

# Tuckombil Quarry Rezoning Biodiversity Assessment Report



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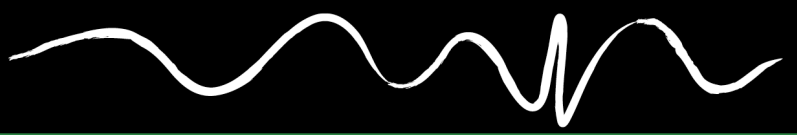
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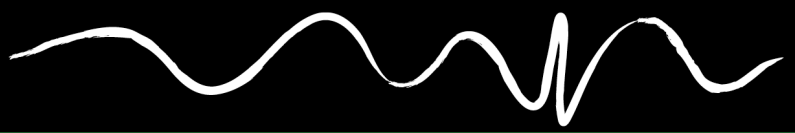


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# Executive Summary

GeoLINK has been engaged by Ballina Shire Council (BSC) to prepare a Biodiversity Assessment Report (BAR) to inform a rezoning planning proposal for Tuckombil Quarry at 540 Gap Rd, Alstonville NSW 2477.

The Proposal is to rezone the site to SP4 Enterprise, to facilitate its future use for a combination of high technology industrial uses (film studios and the like) and community recreation.

Details of the proposed future use of the site are not fully developed. BSC is in discussions with Byron Studios Pty Ltd regarding their proposal to undertake a staged development that would establish film production facilities at the site.

The site contains Biodiversity Value (BV) mapped land.

Results of field assessment are as follows:


- The site comprises a central quarry void, various structures (including buildings, offices, and sheds), hardstand areas, internal access roads and vegetation interspersed throughout.
- Vegetation on site comprises predominantly degraded land comprising exotic grasses and herbs. Planted ornamental trees and forested areas with a high abundance of exotic species also occur throughout the site.
- Branch Creek dissects the site and generally flows in a south to north direction. This is a second order waterway and links with Maguires Creek north of the site.
- One threatened flora species, Durobby (*Syzygium moorei*) was detected on site near the Gap Rd entrance within a planted ornamental garden. This species is listed as Vulnerable under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- One Rough-shelled Bush Nut (*Macadamia tetraphylla*) was detected off site (located on the fence line with adjoining Lot 3 DP588893). This species is listed as Vulnerable under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Vegetation on site is considered representative of a highly degraded form of *Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion* threatened ecological community (TEC). This TEC is listed as Endangered under the BC Act.
- No significant habitat for threatened fauna occurs at the site although the site provides potential habitat for a number of locally occurring threatened fauna species.

The rezoning proposal (and future development) of the site may result in the following potential biodiversity impacts:

- Loss of native vegetation associated with future development – no clearing is proposed at this stage.
- Minor short-term disturbance (noise, human activity, machine operations) to locally occurring fauna species during development, construction and operation.
- Minor potential for reduced water quality and altered hydrology due to works.
- Minor increased risk of roadkill from increased vehicular movements on surrounding roads.
- Potential for weeds to be imported to the site and surrounding environments during the construction stage of the proposal.

Review of statutory instruments relevant to the proposed rezoning was completed as follows:

- *State Environmental Planning Policy (Biodiversity & Conservation) 2021* (SEPP B&C 2021) - *Chapter 4 (Koala Habitat Protection 2021)* (Ch 4 KHP 2021): In the event the rezoning proposal is accepted, and the site is zoned SP4 Enterprise, Ch 4 KHP 2021 will apply to any future

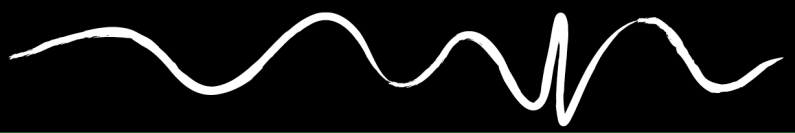


development proposals on site. The site does not contain core Koala habitat in accordance with Ch 4 KHP 2021.

- *Ballina Comprehensive Koala Plan of Management* (Ballina CKPoM): The site does not satisfy the provisions within Section 5.2 of the Ballina KMS, therefore the Ballina CKPoM does not apply to the site.
- *Ballina Council Development Control Plan (DCP) 2012:*
  - The site is mapped on the Natural Areas and Habitat Map. As such, any future development application should address Chapter 2 Section 3.3 (Natural Areas and Habitat) and Section 3.3A (Koala Habitat Management) of the DCP.
  - DCP Chapter 2 Section 3.5 (Compensatory Habitat and Offsets) outlines compensatory planting requirements for proposals which impact on identified biodiversity values. Section 3.5 (Compensatory Habitat and Offsets) of the DCP will apply to any proposed future development application at the site, where the proposal does not trigger the BOS.
- *Biodiversity Conservation Act 2016 (BC Act):* As part of any future development application the following additional reporting would be required:
  - Any impact on BV mapped land would trigger the BOS and a BDAR would need to be prepared at the development application stage.
  - Any impact on native vegetation greater than 0.5 ha within the site, would trigger the BOS and a BDAR would need to be prepared at the development application stage.
  - If a future proposal does not trigger the BOS, a Biodiversity Assessment Report (BAR) will be required to assess ecological impacts. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs as required under the BC Act.
- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act):* review of Matters of Environmental Significance (MNES) listed in the Act indicates that rezoning and subsequent development of the site is unlikely to significantly affect threatened species or communities listed in the EPBC Act.

It has been recommended that:

- Impacts to identified trees of significance (including threatened flora (Durobby and Rough-shelled Bush Nut)) should be avoided with a minimum 10 m buffer of retained vegetation to provide protection for these trees.
- Clearing of native vegetation (including Koala use trees) should be avoided in any future development at the site including; building envelopes, associated infrastructure and bushfire Asset Protection Zone (APZ). The priority would be to retain native forest vegetation at the site.
- Biodiversity values including native forest vegetation should be managed through a Biodiversity and Vegetation Management Plan (BVMP) at the site.
- The proponent should consider whether a Conservation Zone would be appropriate for biodiversity values on site - including native forest vegetation.
- It is recommended that the mapped PCT 3001 and other biodiversity values (significant trees) be added to Councils vegetation mapping system to trigger relevant statutory requirements for future development applications at the site.
- Alternatively, forested areas on site may be protected on title under Section 88b of the Conveyancing Act 'Restriction as to User'. This would serve to exclude intact native vegetation at the site as part of the developable land use area.



# 1. Introduction and Background

## 1.1 Introduction

GeoLINK has been engaged by Ballina Shire Council (BSC) to prepare a Biodiversity Assessment Report (BAR) to inform a rezoning planning proposal for Tuckombil Quarry at 540 Gap Rd, Alstonville NSW 2477.

This assessment has been prepared to:

- Identify any ecological constraints to the proposed rezoning (e.g. habitat for threatened species or communities listed in the *Biodiversity Conservation Act 2016* (BC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Identify any significant trees or fauna habitat features of biodiversity importance.
- Identify High Environmental Values (HEV).
- Examine the proposal against relevant statutory requirements.

## 1.2 The Site

Tuckombil Quarry (herein referred to as 'the site'), is located at 540 Gap Rd, Alstonville NSW 2477, (Lot 22 DP 1243105, Lot 21 DP 1243105 and Lot 3 DP 1130300) refer to **Illustration 1.1**.

The site occurs within the Scenic Rim (Interim Biogeographic Regionalisation for Australia [IBRA]) subregion of the South Eastern Queensland IBRA bioregion Version 7 (refer Thackway & Cresswell, 1995). At a local level, the site forms part of the 'Lamington Volcanic Slopes' Mitchell Landscape, which is not an 'over-cleared' Mitchell landscape. The sites position within the IBRA and Mitchell landscapes is shown at **Illustration 1.1**.

The site is zoned DM (Deferred Matter) in the Ballina Local Environmental Plan (LEP) 2012, therefore Ballina LEP 1987 continues to apply. The site is zoned 1(e) Rural (Extractive and Mineral Resources) under the Ballina 1987 LEP.


The property has an area of 23ha and was operated as a full-time hard rock quarry until 2016. All quarrying activities ceased at the site in mid-2020. Two tenants occupy the area surrounding the central quarry void. Bitupave Limited (Boral) occupies a leasehold lot at the southern end and Ron Southon Pty Ltd in the northwest.

The site comprises a central quarry void, various structures (including buildings, offices, and sheds), hardstand areas, internal access roads and vegetation interspersed throughout.

Branch Creek dissects the site and generally flows in a south to north direction. This is a second order waterway and links with Maguires Creek north of the site (refer to **Illustration 1.1**).

## 1.3 The Proposal

The Proposal is to rezone the site to SP4 Enterprise, to facilitate its future use for a combination of high technology industrial uses (film studios and the like) and community recreation (herein referred to as 'the Proposal'). A development application does not form part of this proposal as details of the proposed future use of the site are not fully developed. BSC is in discussions with Byron Studios Pty Ltd regarding their proposal to undertake a staged development that would establish film production facilities at the site. The preliminary concept plan provided by Byron Studios Pty Ltd is provided at **Appendix A**.



Providing a driveway for the existing tenant (Ron Southon Pty Ltd) at Lot 3 DP 1130300 also forms part of the proposal (refer to **Appendix A**). The proposed driveway will provide access through the site from Teven Road to the west to Lot 3 DP 1130300. An impact assessment for the proposed driveway would be prepared at the development application stage.

## **1.4 Biodiversity Offsets Scheme Review**

### **Biodiversity Values Mapping**

The site contains Biodiversity Value (BV) mapped land (refer to **Illustration 1.2**).

In the case of a future development proposal, it is noted that any impact on BV mapped land would trigger the Biodiversity Offset Scheme (BOS) and a Biodiversity Development Assessment Report (BDAR) would need to be prepared at the development application stage.

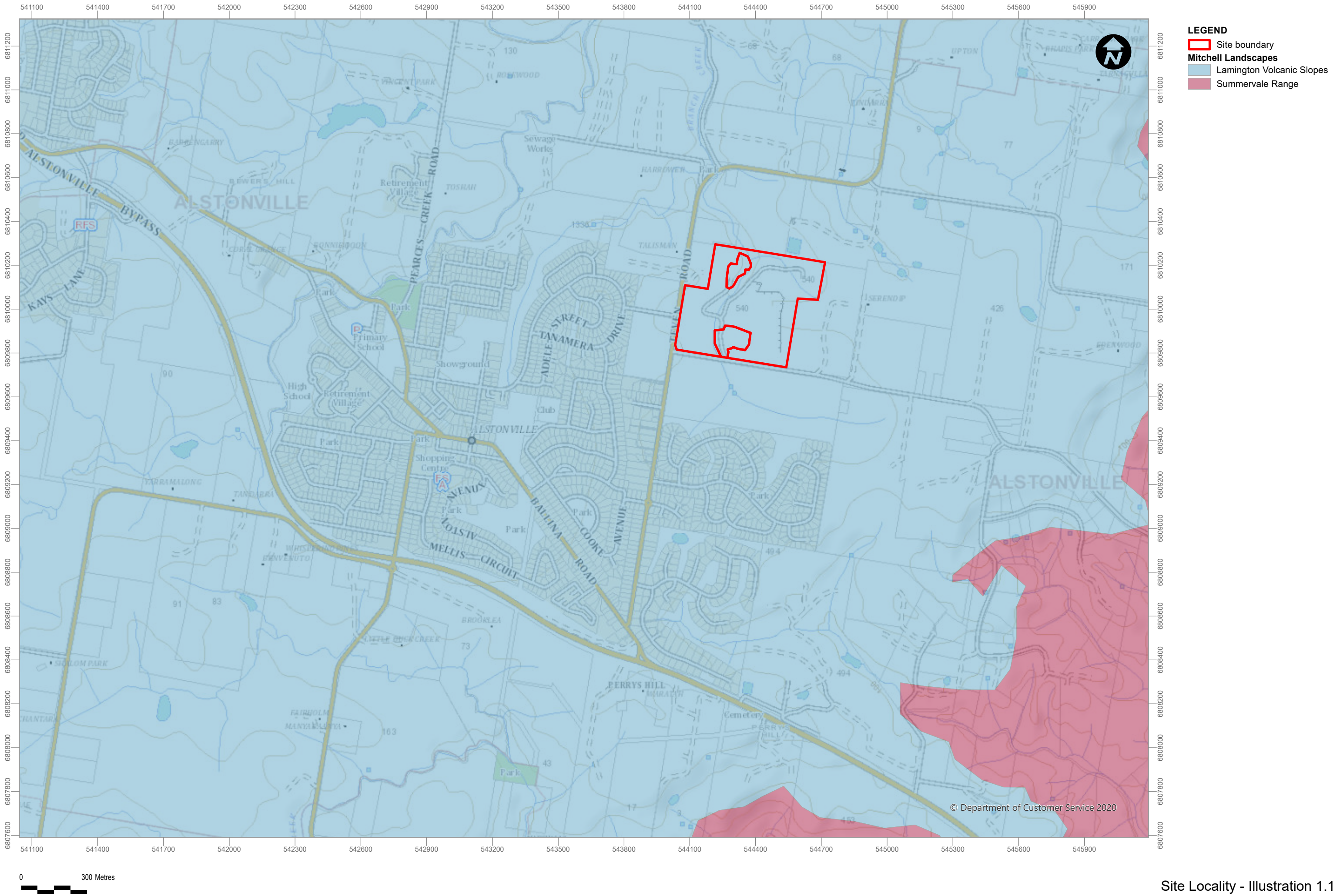
### **Area Clearing Threshold**

The area threshold varies depending on the minimum lot size (MLS) (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).

As there is no MLS provided in Ballina 1987 LEP, the actual lot size (23 ha) for the site (as per section 7.2 of the Biodiversity Conservation Regulation 2017) allows for the removal of up to 0.5 ha of native vegetation before triggering the Biodiversity Offset Scheme (BOS) in the BC Act.

