitable habitat.	No
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	E	In NSW, distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. Isolated records known from as far north as Coffs Harbour and as far west as Mudgee. Tall mountain forests and woodlands in summer; in winter, may occur at lower altitudes in open eucalypt forests and woodlands, and urban areas.	No – lack of suitable habitat.	No
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V	This species is uncommon but widespread. They can be found from Mitchell, Queensland, through eastern New South Wales to East Gippsland, Victoria. Their distribution is continuous through the forested parts of the Great Dividing Range but becomes more scattered inland, to as far west as the Riverina in New South Wales	No – lack of suitable habitat.	No
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes. Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	No – lack of suitable habitat.	No
<i>Charadrius leschenaultii</i>	Greater Sand-plover	V, M	In NSW, recorded between the northern rivers and the Illawarra, with most records coming from the Clarence and Richmond estuaries. Almost entirely restricted to coastal areas in NSW, mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	No – lack of suitable habitat.	No
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	V	Endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum ( <i>Eucalyptus camaldulensis</i> ) Forest bordering wetlands.	No – lack of suitable habitat.	No
<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	M	This is a migratory species which has potential to visit northern and eastern Australia during the winter. On passage and in winter, occurs in all manner of	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			habitats included open woodland, plantations, forest edge and clearings, and gardens; typically at lower elevations.		
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	E	There are three main populations: Northern – southern Qld/northern NSW, Central – Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern – Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border. Central and southern populations inhabit heath and open woodland with a heathy understorey. In northern NSW, habitat comprises open forest with dense tussocky grass understorey.	No – lack of suitable habitat.	No
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spotted-tailed Quoll	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld. Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	No – lack of suitable habitat.	No
<i>Erythrotriorchis radiatus</i>	Red Goshawk	E	This unique Australian endemic raptor is distributed sparsely through northern and eastern Australia, from the western Kimberley Division of northern Western Australia to north-eastern Queensland and south to far north-eastern NSW, and with scattered records in central Australia. The species is very rare in NSW, extending south to about 30°S, with most records north of this, in the Clarence River Catchment, and a few around the lower Richmond and Tweed Rivers. Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	No – lack of suitable habitat.	No
<i>Falco hypoleucos</i>	Grey Falcon	V	Arid and semi-arid zones. In NSW, found chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Shrubland, grassland and wooded watercourses, occasionally in open woodlands near the coast, and near wetlands.	No – lack of suitable habitat.	No
<i>Gallinago hardwickii</i>	Latham's Snipe	M	Migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW. Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	No – lack of suitable habitat.	No
<i>Grantiella picta</i>	Painted Honeyeater	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas. Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	No – lack of suitable habitat.	No
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	Southeastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla,	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			and a southern population occurring from north of Narooma through to Walhalla, Victoria. Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.		
<i>Hirundapus caudacutus</i>	White-throated Needletail	V, M	Migratory and usually seen in eastern Australia from October to April. Breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. More common in coastal areas, less so inland.	No – lack of suitable habitat.	No
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	V	Largely confined to Triassic and Permian sandstones within the coast and ranges in an area within approximately 250 km of Sydney. Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	No – lack of suitable habitat.	No
<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Heath or open forest with a heathy understorey on sandy or friable soils.	No – lack of suitable habitat.	No
<i>Lathamus discolor</i>	Swift Parrot	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and southwest slopes. Box-ironbark forests and woodlands.	No – lack of suitable habitat.	No
<i>Limosa lapponica baueri</i>	Nunivak Bar-tailed Godwit	V, M	The Bar-tailed Godwit is a migratory wader which breeds in the Arctic and migrates to the southern hemisphere during the non-breeding season. They can be seen in NSW between August and April. This species most frequently recorded along major coastal river estuaries and sheltered embayments, particularly the Tweed, Richmond, Clarence, Macleay, Hastings, Hunter and Shoalhaven River estuaries, Port Stephens and Botany Bay.	No – lack of suitable habitat.	No
<i>Litoria aurea</i>	Green and Golden Bell Frog	V	Since 1990, recorded from ~50 scattered sites within its former range in NSW, from the north coast near Brunswick Heads, south along the coast to Victoria. Records exist west to Bathurst, Tumut and the ACT region. Marshes, dams and stream-sides, particularly those containing <i>Typha</i> spp. (bullrushes) or <i>Eleocharis</i> spp. (spike rushes). Some populations occur in highly disturbed areas.	No – lack of suitable habitat.	No
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	E	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. The south-eastern species is found from Brisbane to Adelaide and throughout much of inland NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas.	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
<i>Mixophyes balbus</i>	Stuttering Frog	V	Along the east coast of Australia from southern Qld to north-eastern Victoria. Rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range.	No – lack of suitable habitat.	No
<i>Monarcha melanopsis</i>	Black-faced Monarch	M	In NSW, occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi National Park and Wombeyan Caves. It is rarely recorded farther inland. Rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, Brigalow scrub, coastal scrub, mangroves, parks and gardens.	No – lack of suitable habitat.	No
<i>Motacilla flava</i>	Yellow Wagtail	M	Regular summer migrant to mostly coastal Australia. In NSW recorded Sydney to Newcastle, the Hawkesbury and inland in the Bogan LGA. Swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land, lawns.	No – lack of suitable habitat.	No
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	M	In NSW, widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains. Eucalypt-dominated forests, especially near wetlands, watercourses, and heavily-vegetated gullies.	No – lack of suitable habitat.	No
<i>Neophema chrysostoma</i>	Blue-winged Parrot	V	Blue-winged parrots breed in Tasmania, coastal south-eastern South Australia and southern Victoria. They inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones.	No – lack of suitable habitat.	No
<i>Numenius madagascariensis</i>	Eastern Curlew	CE, M	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	No – lack of suitable habitat.	No
<i>Pandion haliaetus</i>	Osprey	M	This migratory species has a wide distribution and prefers areas with safe nest sites and shallow water with abundant fish. Nests are generally found within 3 to 5 km of a water body such as a salt marsh, mangrove ( <i>Rhizophora</i> ) swamp, cypress ( <i>Taxodium</i> ) swamp, lake, bog, reservoir or river. Nest sites can be safe from predators either by being difficult for a predator to climb (e.g. on a cliff) or by being over water or on a small island.	No – lack of suitable habitat.	No
<i>Petauroides volans</i>	Greater Glider	E	The Southern Greater Glider occurs in eastern Australia, in eucalypt forests and woodlands, where it has a broad distribution from around Proserpine in Queensland, south through NSW and the Australian Capital Territory into Victoria. Eucalypt forests and woodlands. Feeds exclusively on eucalypt leaves, buds,	No – lack of suitable habitat.	No