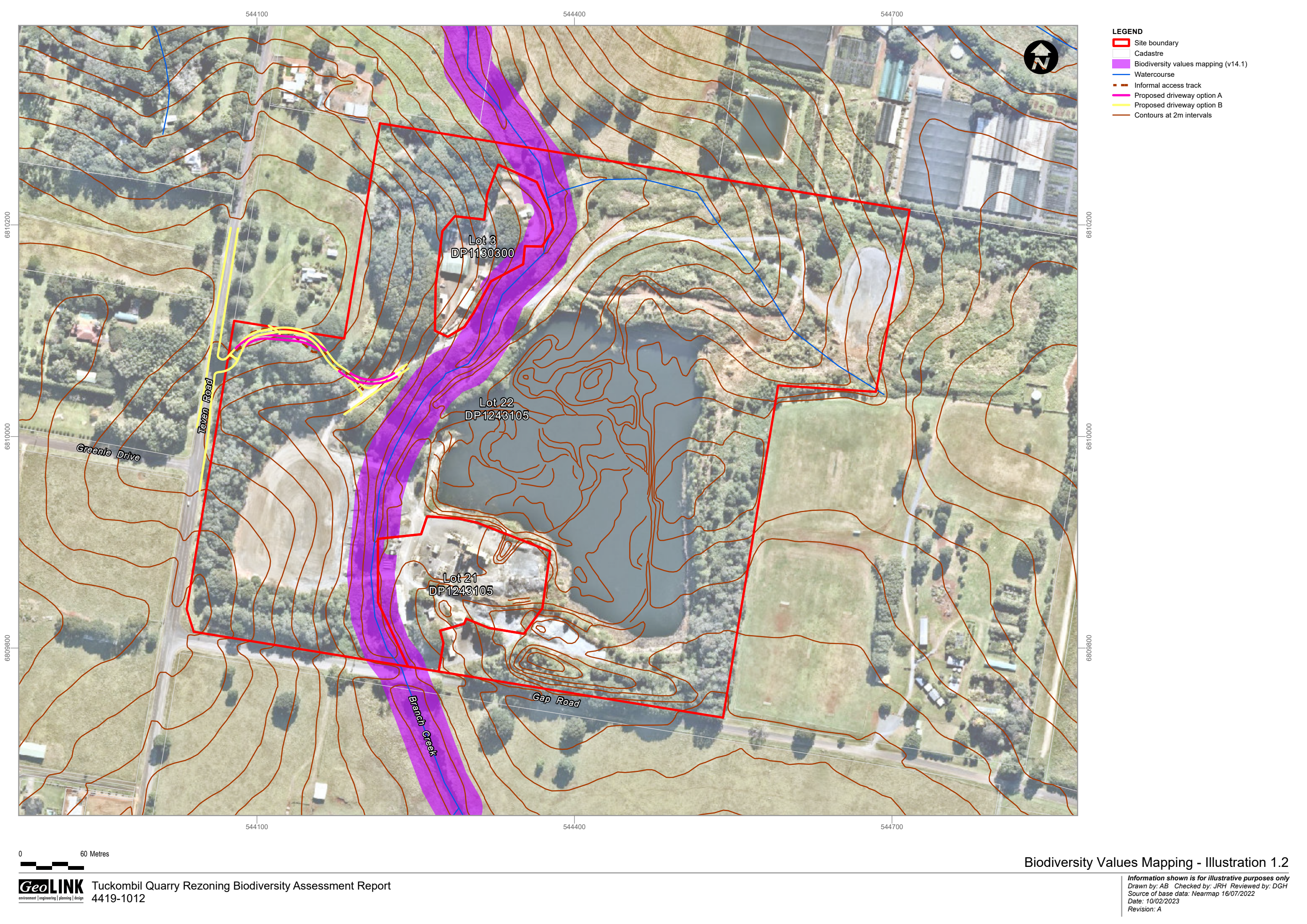
In the case of a future development proposal, it is noted that any impact on native vegetation greater than 0.5 ha within the site, would trigger the BOS and a BDAR would need to be prepared at the development application stage.





Site Locality - Illustration 1.1









## 2. Methodology

### 2.1 Desktop Review

The following desktop review was completed prior to field assessment:

- A search of the BioNET Wildlife Atlas (10 km x 10 km grid centred on the site); completed 2 November 2022.
- A search of the Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) within a 10 km radius of the site; completed 02 November 2022.
- Review of Biodiversity Value mapping (as per the Biodiversity Values Map and Threshold Tool); completed 02 November 2022.
- Review of NSW (Mitchell) Landscapes - Version 3.1 (as per NSW Sharing and Enabling Environmental Data (SEED mapping)); completed 02 November 2022.
- Review of IBRA Regions and Subregions (as per SEED mapping); completed 02 November 2022.
- Review of Key Fish Habitat mapping (as per DPI Fisheries Spatial Data Portal); completed 02 November 2022.
- Review of Coastal Management SEPP 2018 maps (as per SEED mapping); completed 03 November 2022.
- Review of Ballina Shire Council IntraMaps online tool; completed 02 November 2022.
- Review of Directory of Important Wetlands in Australia (Department of Climate Change, Energy, the Environment and Water ((DCCEEW)); completed 03 November 2022.
- Review of Vulnerable Estuaries and Intermittently Closed and Open Lakes and Lagoons (ICOLLS) (as per SEED mapping); completed 03 November 2022.
- Review of NSW State Heritage Register; completed 03 November 2022.

Additional data and resources used or consulted in this assessment included:

- Department of Planning and Environment (DPE) Biodiversity and Conservation Division (BCD) North East Branch (2022);
  - Attachment 1 - BCD NE Branch Steps for Assessing Biodiversity in Planning Proposals.
  - Attachment 2 - BCD NE Branch HEV Criteria and Identification Methods at the Property Scale.
  - Attachment 3 - BCD NE Branch Guidance for Avoiding and Minimising Impacts on HEV.
- BioNet Vegetation Information System.
- BioNet Threatened Biodiversity Data Collection (TBDC).
- BioNet Threatened Species Profiles.
- PlantNET NSW.
- NSW Government's Guide to New South Wales Karst and Caves.
- Ballina LEP 1987.
- Ballina LEP 2012.
- Ballina Council Development Control Plan 2012.

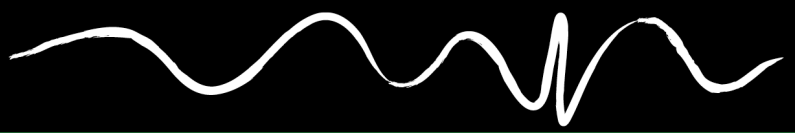
Details of the methodology used for field assessment are provided in **Section 2.2**.

### 2.2 Field Assessment

Field assessment was completed by GeoLINK ecologists David Havilah and Jack Hastings on 8 November 2022 using the following methodology:

- Vegetation assessment and mapping including identifying vegetation communities to plant community type (PCT).





- Targeted surveys for threatened flora (as identified in BioNET searches).
- Identification of threatened ecological communities (TECs).
- Opportunistic survey of all fauna based on visual or aural observations.
- Identification and survey (by GPS) of any hollow-bearing trees or habitat features including nests or dreys.
- Targeted searches for Koala faecal pellets under preferred Koala use trees.

## 3. Vegetation

### 3.1 Desktop Analysis

#### 3.1.1 Database Search Results

BioNet search results identified records of 27 threatened flora species (including 18 species also listed in the EPBC Act) and habitat for 14 threatened ecological communities (two of which are listed under the EPBC Act) within the search area (refer to **Appendix B**). PMST results identified habitat for 36 threatened flora species and six threatened ecological communities within the search area.

### 3.2 Site Features

#### 3.2.1 Vegetation

Vegetation at the site is described in **Table 3.1** and aligned with plant community types (PCTs) in the BioNet Vegetation Classification system (where relevant) with vegetation mapping shown in **Illustration 3.1**.

Photographs of vegetation are shown at **Plate 3.1** through **Plate 3.4**. Additional site photographs are provided at **Appendix C**.

**Table 3.1 Plant Community Types**

Plant Community Type	Comments
<p><i>Slash Pine – Camphor Laurel forest with rainforest elements</i></p> <p>Representative of PCT 3001 - Lismore Basalt Subtropical Rainforest in low - moderate condition.</p> <p>Canopy species comprise Slash Pine (<i>Pinus elliottii</i>*) and Camphor Laurel (<i>Cinnamomum camphora</i>*), with occasional native species including Cudgerie (<i>Flindersia schottiana</i>), Swamp Mahogany (<i>Eucalyptus robusta</i>), Tallowwood (<i>Eucalyptus microcorys</i>) and Hoop Pine (<i>Araucaria cunninghamii</i>).</p> <p>Mid-storey species comprise species Slash Pine*, Camphor Laurel*, Tobacco Bush (<i>Solanum mauritianum</i>*) Lantana (<i>Lantana camara</i>*) and Castor Oil Plant (<i>Ricinus communis</i>*), with occasional natives including Blackwood (<i>Acacia melanoxylon</i>) and Cheese Tree (<i>Glochidion ferdinandi</i>).</p> <p>Groundcover species comprise Molasses Grass (<i>Melinis minutiflora</i>*), Crofton Weed (<i>Ageratina Adenophora</i>*), South African Pigeon Grass (<i>Setaria sphacelate</i>*), Blue Billygoat Weed (<i>Ageratum houstonianum</i>*), Purple Top (<i>Verbena bonariensis</i>*) and Cobblers Pegs (<i>Bidens Pilosa</i>*).</p>	<p>Low – moderate condition PCT 3001 subject to previous disturbance and now dominated by exotic species.</p>
<p><i>Mixed Eucalypt - Camphor Laurel forest with rainforest elements</i></p> <p>Representative of PCT 3001 - Lismore Basalt Subtropical Rainforest in low - moderate condition.</p> <p>Canopy species comprise Camphor Laurel*, Slash Pine*, Cudgerie, Foambark Tree (<i>Jagera pseudorhus</i>), Pink Bloodwood (<i>Corymbia intermedia</i>), Silky Oak (<i>Grevillea robusta</i>), Swamp Mahogany, Tallowwood, Blackbutt (<i>Eucalyptus pilularis</i>) Forest Oak (<i>Allocasuarina torulosa</i>), Macaranga (<i>Macaranga tanarius</i>), Guioa (<i>Guioa semiglauca</i>), Red Kamala (<i>Mallotus philippensis</i>) and Black Bean (<i>Castanospermum australe</i>).</p> <p>Mid-storey species comprise regenerating Camphor Laurel* and Slash Pine*, interspersed with Broad-leaf Pepper Tree (<i>Schinus terebinthifolius</i>*), Broad-leaf Privet (<i>Ligustrum lucidum</i>*), Lantana*, Ochna (<i>Ochna serrulate</i>*), Red Kamala, Green Cestrum (<i>Cestrum parqui</i>*) and Lilly Pilly (<i>Acmena smithii</i>).</p> <p>Groundcover species comprise Crofton Weed*, South African Pigeon Grass*, Blue Billygoat Weed*, Purple Top*, Bracken Fern (<i>Pteridium esculentum</i>), Cobblers Pegs*, Ragweed (<i>Ambrosia artemisiifolia</i>*) and Broad-leafed Paspalum (<i>Paspalum mandiocanum</i>*).</p>	<p>Low – moderate condition PCT 3001 subject to previous disturbance and now dominated by exotic species.</p>



Plant Community Type	Comments
<p><i>Riparian Camphor Laurel forest with rainforest elements</i></p> <p>Representative of <i>PCT 3001 - Lismore Basalt Subtropical Rainforest</i> in low condition.</p> <p>Canopy species comprise Camphor Laurel*, Cockspur Coral Tree (<i>Erythrina cristagalli</i>*), Cocos Palm (<i>Syagrus romanzoffiana</i>*), Cudgerie, Foambark Tree, Guioa, Red Kamala, Black Bean, Red Cedar (<i>Toona ciliata</i>) and Red Ash (<i>Alphitonia excelsa</i>).</p> <p>Mid-storey species comprises Mexican Sunflower (<i>Tithonia diversifolia</i>*), Lantana*, Green Cestrum*, regenerating Camphor Laurel*, Broad-leaf Privet*, Tobacco Bush* Ochna* and Castor Oil Plant*. Native rainforest species including Red Kamala, Guioa and Black Bean are interspersed occasionally.</p> <p>Groundcover species comprise Crofton Weed*, Blue Billygoat Weed*, Purple Top*, Cobblers Pegs*, Fireweed (<i>Senecio madagascariensis</i>*) and Broad-leafed Paspalum*.</p>	<p>Low condition PCT 3001 with patchy canopy cover. This vegetation zone has been subject to previous disturbance and now dominated by exotic species.</p>
<p><i>Planted ornamentals with native rainforest elements.</i></p> <p>Representative of <i>PCT 3001 - Lismore Basalt Subtropical Rainforest</i> in low condition.</p> <p>Canopy species comprise native trees including Cudgerie, Small-leaved Fig (<i>Ficus obliqua</i>), Morten Bay Fig (<i>Ficus macrophylla</i>), Red Bean (<i>Dysoxylum mollissimum</i>), Blackbutt, Lilly Pilly, Silky Oak, Black Bean and Durobby (<i>Syzygium moorei</i>**).</p> <p>Mid-storey species comprise Spiny-headed Mat-rush (<i>Lomandra longifolia</i>), Lantana* and Green Cestrum* and Tobacco Bush*.</p> <p>Groundcover species comprise Broad-leafed Paspalum*, Broad-leafed Carpet Grass (<i>Axonopus compressus</i>*), Crofton Weed*, Cudweed (<i>Gamochaeta spp</i>*) and Catsear (<i>Hypochaeris radicata</i>*).</p>	<p>Low condition PCT 3001 with mid-storey and groundcover vegetation layers primarily absent due to historical and current ongoing maintenance of gardens.</p>
<p><i>Highly degraded land (no PCT)</i></p> <p>This vegetation zone is not representative of any native PCT.</p> <p>Canopy species occur occasionally as paddock trees, species comprise Camphor Laurel*, Slash Pine*, Red Ash and Red Bean.</p> <p>Mid-storey species comprise Mexican Sunflower, Lantana*, Green Cestrum*, regenerating Camphor Laurel*, Broad-leaf Privet*, Tobacco Bush* Ochna*, Castor Oil Plant*, Green Cestrum*, Blackwood (<i>Acacia melanoxylon</i>) and Queensland Silver Wattle (<i>Acacia podalyriifolia</i>).</p> <p>Groundcover species comprise Broad-leafed Paspalum*, Broad-leafed Carpet Grass*, Crofton Weed*, Blue Billygoat Weed*, Purple Top*, Cobblers Pegs*, Fireweed*, South African Pigeon Grass*, Blue Billygoat Weed*, Purple Top*, Cobblers Pegs*, Ragweed* and <i>Cuphea carthagenensis</i>*.</p>	<p>Poor quality vegetation community subject to intense historical disturbance.</p>

\*Denotes exotic species

\*\*Denotes threatened flora species



**Plate 3.1** Gardens at the Gap Rd entrance of the site - planted ornamentals with native rainforest elements.



**Plate 3.2** Branch creek - riparian camphor laurel forest with rainforest elements.



**Plate 3.3** Informal access track off Teven Road - site (right of view) comprising mixed eucalypt - camphor laurel forest with rainforest elements.



**Plate 3.4** Looking south over the site - highly degraded land.

### 3.2.2 Condition

Areas of the site which contain forested vegetation are representative of PCT 3001, although have a high abundance of exotic species across all vegetation structural layers. Vegetation elsewhere is highly disturbed with a very high abundance of exotic species.

### 3.2.3 Threatened Flora

One Durobby was identified in a garden bed at the Gap Rd entrance of the site, adjoining the site office (refer to **Illustration 5.1**). The species is listed as Vulnerable under the BC Act and EPBC Act. It is believed that the individual was planted during previous landscaping works surrounding the site office and as such is of low conservation value.

One Rough-shelled Bush Nut (*Macadamia tetraphylla*) was detected off site (located on the fence line with adjoining Lot 3 DP588893) (refer to **Illustration 5.1**). This species is listed as Vulnerable under the BC Act and EPBC Act.

No other threatened flora species listed under the BC or EPBC Act were recorded at the site.





### 3.2.4 Threatened Ecological Communities

#### *Biodiversity Conservation Act 2016*

The NSW Scientific Committee - final determination for *Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion* TEC lists alliances and suballiances of Floyd (1990) representative of lowland rainforest. Suballiance No. 1: *Argyrodendron trifoliolatum* (Floyd, 1990) is listed.

As conservative measure vegetation on site is considered representative of a highly degraded form of *Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion* TEC (Suballiance No. 1: *Argyrodendron trifoliolatum*).

*Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion* TEC is listed as Endangered under the BC Act.

#### *Environment Protection and Biodiversity Conservation Act 1999*

Lowland Rainforest is listed under the EPBC Act as Lowland Rainforest of Subtropical Australia. Determination of this TEC is subject to meeting key diagnostic characteristics and condition thresholds.

The vegetation community on site does not meet the following key diagnostic characteristic of Lowland Rainforest of Subtropical Australia; '*Patches of the ecological community typically have high species richness (at least 30 woody species from Appendix A*' (Threatened Species Scientific Committee (TSSC) (2011)).

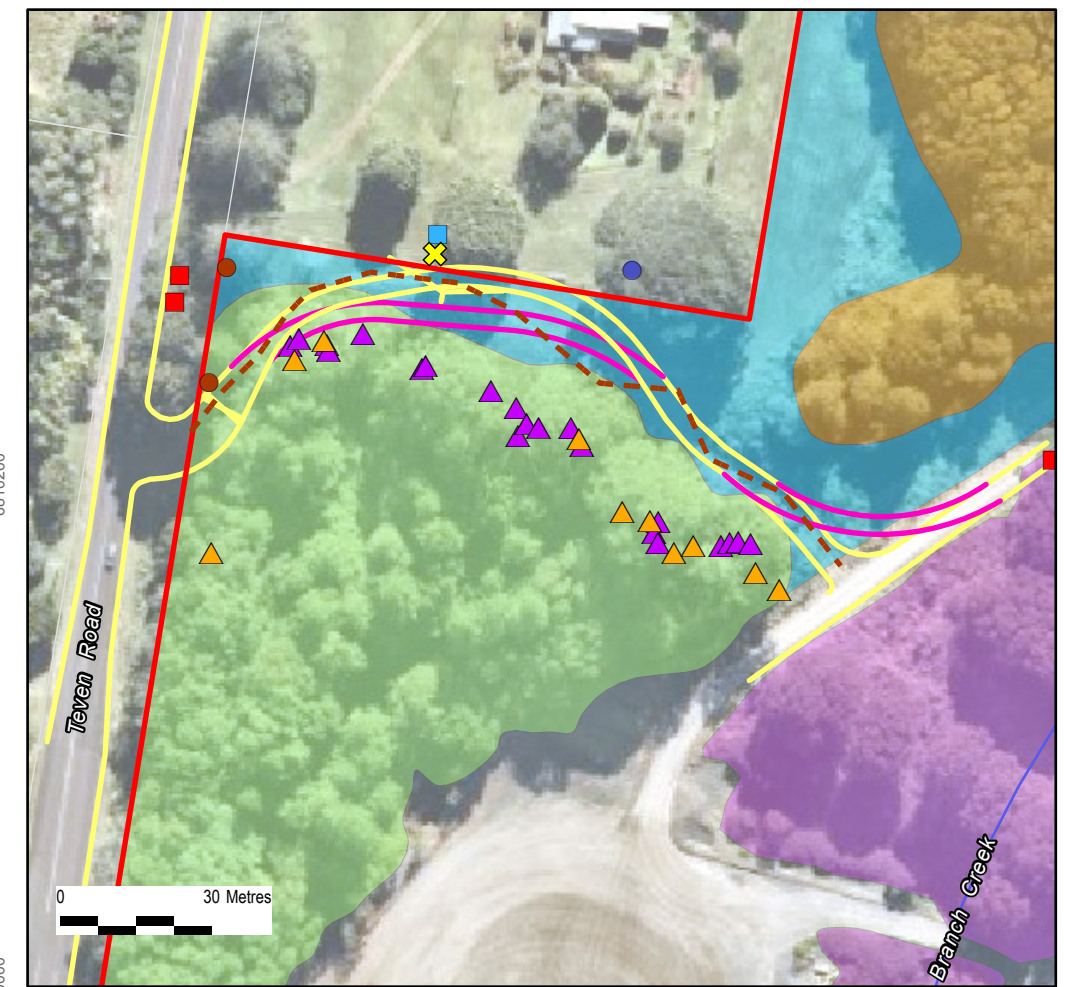
The vegetation on site does not contain at least 30 woody species from Appendix A, and hence does not meet the key diagnostic characteristic for Lowland Rainforest TEC listed under the EPBC Act. As such, this TEC does not occur.

### 3.2.5 Priority Weeds

*Biosecurity Act* (2015) listed weeds; Fireweed, Lantana and Climbing Asparagus (*Asparagus africanus*) occur infrequently at the site. The following biosecurity duty applies:

*Prohibition on certain dealings* and '*Must not be imported into the state, sold, bartered, exchanged or offered for sale*'.





- LEGEND**
- Site boundary
  - Cadastre
  - Highly degraded land (no PCT)
  - Mixed Eucalypt - Camphor Laurel forest with rainforest elements (PCT 3001: low - moderate condition)
  - Planted ornamentals with native rainforest elements (PCT 3001: low condition)
  - Riparian Camphor Laurel forest with rainforest elements (PCT 3001: low condition)
  - Slash Pine - Camphor Laurel forest with rainforest elements (PCT 3001: low - moderate condition)
  - Watercourse
  - Informal access track
  - Proposed driveway option A
  - Proposed driveway option B
- Significant Tree Inventory**
- Black Bean
  - Lilly Pilly
  - Moreton Bay Fig
  - Norfolk Pine
  - Red Bean
  - Silky Oak
  - Small-leaved Doughwood
  - Small-leaved Fig
- Koala Use Trees**
- ▲ Blackbutt
  - ▲ Swamp Mahogany
- Threatened Flora**
- ✕ Durobby
  - ✕ Rough-shelled Bush Nut

0 60 Metres





## 4. Fauna Habitat

### 4.1 Desktop Analysis

#### 4.1.1 Database Search Results

BioNet search results identified records of 38 threatened fauna species (including eight species listed in the EPBC Act) within the search area (refer to **Appendix B**). PMST results identified habitat for 57 threatened fauna species and 67 migratory fauna species within the search area.

#### 4.1.2 Connectivity

The site is not within any mapped wildlife corridors as per Scotts (2003). The site offers 'stepping-stone' connectivity values for a range of fauna species moving through the highly modified and fragmented landscape.

#### 4.1.3 Waterways and Aquatic Habitat

Branch Creek dissects the site and generally flows in a south to north direction. This is a second order waterway and links with Maguires Creek approximately 1.7 km north of the site.

The site is not mapped as 'Key Fish or Threatened Fish Habitat', nor is it mapped as habitat for any *Fisheries Management Act 1994* (FM Act) listed threatened fish species – as identified via DPI Fisheries Spatial Data Portal.

The site is not identified on the 'Coastal Wetlands and Littoral Rainforests Area Map' as per the State Environmental Planning Policy (Resilience and Hazards) 2021 (RHSEPP).

The site is not listed on the Directory of Important Wetlands in Australia (DCCEEW 2022a) nor is it listed on the ICOLLS database (DPE 2022g).

### 4.2 Site Features

#### 4.2.1 Aquatic Fauna Habitat

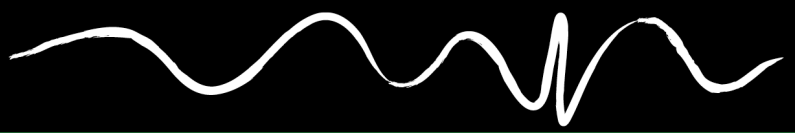
Within the site, Branch Creek and the disused quarry pit now provide habitat for common wetland birds, turtles, eels and amphibians.

#### 4.2.2 Habitat Values

A range of common fauna species were recorded during the field assessment (e.g. Magpie, Dusky Moorhen, Wood Duck and Crested Pigeon). The site provides habitat for a range of common rainforest fauna which would be likely to use similar habitats locally. Habitat values of the site are summarised as follows:

- The disturbed land with a grassy ground layer provides foraging and refuge habitat for local macropod and ground-dwelling mammal species including wallabies and kangaroos.
- Native tree species on the site provide potential foraging (fruit, nectar, pollen, insect) resources for locally occurring avifauna, arboreal mammals, microbats and flying-foxes.
- Several Koala use trees listed in Schedule 3 of Ch 4 KHP 2021 for the North Coast koala management area (North Coast KMA) occur on site, these species comprise; Swamp Mahogany,





Tallowwood, Pink Bloodwood, Blackbutt and Forest Oak. BSC Koala habitat mapping shows that the site contains 'Secondary A' Koala habitat. The site does not contain core Koala habitat as defined in either SEPP Ch 4 KHP 2021 or Ballina Shire Koala Management Strategy (2016).

- Branch Creek and the disused quarry pit provide habitat for aquatic fauna species.
- No hollow-bearing trees, bird nests or possum dreys were recorded at the site.

#### 4.2.3 Threatened Fauna

No threatened fauna species were detected at the site.

#### 4.2.4 Potential for Threatened Species Occurrence

Based on the desktop analysis and habitat present, the following threatened fauna species are considered to have a moderate potential to occur at the site on an opportunistic or seasonal basis, owing to marginal foraging habitat opportunities found on site (refer to **Appendix D**).

##### *Birds of Prey*

- Spotted Harrier.
- White-bellied Sea-eagle.
- Little Eagle.
- Square-tailed Kite..

##### *Microbats*

- Little Bent-winged Bat
- Large Bent-winged Bat.
- Eastern Long-eared Bat.

##### *Rainforest birds*

- Barred Cuckoo-shrike.
- Coxen's Fig-parrot.
- Wompoo Fruit-dove.
- Rose-crowned Fruit-dove.
- Superb Fruit-dove.

##### *Owls*

- Barking Owl.
- Powerful Owl
- Eastern Grass Owl..
- Masked Owl.
- Sooty Owl.

##### *Mammals*

- Koala..
- Common Planigale
- Grey-headed Flying-fox.



## 5. Constraints, Impacts and Mitigation

### 5.1 Biodiversity Constraints

DPE BCD North East Branch (2022) provides advice in relation to the assessment of biodiversity in planning proposals, the criteria and identification of HEV and guidance for avoiding and minimising impacts to HEV land.

Information in the following section identifies the HEV land present on site and provides recommendations to avoid and minimise biodiversity impacts and impacts to HEV land.