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			flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range.		
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	V	In NSW, it predominantly occurs in forests along the eastern coast, from the NSW-Qld border to the NSW-Vic border. This species can be found in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.	No – lack of suitable habitat.	No
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	V	In NSW they occur from the Qld border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	No – lack of suitable habitat.	No
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala	E	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range.	No – lack of suitable habitat.	No
<i>Pommerhelix duralensis</i>	Dural Land Snail	E	The species is a shale-influenced-habitat specialist, which occurs in low densities along the western and northwest fringes of the Cumberland IBRA subregion on shale-sandstone transitional landscapes. This snail can be found in the interface region between shale-derived and sandstone-derived soils, with forested habitats that have good native cover and woody debris. It favours sheltering under rocks or inside curled-up bark. It does not burrow nor climb.	No – lack of suitable habitat.	No
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	Fragmented distribution across eastern NSW. Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	No – lack of suitable habitat.	No
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	<b>Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria. Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.</b>	<b>Potential – foraging habitat present in the form of PCT 3320 and planted native vegetation.</b>	<b>Yes</b>
<i>Pycnoptilus floccosus</i>	Pilotbird	V	Pilotbirds are endemic to south-east Australia. Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to Dandenong near Melbourne Pilotbirds are strictly terrestrial, living on	No – lack of suitable habitat.	No

Scientific name	Common name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence	Impact assessment required
			the ground in dense forests with heavy undergrowth. Largely sedentary, they are typically seen hopping briskly over the forest floor and foraging on damp ground or among leaf-litter. Breeding takes place between August and January where a domed nest is built on or near the ground.		
<i>Rhipidura rufifrons</i>	Rufous Fantail	M	Coastal and near coastal districts of northern and eastern Australia, including on and east of the Great Divide in NSW. Wet sclerophyll forests, subtropical and temperate rainforests. Sometimes drier sclerophyll forests and woodlands.	No – lack of suitable habitat.	No
<i>Rostratula australis</i>	Australian Painted Snipe	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Swamps, dams and nearby marshy areas.	No – lack of suitable habitat.	No
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	M	Found in coastal north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, New South Wales. It is much less common in the south. Prefers thick understory in mountain/lowland rainforest, wooded gullies, riparian vegetation including mangroves.	No – lack of suitable habitat.	No
<i>Tringa nebularia</i>	Common Greenshank	M	Summer migrant to Australia. Recorded in most coastal regions of NSW; also widespread west of the Great Dividing Range, especially between the Lachlan and Murray Rivers and the Darling River drainage basin, including the Macquarie Marshes, and north-west regions. Terrestrial wetlands (swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans, salt flats, sewage farms and saltworks dams, inundated rice crops and bores) and sheltered coastal habitats (mudflats, saltmarsh, mangroves, embayments, harbours, river estuaries, deltas, lagoons, tidal pools, rock-flats and rock platforms).	No – lack of suitable habitat.	No

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