#### 5.1.1 High Environmental Values (HEV)

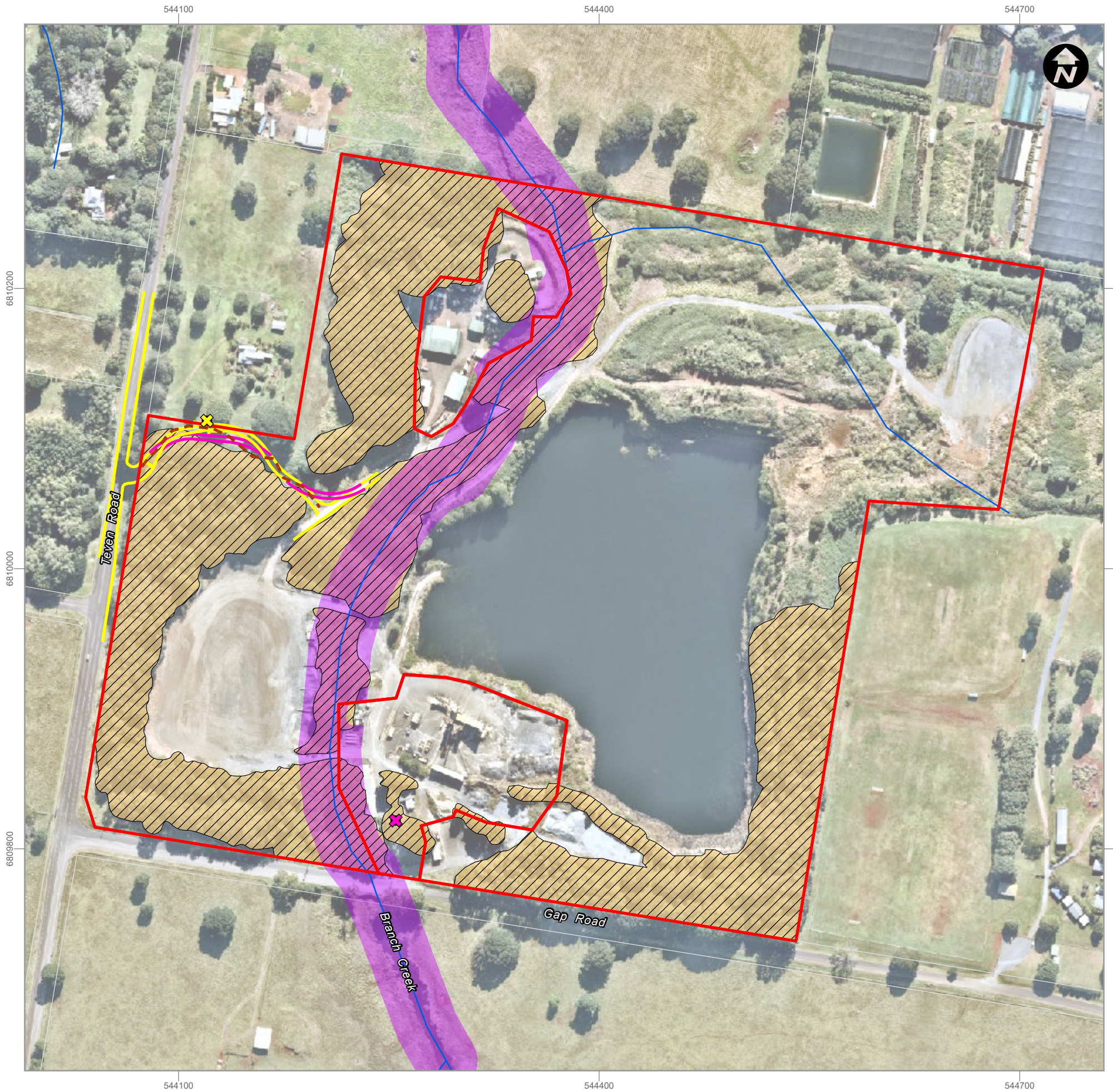
Four HEV components in accordance with *Attachment 2* (DPE BCD (2022)) occur on site.

This assessment provides detail on the relevant HEV components. These components are summarised below in **Table 5.1** and identified in **Illustration 5.1**.

**Table 5.1 HEV Criteria and Components Relevant to the Site**

HEV criteria	HEV components on site
Criterion 1. Sensitive Biodiversity Mapped on the Biodiversity Values Map	Biodiversity Values Map: associated with the Branch Creek riparian corridor.
Criterion 2. Native vegetation of high conservation value	Over-cleared vegetation types: associated with PCT 3001 - Lismore Basalt Subtropical Rainforest.
	TEC (BC Act): Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion TEC (Suballiance No. 1: <i>Argyrodendron trifoliolatum</i> ) (PCT 3001).
Criterion 3. Threatened species	Threatened flora species: Durobby (and Rough-shelled Bush Nut (located off site)).



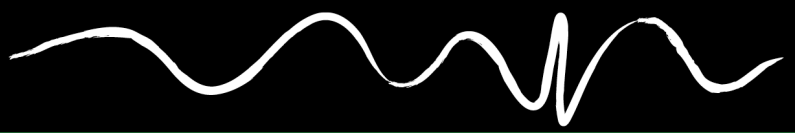


- LEGEND**
- Site boundary
  - Cadastre
  - Biodiversity values mapping (v14.1)
  - Over-cleared vegetation types: PCT 3001 - Lismore basalt subtropical rainforest
  - Threatened ecological community (TEC) (BC Act): Lowland rainforest in the NSW North Coast and Sydney Basin bioregion
  - Watercourse
  - Informal access track
  - Proposed driveway option A
  - Proposed driveway option B
- Threatened Flora**
- ✕ Durobby
  - ✕ Rough-shelled Bush Nut

0 60 Metres

## High Environmental Values (HEV) - Illustration 5.1





## 5.2 Potential Impacts of Rezoning

### 5.2.1 Clearing of Native Vegetation

No clearing is proposed as part of the Proposal. Clearing areas associated with future development at the site would need to be determined at the time of submitting a development application.

### 5.2.2 Indirect Impacts

Indirect impacts associated with future development at the site, enabled by the Proposal may include;

1. Minor short-term disturbance (noise, human activity, machine operations) to locally occurring urban-adapted fauna species during development, construction and operation.
2. Minor potential for reduced water quality and altered hydrology due to works.
3. Minor increased risk of roadkill from increased vehicular movements on surrounding roads.
4. Potential for weeds to be imported to the site and surrounding environments during the construction stage of the proposal.

### 5.2.3 Prescribed Impacts

Prescribed impacts are those that may affect biodiversity values in addition to, or instead of, impacts from clearing vegetation, and include (as per cl. 6.1 of the BC Regulation):

- *the impacts of development on the habitat of threatened species or ecological communities associated with:*
  - *karst, caves, crevices, cliffs and other geological features of significance*
  - *rocks*
  - *human made structures*
  - *non-native vegetation*
  - *the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range*
- *the impacts of development on movement of threatened species that maintains their life cycle*
- *the impacts of development on water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development)*
- *the impacts of wind turbine strikes on protected animals*
- *the impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community.*

An analysis of prescribed impacts is detailed in **Table 5**.

**Table 5.2 Prescribed Impacts**

Prescribed impact	Response
<i>the impacts of development on the habitat of threatened species or ecological communities associated with:</i> <ul style="list-style-type: none"><li>- <i>karst, caves, crevices, cliffs and other geological features of significance</i></li><li>- <i>rocks</i></li><li>- <i>human made structures</i></li><li>- <i>non-native vegetation</i></li></ul>	<p>The site does not support karst geology.</p> <p>Rock features and human-made structures occur on the site but do not represent habitat for threatened species.</p> <p>Non-native vegetation includes landscaping plantings, exotic flora species throughout forested areas on the site. This vegetation does not represent likely habitat for any threatened species.</p>



Prescribed impact	Response
<i>the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range</i>	<p>The Proposal represents a relatively minor intensification of existing and historical land uses on the site. It is recommended that any future development at the site be restricted to existing disturbed areas to avoid the loss of native vegetation and fauna habitat.</p> <p>The proposal is considered unlikely to adversely affect connectivity for locally occurring threatened species.</p>
<i>the impacts of development on movement of threatened species that maintains their life cycle</i>	Refer above
<i>the impacts of development on water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development)</i>	Refer above
<i>the impacts of wind turbine strikes on protected animals</i>	The Proposal is not a wind farm development.
<i>the impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community</i>	<p>The Proposal may result in an increase in vehicular traffic, in comparison to <u>current</u> volumes of vehicle traffic movement in the locality which increases potential for roadkill of fauna.</p> <p>However, in comparison to <u>historical</u> volumes of vehicle traffic movement in the locality (when the site was an operational quarry), the Proposal is expected to result in a decrease in vehicular traffic.</p> <p>Given the historical use of the site and the relatively minor increase in vehicular traffic above current volumes, the change in risk of vehicle strike is considered to be negligible.</p>

## 5.3 Recommendations

To avoid and minimise biodiversity impacts and impacts to HEV land which may result from the proposed rezoning and future development of the site, the following measures should be considered:

- Impacts to identified trees of significance (refer to **Illustration 3.1**) (including threatened flora (Durobby and Rough-shelled Bush Nut)) should be avoided with a minimum 10 m buffer of retained vegetation to provide protection for these trees.
- Clearing of native vegetation (mapped as PCT 3001 in **Illustration 3.1** – including Koala use trees) should be avoided in any future development at the site including; building envelopes, associated infrastructure and bushfire Asset Protection Zone (APZ). The priority would be to retain native forest vegetation at the site.
- Biodiversity values including native forest vegetation should be managed though a Biodiversity and Vegetation Management Plan (BVMP) at the site.
- The proponent should consider whether a Conservation Zone would be appropriate for biodiversity values on site - including native forest vegetation.



## 5.4 Future Requirements

Based on the site assessment the Proposal (and any anticipated future development) would have relatively low impacts on biodiversity, assuming that future development avoids areas of intact forested vegetation. In the event the Proposal is accepted, the following requirements would need to be addressed for any future proposal to develop the site:

- Incorporate the recommendations in this assessment (**Section 5.3**) as part of future design.
- It is recommended that the mapped PCT 3001 and other biodiversity values (significant trees) be added to Councils vegetation mapping system to trigger relevant statutory requirements for future development applications at the site.
- Alternatively, forested areas on site may be protected on title under Section 88b of the Conveyancing Act 'Restriction as to User'. This would serve to exclude intact native vegetation at the site as part of the developable land use area.
- Any impact on BV mapped land would trigger the BOS and a BDAR would need to be prepared at the development application stage.
- Any impact on native vegetation greater than 0.5 ha within the site, would trigger the BOS and a BDAR would need to be prepared at the development application stage – this is based on the current actual lot size of 23 ha.
- If a future proposal does not trigger the BOS, a Biodiversity Assessment Report (BAR) will be required to assess ecological impacts. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs as required under the BC Act.
- Any BDAR or BAR to be prepared for a future development application will need to address Council's DCP and as such will need to determine compensation requirements and/or vegetation management measures to offset the loss of native vegetation where relevant.

## 6. Statutory Requirements

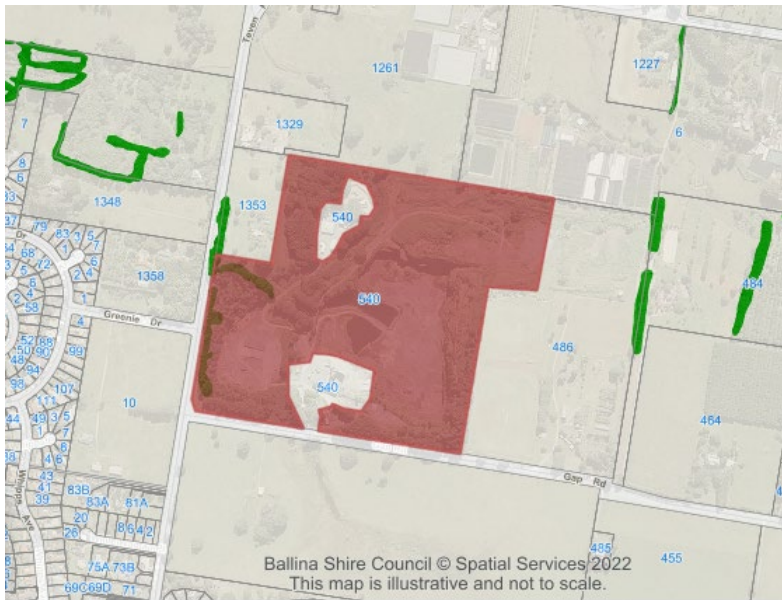
The following sections examine the findings of the site assessment with regard to relevant statutory requirements which will need to be addressed for any future proposal to develop the site.

### 6.1 Ballina Shire Koala Management Strategy 2016 (Ballina KMS)

The site is captured in the Ballina KMS preferred Koala habitat mapping. Vegetation on the western boundary is identified as 'Secondary A' Koala habitat.

'Secondary A' Koala habitat in the Ballina KMS is defined as;

*Vegetation communities occurring on soils of medium to high nutrient value whereupon primary food tree species are sub-dominant components of the tallest stratum species.*



**Figure 6.1 Ballina KMS Koala Habitat Mapping for Tuckombil Quarry.**

#### 6.1.1 Ballina Comprehensive Koala Plan of Management (Ballina CKPoM)


The Ballina CKPoM (being Part 5 of the Ballina KMS) was approved by DPE under the terms of (the former) State Environmental Planning Policy No.44 on 6 July 2017.

In accordance with Part 5 (Section 5.2) of the Ballina KMS, Ballina CKPoM provision apply to:

1. *Land identified as containing core koala habitat as defined in Section 5.3 [of the Ballina CKPoM] and shown on the Core Koala Habitat Map included as Figure 8 in this Plan [being the Ballina CKPoM], and*
2. *In relation to the entire land parcel, land that has an area of more than 1 hectare, or has, together with any adjoining land in the same ownership, an area of more than 1 hectare.*

The site does not satisfy the aforementioned provisions (contained within Section 5.2 of the Ballina KMS) therefore the Ballina CKPoM does not apply to the site.





As the Ballina CKPoM does not apply to the site, Chapter 4 (Koala Habitat Protection 2021) (Ch 4 KHP 2021) of the State Environmental Planning Policy (Biodiversity & Conservation) 2021 (SEPP B&C 2021) applies to the site.

## **6.2 Ballina Council Development Control Plan (DCP) 2012**

The site is mapped on the Natural Areas and Habitat Map. As such, any future development application should address Chapter 2 Section 3.3 (Natural Areas and Habitat) and Section 3.3A (Koala Habitat Management) of the DCP.

DCP Chapter 2 Section 3.5 (Compensatory Habitat and Offsets) outlines compensatory planting requirements for proposals which impact on identified biodiversity values. Section 3.5 (Compensatory Habitat and Offsets) of the DCP will apply to any proposed future development application at the site, where the proposal does not trigger the BOS.

## **6.3 State Environmental Planning Policy (SEPP) (Biodiversity and Conservation) 2021**

Ch 4 KHP 2021 of the SEPP B&C 2021 (formerly State Environmental Planning Policy (Koala Habitat Protection) 2021) aims to encourage 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.

Ch 4 KHP 2021 reinstates the policy framework of SEPP Koala Habitat Protection 2019 to 83 Local Government Areas (LGA) in NSW. At this stage SEPP B&C 2021 applies to:

- In nine of these LGAs – Metropolitan Sydney (Blue Mountains, Campbelltown, Hawkesbury, Ku-Ring-Gai, Liverpool, Northern Beaches, Hornsby, Wollondilly) and the Central Coast LGA – Ch4 KHP 2021 applies to all zones.
- In all other identified LGAs, CH4 KHP2021 does not apply to land zoned RU1 Primary Production, RU2 Rural Landscape or RU3 Forestry. For all RU1, RU2 and RU3 zoned land outside of the Sydney Metropolitan Area and the Central Coast, Chapter 3 (KHP 2020) of SEPP (B&C) 2021 applies.

In the event the Proposal is accepted, and the site is zoned SP4 Enterprise, Ch 4 KHP 2021 will apply to any future development proposals on site. As the site is currently zoned 1(e) Rural (Extractive and Mineral Resources) under the Ballina 1987 LEP, Ch 4 KHP 2021 applies.

### **6.3.1 Koala Assessment Report**

The following assessment has been undertaken to determine whether core Koala habitat as defined by Ch 4 KHP 2021 is present on the land.

The Ch 4 KHP 2021 defines 'core Koala habitat' as:

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

In the absence of any formalised guidelines to support the SEPP, the following assessment process was completed to address Section 4.9 of Ch 4 KHP 2021:

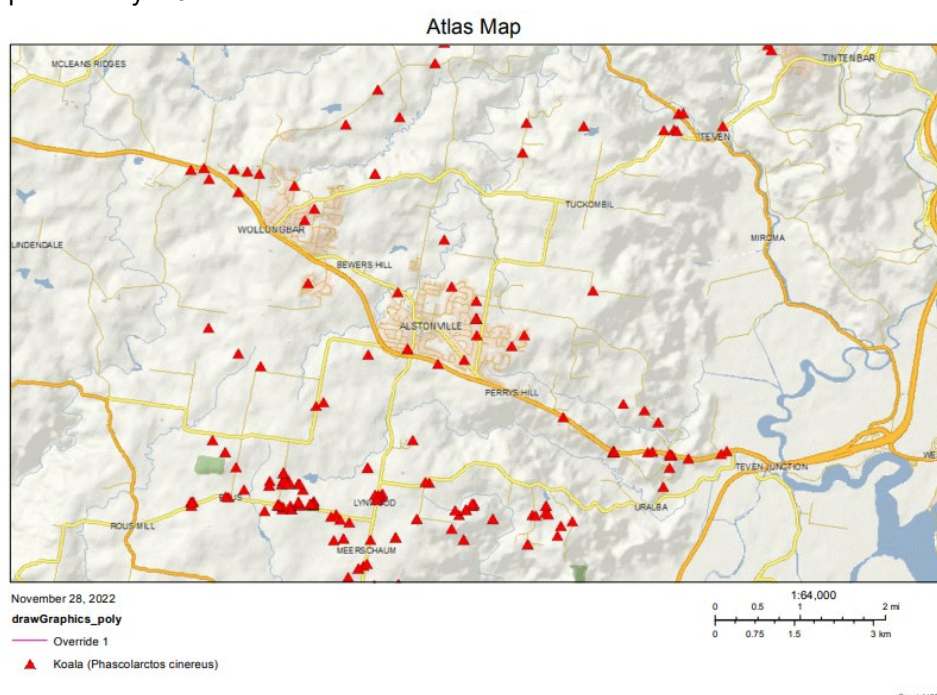
1. Analysis of Koala records in BioNET regarding any Koala records associated with the site in the last 18 years (accepted as being three Koala generations) and where records have a locational accuracy <1,000 metres.
2. Targeted searches under the Koala use tree species occurring at the site.
3. Analysis of preferred Koala use trees as listed in Schedule 3 of the Ch 4 KHP 2021, in relation to vegetation at the site.

Based on **step 1**, BioNet records (refer to **Figure 6.2**) indicate a low - moderate density of records within a 10 x 10 km grid centred on the site, within the last 18 years (since 28/11/2006). Koala records within 2.5km to the site, and with an accuracy <1000 metres are as follows:

- Recorded in 2011 ~1.2 km north-west of the site.
- Recorded in 2012 ~1.1 km east of the site.
- Recorded in 2012 ~0.7 km south of the site.
- Recorded in 2012 ~1.6 km south-west of the site.
- Recorded in 2014 ~2.5 km south-west of the site.
- Recorded in 2017 ~0.5 km south of the site.
- Recorded in 2017 ~0.7 km south of the site.
- Recorded in 2017 ~1.5 km west of the site.
- Recorded in 2018 ~1.6 km south-west of the site.
- Recorded in 2019 ~1.1 km south-west of the site.
- Recorded in 2019 ~1.4 km south-west of the site.

In summary, BioNet records show 11 Koala records (with an accuracy <1000 metres) within 2.5 km of the site between 2006 – 2022.

In the broader locality (within a 10 x 10 km grid), the most recent record is from April 2020, recorded approximately 2.9 km south of the site.



**Figure 6.2 BioNet Koala records within a 10 x 10 km grid centred on the site, within the last 18 years (since 28/11/2006).**



**Step 2:** Targeted searches did not return any signs of Koalas (faecal pellets or Koala sightings).

**Step 3:** Ch 4 KHP 2021 does not define 'highly suitable habitat'. For the purpose of this assessment, the definition of 'Highly suitable habitat' for Koalas is understood to be where 15% or greater of the total number of trees within any Plant Community Type (PCT) are the regionally relevant species of those listed in Schedule 3 of Ch 4 SEPP B&C.

The site contains Koala use tree species listed in Schedule 3 Ch 4 SEPP B&C for the North Coast koala management area. Koala use tree species on site comprise Swamp Mahogany, Tallowwood, Pink Bloodwood, Blackbutt and Forest Oak.

In the context of the whole site, these species comprise less than 15% of the total number of trees in the upper or lower strata of the tree component in the site. These species do however comprise greater than 15% canopy cover in certain parts of the site, for example in the west and north-west forest.

Schedule 3 listed tree species comprise 15% or greater of the total number of trees within certain areas of PCT 3001, as such the site is defined as 'highly suitable habitat' for Koalas in accordance with Ch 4 KHP 2021.

### Summary

It is acknowledged that highly suitable habitat for Koalas occurs on site, given that Koala use tree species comprise >15% of the total number of trees within certain areas of PCT 3001.

However, the site does not constitute core Koala habitat (in accordance with Ch 4 KHP 2021) for the following reasons:

- No Koalas were recorded as being present at the time of assessment of the land, and
- No Koalas have been recorded as being present on site in the previous 18 years – BioNet records show that no Koalas have been recorded within 2.5km of the site since 2019.
- Recent and historical data suggests that a resident population of Koalas is unlikely to occupy the site or lands immediately adjoining the site.

Based on the relatively small area of available habitat at the site, the vegetation may provide opportunistic foraging resources and connectivity values for Koalas moving through the landscape as opposed to core habitat values for Koalas.

## 6.4 Biodiversity Conservation Act 2016 (BC Act)

As part of any future development application the following additional reporting would be required:

- Any impact on BV mapped land would trigger the BOS and a BDAR would need to be prepared at the development application stage.
- Any impact on native vegetation greater than 0.5 ha within the site, would trigger the BOS and a BDAR would need to be prepared at the development application stage.
- It is noted that this includes impacts associated with buildings, APZs and fence lines. The BDAR determines biodiversity credits which are required to be purchased by the proponent to offset impacts of the development.
- If a future proposal does not trigger the BOS, a Biodiversity Assessment Report (BAR) will be required to assess ecological impacts. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs as required under the BC Act.

## 6.5 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act protects/ regulates matters of national environmental significance (MNES), including:

- World heritage properties.
- National heritage places.
- Wetlands of international importance.
- Nationally threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- A water resource, in relation to coal seam gas development and large coal mining development.

Based on the search results and the site assessment, significant impacts to any MNES would be unlikely to result from the Proposal (refer to **Table 6.1**).

Any future development proposals on site would be required to assess and determine whether the proposal will require approval from the minister - if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

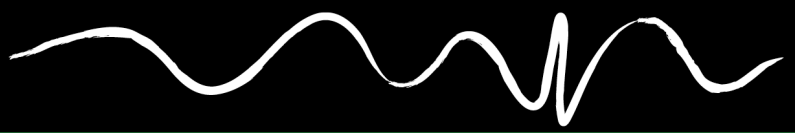
Table 6.1 Assessment of MNES

Matter	Potential impact
<b><i>Any impact on a World Heritage property?</i></b>	
No World Heritage properties occur within 10 km of the site.	Nil
<b><i>Any impact on a National Heritage place?</i></b>	
No National Heritage places occur within 10 km of the site.	Nil
<b><i>Any impact on a Wetland of International Importance?</i></b>	
No wetlands of international importance (Ramsar sites) occur within 10 km of the site.	Nil
<b><i>Any impact on nationally threatened species and ecological communities?</i></b>	
Habitat for six EPBC listed threatened ecological communities, 36 threatened flora species and 57 threatened fauna species is identified within 10 kms of the site. One threatened flora species (Durobby) was recorded on site. No TECs which meet the key diagnostic characteristics and condition thresholds for EPBC listed communities occur at the site. No listed threatened fauna species were recorded at the site.	Negligible
<b><i>Any impact on Migratory species?</i></b>	
Habitat for 67 migratory species is identified within a 10 km radius of the site.	Negligible
<b><i>Any impact on a Commonwealth marine area?</i></b>	
No Commonwealth marine areas occur within 10 km of the site.	Nil
<b><i>Any impact on the Great Barrier Reef Marine Park?</i></b>	
The Great Barrier Reef Marine Park is distant from the site.	Nil
<b><i>Does the Proposal involve a nuclear action (including uranium mining)?</i></b>	
The Proposal does not involve a nuclear action.	Nil
<b><i>Any impact on a water resource, in relation to coal seam gas development and large coal mining development?</i></b>	
The Proposal does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil



## References

- Ballina Shire Council (BSC) IntraMaps online tool. [Accessed 02/11/2022].
- Department of Climate Change, Energy, the Environment and Water (DCCEEW)(Commonwealth) (2022a) *Directory of Important Wetlands in Australia*. [Accessed 03/11/2022].
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (Commonwealth) (2022b). Protected Matters Search Tool. [Accessed 02/11/2022].
- Department of Planning and Environment (DPE) Biodiversity and Conservation Division (BCD) North East (NE) Branch (2022). *Attachment 1 - BCD NE Branch Steps for Assessing Biodiversity in Planning Proposals. Attachment 2 - BCD NE Branch HEV Criteria and Identification Methods at the Property Scale and Attachment 3 - BCD NE Branch Guidance for Avoiding and Minimising Impacts on HEV Land*. [Accessed 03/11/2022] via <https://apps.planningportal.nsw.gov.au/prweb/PRRestService/DocMgmt/v1/PublicDocuments/DATA-WORKATTACH-FILE%20PEC-DPE-EP-WORK%20PP-2021-7144!20220218T022808.245%20GMT>
- Department of Planning and Environment (DPE) (2022a). *Biodiversity Values Map and Threshold Tool* {<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>}. [Accessed 02/11/2022].
- Department of Planning and Environment (DPE) (2022b). *Coastal Management SEPP 2018 maps* (as per SEED mapping) [Accessed 03/11/2022].
- Department of Planning and Environment (DPE) (2022c). *IBRA Regions and Subregions* (as per SEED mapping) [Accessed 02/11/2022].
- Department of Planning and Environment (DPE) (2022d). *NSW BioNet Wildlife Atlas Database Search Tool*. [Accessed 02/11/2022].
- Department of Planning and Environment (DPE) (2022e). *NSW (Mitchell) Landscapes Version 3.1. Based on the original dataset contained in P.B.Mitchell (2002) NSW Ecosystems Study: Background and Methodology (Unpublished)*. [Accessed 02/11/2022] via <https://datasets.seed.nsw.gov.au/dataset/nsw-mitchell-landscapes-version-3-1>.
- Department of Planning and Environment (DPE) (2022f). *NSW State Heritage Register – State Heritage Inventory map*. [Accessed 03/11/2022].
- Department of Planning and Environment (DPE) (2022g). *Vulnerable Estuaries and Intermittently Closed and Open Lakes and Lagoons (ICOLLS)* (as per SEED mapping). [Accessed 03/11/2022].
- Department of Primary Industries (DPI) (2022) *Fisheries Spatial Data Portal*. [Accessed 02/11/2022].
- Floyd A (1990a) *Australian rainforests in New South Wales*. Volume 1 and Volume 2. (Surrey Beatty and Sons: Sydney.)
- Scotts, D. (2003). *Key Habitats and Corridors for Forest Fauna*. Occasional Paper 32. NSW NPWS.
- Threatened Species Scientific Committee (TSSC) (2011). *Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia*. Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT: Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/101-listing-advice.pdf>.
- Thackway, R. & Cresswell, I.D. (1995). *An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program, Version 4.0*. Australian Nature Conservation Agency, Canberra.



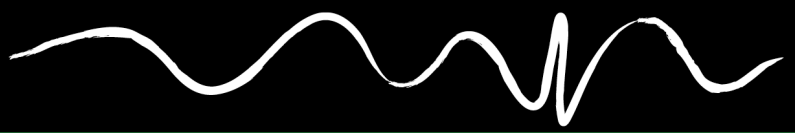
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## Appendix A

# Preliminary Concept Plan





Possible  
Stage 5  
If tenant  
moves out

Stage 2  
Screen Hub  
Offices / Temp Accom  
Q3 - 2023

Stage 3  
45,000sqm  
Q1 - 2024

Stage 2A  
Offices

Stage 1A  
General  
Access and  
Backdrop  
Q1 - 2023

Stage 4A  
Theatre  
Q1 - 2026

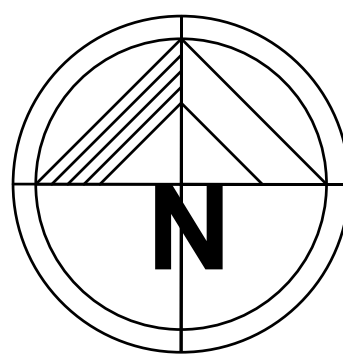
Stage 1  
15,500sqm  
Q4 - 2022

Stage 4  
Creative  
Precinct /  
Education /  
Art Space  
Q1 - 2025

Stage 4  
Car Park








**LEGEND**

- EXISTING ROAD EDGE
- PROPOSED DRIVEWAY
- PREFERRED ALIGNMENT (PENDING VEG REMOVAL)
- SIGHT LINE
- SPOT LEVEL
- SURVEYED CONTROL LINE (SEE LONG SECTION)

**ACRONYMS:**

- DWY: DRIVEWAY
- S: SPOT LEVEL
- TPZ: TREE PROTECTION ZONE
- PP: POWER POLE
- PPS: POWER POLE STAY

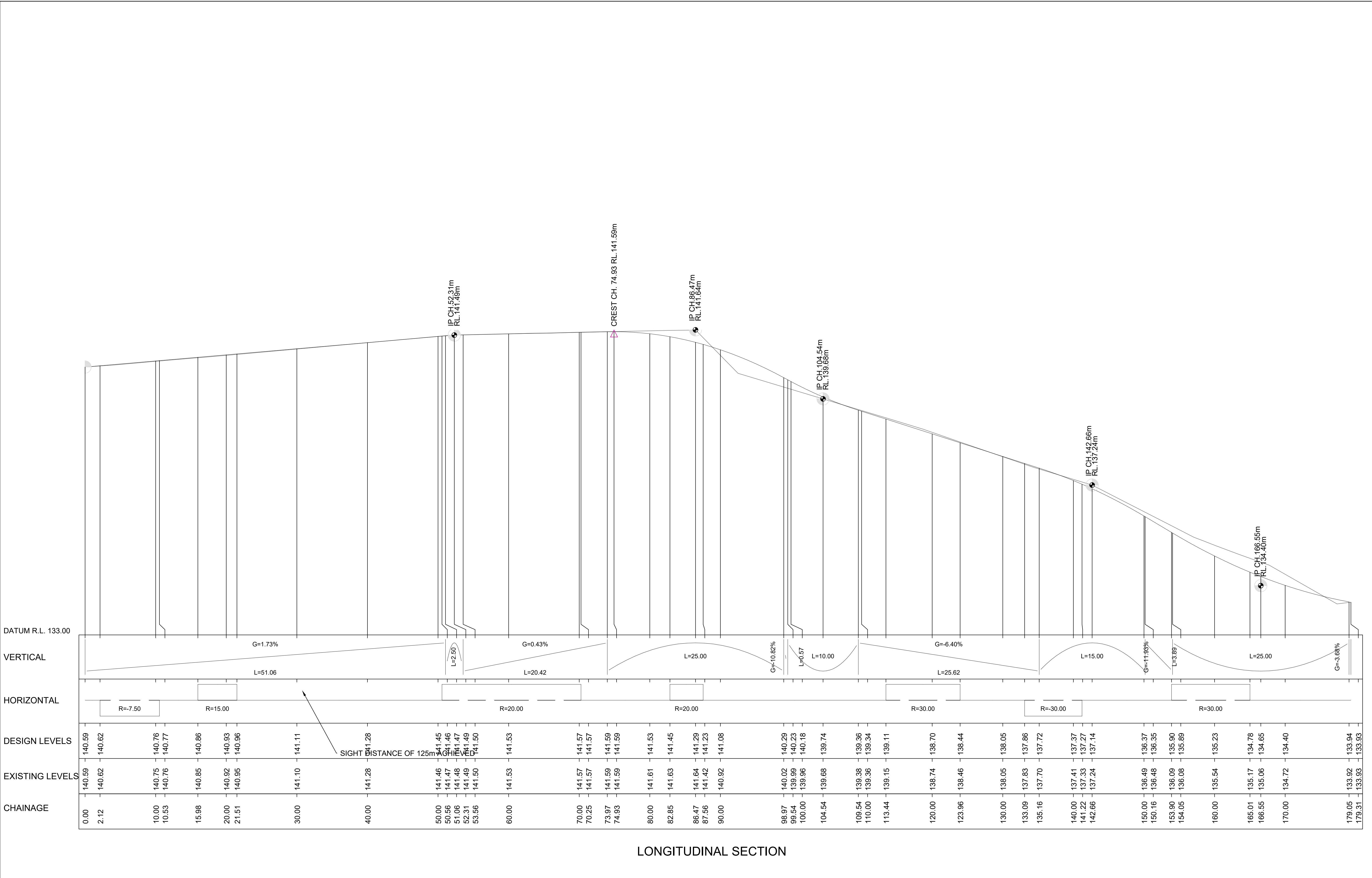
0	OCT 22	SA	-	
NO.	DATE	BY	CHANGE	X'D
AMENDMENTS				



SURVEY	RON270922.MJO	DESIGNED	SJA
DATE		DRAWN	SJA
F.B.	L.B.	CHECKED	DK
DATUM	AHD	APPROVED	DK
DRAWING TUCKOMBIL QUARRY ACCESS.DWG			
SHEET 1 OF 2			

BALLINA SHIRE COUNCIL		
TUCKOMBIL QUARRY DRIVEWAY DETAIL CONCEPT FEASIBILITY LAYOUT PLAN		
Scale	1:250m	Plan No. TBD
		A1





LONGITUDINAL SECTION

ACRONYMS:

IP: INTERSECTION POINT

G: GRADE

L: LENGTH

R: RADIUS

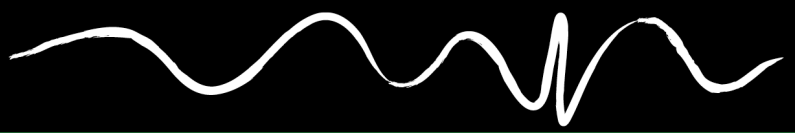
RL: RAISED LEVEL

0	OCT 22	SA	-	
NO.	DATE	BY	CHANGE	X'D
AMENDMENTS				

SURVEY	RON270922.MJO	DESIGNED	SJA
DATE		DRAWN	SJA
F.B.	L.B.	CHECKED	DK
DATUM	AHD	APPROVED	DK
DRAWING TUCKOMBIL QUARRY ACCESS.DWG			
SHEET 2 OF 2			

BALLINA SHIRE COUNCIL			
TUCKOMBIL QUARRY DRIVEWAY DETAIL ALIGNMENT PLAN AND LONGITUDINAL SECTION CH0.00 TO CH179.31			
Scale	1:250 [H] 1:50 [V]	Plan No. TBD	A1
































## Appendix B

### Database Search Results

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Plants in selected area [North: -28.79 West: 153.40 East: 153.50 South: -28.89] returned a total of 177 records of 27 species.


















Report generated on 2/11/2022 11:00 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Apocynaceae	1233	<i>Marsdenia longiloba</i>		Slender Marsdenia	E1	V	1	
Plantae	Flora	Apocynaceae	1176	<i>Ochrosia moorei</i>		Southern Ochrosia	E1	E	11	
Plantae	Flora	Cunoniaceae	10943	^^ <i>Davidsonia jerseyana</i>		Davidson's Plum	E1,2	E	2	
Plantae	Flora	Euphorbiaceae	9466	<i>Acalypha eremorum</i>		Acalypha	E1		2	
Plantae	Flora	Euphorbiaceae	8325	<i>Baloghia marmorata</i>		Jointed Baloghia	V	V	11	
Plantae	Flora	Fabaceae (Faboideae)	2833	<i>Desmodium acanthocladum</i>		Thorny Pea	V	V	1	
Plantae	Flora	Fabaceae (Faboideae)	3030	<i>Sophora fraseri</i>		Brush Sophora	V	V	2	
Plantae	Flora	Fabaceae (Mimosoideae)	7757	<i>Archidendron hendersonii</i>		White Lace Flower	V		5	
Plantae	Flora	Lauraceae	3477	<i>Cryptocarya foetida</i>		Stinking Cryptocarya	V	V	1	
Plantae	Flora	Lauraceae	3491	<i>Endiandra hayesii</i>		Rusty Rose Walnut	V	V	1	
Plantae	Flora	Lauraceae	8480	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>		Green-leaved Rose Walnut	E1		2	
Plantae	Flora	Loranthaceae	11890	<i>Amyema plicatula</i>			E1	E	5	
Plantae	Flora	Meliaceae	3682	<i>Owenia cepiodora</i>		Onion Cedar	V	V	1	
Plantae	Flora	Menispermaceae	7167	<i>Tinospora smilacina</i>		Tinospora Vine	E1		1	
Plantae	Flora	Menispermaceae	3691	<i>Tinospora tinospoides</i>		Arrow-head Vine	V		66	
Plantae	Flora	Myrtaceae	4282	<i>Rhodamnia maideniana</i>		Smooth Scrub Turpentine	E4A		9	
Plantae	Flora	Myrtaceae	4283	<i>Rhodamnia rubescens</i>		Scrub Turpentine	E4A	CE	3	
Plantae	Flora	Myrtaceae	4290	<i>Syzygium hodgkinsoniae</i>		Red Lilly Pilly	V	V	18	
Plantae	Flora	Myrtaceae	4292	<i>Syzygium moorei</i>		Durobby	V	V	2	

Plantae	Flora	Orchidaceae	7077	<i>Oberonia titania</i>	Red-flowered King of the Fairies	V,P,2		2	
Plantae	Flora	Poaceae	4776	<i>Arthraxon hispidus</i>	Hairy Jointgrass	V	V	3	
Plantae	Flora	Proteaceae	5354	<i>Floydia praealta</i>	Ball Nut	V	V	4	
Plantae	Flora	Proteaceae	5432	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V	V	3	
Plantae	Flora	Proteaceae	5446	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V	16	
Plantae	Flora	Sapindaceae	5889	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E1,2	E	3	
Plantae	Flora	Sapindaceae	8291	<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V		1	
Plantae	Flora	Sapotaceae	11957	<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	V		1	








Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Animals in selected area [North: -28.79 West: 153.40 East: 153.50 South: -28.89] returned a total of 1,247 records of 38 species.  
Report generated on 2/11/2022 10:59 AM







Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Reptilia	Scincidae	2293	<i>Coeranoscincus reticulatus</i>		Three-toed Snake-tooth Skink	V,P	V	1	
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>		Magpie Goose	V,P		1	
Animalia	Aves	Columbidae	0025	<i>Ptilinopus magnificus</i>		Wompoo Fruit-Dove	V,P		9	
Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>		Rose-crowned Fruit-Dove	V,P		124	
Animalia	Aves	Columbidae	0023	<i>Ptilinopus superbus</i>		Superb Fruit-Dove	V,P		2	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needletail	P	V,C,J,K	169	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		6	
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>		Black Bittern	V,P		1	
Animalia	Aves	Accipitridae	0218	<i>Circus assimilis</i>		Spotted Harrier	V,P		10	
Animalia	Aves	Accipitridae	0223	^^ <i>Erythrotriorchis radiatus</i>		Red Goshawk	E4A,P,2	V	2	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P		48	
Animalia	Aves	Accipitridae	0225	<i>Hieraaetus morphnoides</i>		Little Eagle	V,P		9	
Animalia	Aves	Accipitridae	0230	<i>Lophoictinia isura</i>		Square-tailed Kite	V,P,3		2	
Animalia	Aves	Rallidae	0053	<i>Amauornis moluccana</i>		Pale-vented Bush-hen	V,P		2	
Animalia	Aves	Jacanidae	0171	<i>Irediparra gallinacea</i>		Comb-crested Jacana	V,P		17	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>		Little Lorikeet	V,P		2	
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>		Barking Owl	V,P,3		2	
Animalia	Aves	Strigidae	0248	<i>Ninox strenua</i>		Powerful Owl	V,P,3		2	
Animalia	Aves	Tytonidae	0252	<i>Tyto longimembris</i>		Eastern Grass Owl	V,P,3		4	
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>		Masked Owl	V,P,3		1	



Animalia	Aves	Tytonidae	9924	<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		1	
Animalia	Aves	Menuridae	0351	<i>Menura alberti</i>	Albert's Lyrebird	V,P		1	
Animalia	Aves	Campephagidae	0428	<i>Coracina lineata</i>	Barred Cuckoo-shrike	V,P		8	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		13	
Animalia	Aves	Monarchidae	0376	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		85	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	4	
Animalia	Mammalia	Dasyuridae	1017	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		1	
Animalia	Mammalia	Dasyuridae	1045	<i>Planigale maculata</i>	Common Planigale	V,P		2	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	317	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		1	
Animalia	Mammalia	Pseudocheiridae	1133	<i>Petauroides volans</i>	Greater Glider	P	E	1	
Animalia	Mammalia	Macropodidae	1234	<i>Thylogale stigmatica</i>	Red-legged Pademelon	V,P		3	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	64	
Animalia	Mammalia	Vespertilionidae	1336	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		7	
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		1	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		2	
Animalia	Insecta	Carabidae	1009	<i>Nurus atlas</i>	Atlas Rainforest Ground-beetle	E1,3		310	
Animalia	Insecta	Noctuidae	1021	<i>Phyllodes imperialis southern subspecies</i>	Southern Pink Underwing Moth	E1	E	12	

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Communities in selected area [North: -28.79 West: 153.40 East: 153.50 South: -28.89] returned 0 records for 14 entities.  
Report generated on 2/11/2022 11:00 AM

Kingdom	Class	Family	Species Code	Scientific Name	Common Name	NSW status	Comm. status	Records	Info
Community				<i>Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion</i>	Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion	E3		K	
Community				<i>Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				<i>Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</i>	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community		E	K	
Community				<i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				<i>Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion</i>	Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion	E3		K	



Community	<i>Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	<i>Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions</i>	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3	K	
Community	<i>Lowland Rainforest of Subtropical Australia</i>	Lowland Rainforest of Subtropical Australia	CE	K	
Community	<i>Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion</i>	Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3	K	
Community	<i>Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion</i>	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3	K	
Community	<i>Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	

Community	<i>Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions</i>	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	<i>White Gum Moist Forest in the NSW North Coast Bioregion</i>	White Gum Moist Forest in the NSW North Coast Bioregion	E3	K	



Australian Government

Department of Climate Change, Energy,  
the Environment and Water

# EPBC Act Protected Matters Report

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

Report created: 02-Nov-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



# Summary

## Matters of National Environment Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	6
<a href="#">Listed Threatened Species:</a>	93
<a href="#">Listed Migratory Species:</a>	67

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Lands:</a>	7
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	73
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	7
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">EPBC Act Referrals:</a>	4
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	2
<a href="#">Bioregional Assessments:</a>	1
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

Listed Threatened Ecological Communities

[ Resource Information ]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</a>	Endangered	Community likely to occur within area	In buffer area only
<a href="#">Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Grey box-grey gum wet forest of subtropical eastern Australia</a>	Endangered	Community may occurIn feature area within area	
<a href="#">Littoral Rainforest and Coastal Vine Thickets of Eastern Australia</a>	Critically Endangered	Community likely to occur within area	In buffer area only
<a href="#">Lowland Rainforest of Subtropical Australia</a>	Critically Endangered	Community likely to occur within area	In feature area
<a href="#">Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions</a>	Endangered	Community likely to occur within area	In buffer area only

Listed Threatened Species

[ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
<a href="#">Calyptorhynchus lathami lathami</a> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
<a href="#">Cyclopsitta diophthalma coxeni</a> Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Vulnerable	Species or species habitat may occur within area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Limosa lapponica baueri</a> Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Turnix melanogaster</a> Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Maccullochella ikei</a> Clarence River Cod, Eastern Freshwater Cod [26170]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Nannoperca oxleyana</a> Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thunnus maccoyii</a> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
<a href="#">Litoria olongburensis</a> Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Mixophyes fleayi</a> Fleay's Frog [25960]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Mixophyes iteratus</a> Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat may occur within area	In feature area
INSECT			
<a href="#">Argynnis hyperbius inconstans</a> Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Phyllodes imperialis smithersi</a> Pink Underwing Moth [86084]	Endangered	Breeding may occur within area	In buffer area only
MAMMAL			
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Petauroides volans</a> Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Petaurus australis australis</a> Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Potorous tridactylus tridactylus</a> Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Pseudomys novaehollandiae</a> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Xeromys myoides</a> Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area	In buffer area only
PLANT			
<a href="#">Acronychia littoralis</a> Scented Acronychia [8582]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Arthraxon hispidus</a> Hairy-joint Grass [9338]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Baloghia marmorata</a> Marbled Balogia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Bosistoa transversa</a> Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Bulbophyllum globuliforme</a> Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Clematis fawcettii</a> Stream Clematis [4311]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Corchorus cunninghamii</a> Native Jute [14659]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Corynocarpus rupestris subsp. rupestris</a> Glenugie Karaka [19303]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Cryptocarya foetida</a> Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Cynanchum elegans</a> White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Davidsonia jerseyana</a> Davidson's Plum [67219]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Davidsonia johnsonii</a> Smooth Davidsonia, Smooth Davidson's Plum, Small-leaved Davidson's Plum [67178]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Desmodium acanthocladum</a> Thorny Pea [17972]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Diploglottis campbellii</a> Small-leaved Tamarind [21484]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Endiandra floydii</a> Floyd's Walnut, Crystal Creek Walnut [52955]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Endiandra hayesii</a> Rusty Rose Walnut, Velvet Laurel [13866]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Floydia praealta</a> Ball Nut, Possum Nut, Big Nut, Beefwood [15762]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Fontainea australis</a> Southern Fontainea [24037]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Gossia fragrantissima</a> Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Hicksbeachia pinnatifolia</a> Monkey Nut, Bopple Nut, Red Bopple, Red Bopple Nut, Red Nut, Beef Nut, Red Apple Nut, Red Boppel Nut, Ivory Silky Oak [21189]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Isoglossa eranthemoides</a> Isoglossa [16663]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Leichhardtia longiloba listed as Marsdenia longiloba</a> Clear Milkvine [91911]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Macadamia integrifolia</a> Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Macadamia tetraphylla</a> Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Ochrosia moorei</a> Southern Ochrosia [11350]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Olx angulata</a> Minnie Waters Olx [10666]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Owenia cepiodora</a> Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Persicaria elatior</a> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Phaius australis</a> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Rhodamnia rubescens</a> Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Rhodomyrtus psidioides</a> Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Syzygium hodgkinsoniae</a> Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Syzygium moorei</a> Rose Apple, Coolamon, Robby, Durobby, Watermelon Tree, Coolamon Rose Apple [12284]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Vincetoxicum woollsii listed as Tylophora woollsii</a> [40080]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Coeranoscincus reticulatus</a> Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
SHARK			
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
SNAIL			
<a href="#">Thersites mitchellae</a> Mitchell's Rainforest Snail [66774]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Listed Migratory Species		[ <a href="#">Resource Information</a> ]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<a href="#">Ardeenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Ardeenna grisea</a> Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Migratory Marine Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat may occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Migratory Terrestrial Species			
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area	In buffer area only
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
<a href="#">Calidris alba</a> Sanderling [875]		Roosting known to occur within area	In buffer area only
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Roosting known to occur within area	In buffer area only
<a href="#">Calidris tenuirostris</a> Great Knot [862]		Roosting known to occur within area	In buffer area only
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]	Vulnerable	Roosting known to occur within area	In buffer area only
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]		Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]		Roosting known to occur within area	In buffer area only
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]	Endangered	Roosting known to occur within area	In buffer area only
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area	In buffer area only
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Critically Endangered	Roosting known to occur within area	In buffer area only
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat known to occur within area	In feature area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting known to occur within area	In buffer area only
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area	In buffer area only
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area	In buffer area only
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur within area	In buffer area only
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Roosting known to occur within area	In buffer area only
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]	Threatened	Roosting known to occur within area	In buffer area only
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Roosting known to occur within area	In buffer area only
<a href="#">Tringa incana</a> Wandering Tattler [831]		Roosting known to occur within area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Xenus cinereus</a>			
Terek Sandpiper [59300]		Roosting known to occur within area	In buffer area only

### Other Matters Protected by the EPBC Act

Commonwealth Lands

[ [Resource Information](#) ]

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

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11291]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11283]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11284]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11278]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11295]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11282]	NSW	In buffer area only

Unknown		
Commonwealth Land - [15731]	NSW	In buffer area only

Listed Marine Species

[ [Resource Information](#) ]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
<a href="#">Actitis hypoleucos</a>			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Anous stolidus</a>			
Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Anseranas semipalmata</a> Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Ardena carneipes as Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Ardena grisea as Puffinus griseus</a> Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area	In buffer area only
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
<a href="#">Calidris alba</a> Sanderling [875]		Roosting known to occur within area	In buffer area only
<a href="#">Calidris canutus</a> Red Knot, Knot [855]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea antipodensis gibsoni as Diomedea gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area	In buffer area only
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area	In buffer area only
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Tringa brevipes as Heteroscelus brevipes</a> Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Tringa incana as Heteroscelus incanus</a> Wandering Tattler [831]		Roosting known to occur within area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In buffer area only
Mammal			

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	Buffer Status
Ballina	Nature Reserve	NSW	In buffer area only
Davis Scrub	Nature Reserve	NSW	In buffer area only
Little Pimlico Island	Nature Reserve	NSW	In buffer area only
Ngunya Jargoan	Indigenous Protected Area	NSW	In buffer area only
Richmond River	Nature Reserve	NSW	In buffer area only
Uralba	Nature Reserve	NSW	In buffer area only
Victoria Park	Nature Reserve	NSW	In buffer area only



Regional Forest Agreements

[ Resource Information ]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
<a href="#">North East NSW RFA</a>	New South Wales	In feature area

Nationally Important Wetlands

[ Resource Information ]

Wetland Name	State	Buffer Status
<a href="#">Tuckean Swamp</a>	NSW	In buffer area only

EPBC Act Referrals

[ Resource Information ]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
<a href="#">Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade, NSW</a>	2012/6394	Controlled Action	Post-Approval	In buffer area only

Not controlled action				
<a href="#">CURA A Residential Development, Cumbalum Heights, NSW</a>	2018/8336	Not Controlled Action	Completed	In buffer area only
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area

Not controlled action (particular manner)				
<a href="#">Proposed Upgrade to 17km of the Pacific Highway</a>	2009/5103	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
<a href="#">Tursiops aduncus</a>			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur	In buffer area only

Marine Turtles			
<a href="#">Caretta caretta</a>			
Loggerhead Turtle [1763]	Nesting	Known to occur	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	<a href="#">BA website</a>	In feature area

# Caveat

## 1 PURPOSE

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

The report contains the mapped locations of:

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

## 2 DISCLAIMER

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

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

## 3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

## 4 LIMITATIONS

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

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

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

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

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

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

# Acknowledgements

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

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

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



Please feel free to provide feedback via the [Contact us](#) page.

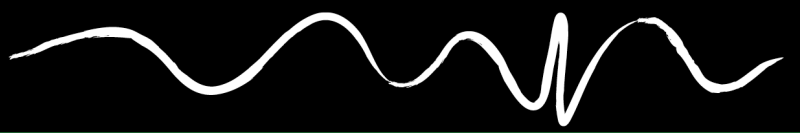
[© Commonwealth of Australia](#)

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## Appendix C

### Site Photographs



**Plate 1.** Photo looking north from entrance off Gap Rd view of planted ornamental trees with Morten Bag Fig (right), and Blackbutt and Durobby (left).

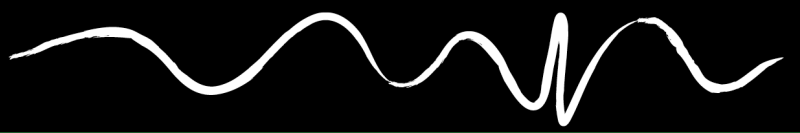


**Plate 2.** Branch Creek riparian zone near Gap Rd entrance – dominated by exotic vegetation.



**Plate 3.** Slash Pine – Camphor Laurel forest with rainforest elements adjacent to Gap Rd.





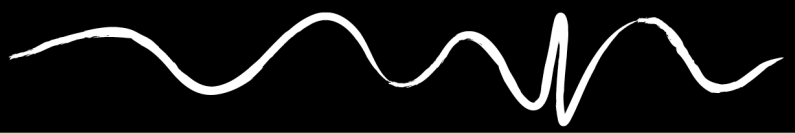
**Plate 4.** Mixed Eucalypt - Camphor Laurel forest with rainforest elements adjacent to Gap Rd.



**Plate 5.** Branch Creek riparian zone in the centre of the site.



**Plate 6.** Example of the highly degraded land on site with no associated PCT.



## Appendix D

# Threatened Species Potential Occurrence Assessment



## Potential of Occurrence Assessment

A potential of occurrence assessment was completed to assess the likelihood of occurrence of each threatened species or population identified within the subject site. All threatened biodiversity identified in background research were considered. The assessment is based on the habitat profile for the species and other habitat information in the Threatened Species Profile Database (Environment Energy and Science Group). The assessment also takes into consideration the dates and locations of nearby records and information about species populations in the locality.

### Threatened Flora Potential Occurrence Assessment

For this proposed activity, the likelihood of occurrence of threatened flora species was determined based on the criteria shown in **Table D.1**.

**Table D.1** Potential of occurrence criteria for threatened species and populations of flora

Potential of occurrence	Criteria
<b>Known</b>	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
<b>High</b>	A species has a high likelihood of occurrence if: <ul style="list-style-type: none"><li>■ the subject site contains or forms part of a large area of high-quality suitable habitat that has not been subject to recent disturbance (e.g. fire), the species is known to form a persistent soil seedbank and the species has been recorded recently (within 10 years) in the locality</li><li>■ the species is a cryptic flowering species that has been recorded recently (within 10 years) in the locality and has a large area of high-quality potential habitat within the construction footprint that was not seasonally targeted by surveys.</li></ul>
<b>Moderate</b>	A species has a moderate likelihood of occurrence if: the species: <ul style="list-style-type: none"><li>■ has a large area of high-quality suitable habitat in the subject site that has not been subject to recent disturbance (e.g. fire)</li><li>■ the species is known to form a persistent soil seedbank, but</li><li>■ the species has not been recorded recently (within 10 years) in the locality</li><li>■ the species:<ul style="list-style-type: none"><li>■ has a small area of high-quality suitable habitat or a large area of marginal habitat in the subject site That has not been subject to recent disturbance (e.g. fire)</li><li>■ the species is known to form a persistent soil seedbank</li><li>■ the species has been recorded recently (within 10 years) in the locality</li><li>■ the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the Proposal footprint, that was not seasonally targeted by surveys.</li></ul></li></ul>
<b>Low</b>	A species has a low likelihood of occurrence if: <ul style="list-style-type: none"><li>■ it is not a cryptic species, nor a species known to have a persistent soil seedbank species and was not detected despite targeted searches</li><li>■ the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the Proposal footprint, that was not seasonally targeted by surveys as the species has not been recorded within 50 years in the locality.</li></ul>
<b>None</b>	Suitable habitat is absent from the subject site.




**Table D.2 Threatened Flora Potential Occurrence Assessment**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE/EES Threatened Species Profiles websites)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Acalypha eremorum</i>	Acalypha	E	-	Subtropical and dry rainforest and vine thickets.	Low	Lack of suitable habitat on site.
<i>Acronychia littoralis</i>	Scented Acronychia	E	E	Littoral rainforest on sand.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Amyema plicatula</i>	-	E	E	Known only from one location within a remnant rainforest fragment on cleared farmland within the Rocky Creek area. Parasitic on mature Rosewood trees, growing on basalt-derived soils where subtropical rainforest would have grown before land-clearing occurred.	Low	Lack of suitable habitat on site.
<i>Archidendron hendersonii</i>	White Lace Flower	V	-	Riverine and lowland subtropical rainforest and littoral rainforest.	Low	Lack of suitable habitat on site.
<i>Arthraxon hispidus</i>	Hairy Jointgrass	V	V	Moist shady places in or on the edges of rainforest and wet eucalypt forest, often near creeks or swamps.	Low	Lack of suitable habitat on site.
<i>Baloghia marmorata</i>	Jointed Baloghia	V	V	Subtropical rainforest on soils derived from basalt.	Low	Lack of suitable habitat on site.
<i>Bosistoa transversa</i>	Yellow Satinheart	V	V	Lowland subtropical rainforest up to 300 m in altitude, from Maryborough in Queensland to Nightcap Range (north of Lismore) in NSW.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Bulbophyllum globuliforme</i>	Hoop Pine Orchid	V	V	Grows on Hoop Pines ( <i>Araucaria cunninghamii</i> ) in upland subtropical rainforest.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Clematis fawcettii</i>	Northern Clematis	V	V	Drier rainforest, usually near streams.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Corchorus cunninghamii</i>	Native Jute	E	E	Areas where rainforest and moist eucalypt forest meet, and areas which formerly supported this vegetation but have been converted to plantation.	Low	Lack of suitable habitat on site. No BioNet records within the locality.




Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE/EES Threatened Species Profiles websites)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Corynocarpus rupestris</i> subsp. <i>rupestris</i>	Glenugie Karaka	V	V	Dry rainforest on steep volcanic scree on the peak, in well drained nutrient rich soils.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V	V	Littoral rainforest in sandy soils, mature trees known on basalt soils.	Low	Lack of suitable habitat on site.
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	V	V	Does not have well defined habitat and is known from a range of communities, including swamp-heath and woodland.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	E	Dry, littoral or subtropical rainforest, and occasionally in scrub or woodland.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Davidsonia jerseyana</i>	Davidson's Plum	E	E	Lowland subtropical rainforest and wet eucalypt forest at low altitudes (below 300 m). Many trees are isolated trees in paddocks and roadsides in former rainforest habitats. Restricted to north-east NSW to as far south as Wardell.	Low	Lack of suitable habitat on site.
<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	E	E	Wet sclerophyll forests, with a smaller number of sites known from subtropical rainforest. Plants still persist in cleared areas as isolated clumps in paddocks or in regrowth dominated by Lantana ( <i>Lantana camara</i> ) and other weed species.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	E	E	Lowland subtropical rainforest and wet eucalypt forest, isolated trees in paddocks and cleared land.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Desmodium acanthocladum</i>	Thorny Pea	V	V	Fringes of riverine subtropical and dry rainforest on basalt-derived soils at low elevations.	Low	Lack of suitable habitat on site.
<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E	E	Riverine and subtropical rainforest and Brush Box forest, some trees isolated in paddocks and roadsides.	Low	Lack of suitable habitat on site.
<i>Endiandra floydii</i>	Crystal Creek Walnut	E	E	Warm temperate or subtropical rainforest with Brush Box overstorey, and in regrowth rainforest and	Low	Lack of suitable habitat on site. No BioNet records within the




Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE/EES Threatened Species Profiles websites)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
				Camphor Laurel forest.		locality.
<i>Endiandra hayesii</i>	Rusty Rose Walnut	V	V	Sheltered moist gullies in subtropical and warm temperate rainforest on alluvium or basalt.	Low	Lack of suitable habitat on site.
<i>Endiandra muelleri subsp. bracteata</i>	Green-leaved Rose Walnut	E	-	Subtropical rainforest or wet eucalypt forest, chiefly at lower altitudes.	Low	Lack of suitable habitat on site.
<i>Floydia praealta</i>	Ball Nut	V	V	Riverine and subtropical rainforest, usually soils derived from basalt.	Low	Lack of suitable habitat on site.
<i>Fontainea australis</i>	Southern Fontainea	V	V	Lowland subtropical rainforest, usually on basaltic alluvial flats, and also in cooler subtropical rainforest in the Nightcap Range. Restricted to the Tweed Valley and a few locations in the upper reaches of the Richmond Valley.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Gossia fragrantissima</i>	Sweet Myrtle	E	E	Dry subtropical and riverine rainforest, isolated plants can be found in paddocks from regrowth mostly on basalt-derived soils. Occurs in south-east Queensland and in north-east NSW south to the Richmond River.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V	V	Subtropical rainforest, moist eucalypt forest and Brush Box forest.	Low	Lack of suitable habitat on site.
<i>Isoglossa eranthemoides</i>	Isoglossa	E	E	Understorey of lowland subtropical rainforest, in moist situations on floodplains and slopes.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V	-	Infertile metasediments, fertile basalts and backswamp alluvium in the Tweed Valley within lowland subtropical rainforest.	Low	Lack of suitable habitat on site.
<i>Macadamia integrifolia</i>	Macadamia Nut	-	V	While specimens have been collected from the North Coast of NSW (e.g. Lismore, Gross 1995), this species is not known to occur naturally in NSW (Harden 1991). The Macadamia Nut grows in remnant rainforest.	Low	Low potential of occurrence on site.
<b>Macadamia</b>	<b>Rough-shelled</b>	<b>V</b>	<b>V</b>	<b>Subtropical rainforest usually near the coast.</b>	<b>Low</b>	<b>Individual identified off site on</b>





Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE/EES Threatened Species Profiles websites)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>tetraphylla</i>	Rough-shelled Bush Nut					the fence line of Lot 3 DP588893.  An AoS may be required for a future development proposal on site which adjoins fence line of Lot 3 DP58889.
<i>Marsdenia longiloba</i>	Slender Milkvine	E	V	Subtropical and warm temperate rainforest, lowland moist eucalypt forest adjoining rainforest and, sometimes, in areas with rock outcrops.	Low	Lack of suitable habitat on site.
<i>Niemeyera whitei</i>	Rusty Plum	V	-	Rainforest and adjoining moist eucalypt forest.	Low	Lack of suitable habitat on site.
<i>Oberonia titania</i>	Red-flowered King of the Fairies	V	-	Occurs in littoral and subtropical rainforest and paperbark swamps, but it can also occur in eucalypt- forested gorges and in mangroves.	Low	Lack of suitable habitat on site.
<i>Ochrosia moorei</i>	Southern Ochrosia	E	E	Riverine and lowland subtropical rainforest.	Low	Lack of suitable habitat on site.
<i>Olax angulata</i>	Square-stemmed Olax	V	V	Low-lying coastal heaths and heathy woodlands on sandy soils near swamps, often in association with Wallum Banksia ( <i>Banksia aemula</i> ).	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Owenia cepiodora</i>	Onion Cedar	V	V	Subtropical and dry rainforest. In NSW, from Bangalow to the Macpherson Range.	Low	Lack of suitable habitat on site.
<i>Persicaria elatior</i>	Tall Knot-weed	V	V	Damp or swampy situations and sometimes with <i>Melaleuca linariifolia</i> .	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Phaius australis</i>	Southern Swamp Orchid	E	E	Swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest mostly in coastal areas.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Rhodamnia maideniana</i>	Smooth Scrub Turpentine	CE	-	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	Low	Lack of suitable habitat on site.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE/EES Threatened Species Profiles websites)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	-	Subtropical rainforests, warm temperate rainforests, littoral rainforests, and wet sclerophyll forests. It may also occur as a pioneer in adjacent areas of dry sclerophyll and grassy woodland associations.	Low	Lack of suitable habitat on site.
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	-	Rainforest and its margins with sclerophyll vegetation, often near creeks and drainage lines. Pioneer species in disturbed environments such as regrowth and rainforest margins.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Sophora fraseri</i>	Brush Sophora	V	V	Moist situations near rainforest.	Low	Lack of suitable habitat on site.
<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V	V	Riverine and subtropical rainforest on rich alluvial or basaltic soils.	Low	Lack of suitable habitat on site.
<b><i>Syzygium moorei</i></b>	<b>Durobby</b>	<b>V</b>	<b>V</b>	<b>Subtropical and riverine rainforest.</b>	<b>Known</b>	<b>An AoS may be required for a future development proposal on site.</b>
<i>Thesium australe</i>	Austral Toadflax	V	V	Grassland or grassy eucalypt woodland where <i>Themeda australis</i> is predominant, on grassy headlands.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Tinospora smilacina</i>	Tinospora Vine	E	-	Dry rainforest and along the boundaries of dry rainforest and dry eucalypt forest.	Low	Lack of suitable habitat on site.
<i>Tinospora tinoporoides</i>	Arrow-head Vine	V	-	Wetter subtropical rainforest, including littoral rainforest, on fertile, basalt-derived soils.	Low	Lack of suitable habitat on site.
<i>Tylophora woollsii</i>		E	E	Moist eucalypt forest, moist sites in dry eucalypt forest and rainforest margins.	Low	Lack of suitable habitat on site. No BioNet records within the locality.

V = Vulnerable; E = Endangered; CE = Critically Endangered

## Threatened Fauna Potential Occurrence Assessment

For this proposed activity, the likelihood of occurrence of threatened and migratory fauna species and populations was determined based on the criteria shown in **Table D.3**.

**Table D.3 Potential of occurrence criteria for threatened species and populations of fauna**

Potential of occurrence	Criteria
<b>Known</b>	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
<b>High</b>	A species has a high likelihood of occurrence if: <ul style="list-style-type: none"><li>■ the subject site contains or forms part of a large area of high-quality suitable habitat</li><li>■ important habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are abundant within the subject site</li><li>■ the species has been recorded recently in similar habitat in the locality</li><li>■ the subject site is likely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration.</li></ul>
<b>Moderate</b>	A species has a moderate likelihood of occurrence if: <ul style="list-style-type: none"><li>■ the subject site contains or forms part of a small area of high-quality suitable habitat</li><li>■ the subject site contains or forms part of a large area of marginal habitat</li><li>■ important habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are sparse or absent within the subject site</li><li>■ the subject site is unlikely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration but is likely to be used occasionally during seasonal movements and/or dispersal.</li></ul>
<b>Low</b>	A species has a low likelihood of occurrence if: <ul style="list-style-type: none"><li>■ potentially suitable habitat exists but the species has not been recorded recently (previous 10 years) in the locality despite intensive survey (i.e. the species is considered to be locally extinct)</li><li>■ the species is considered to be a rare vagrant, likely only to visit the subject site very rarely, e.g. during juvenile dispersal or exceptional climatic conditions (e.g. extreme drought conditions in typical habitat of inland birds).</li></ul>
<b>None</b>	Suitable habitat is absent from the subject site.



**Table D.4 Threatened Fauna Potential Occurrence Assessment**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
AMPHIBIANS						
<i>Litoria olongburensis</i>	Olongburra Frog	V	V	Paperbark swamps and sedge swamps of the coastal 'wallum' country amongst sedges and rushes.	Low	No BioNet records within the locality.
<i>Mixophyes fleayi</i>	Fleay's Barred Frog	E	E	Rainforest and wet eucalypt forest of the escarpment and foothills, close to gravely streams.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	Deep, damp leaf litter in rainforests, moist eucalypt forest and near dry eucalypt forest.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
AVIFAUNA						
<i>Amaurornis moluccana</i>	Pale-vented Bush-hen	V	-	Variety of coastal wetlands from wetlands, mangroves, lagoons and swamps to river margins and creeks running through rainforest.	Low	Lack of suitable habitat on site.
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	Low	Lack of suitable habitat on site.
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	Low	Lack of suitable habitat on site.
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	Low	Lack of suitable habitat on site.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	Low	Lack of suitable habitat on site.
<i>Carterornis leucotis</i>	White-eared Monarch	V	-	Coastal rainforest, swamp forest and wet eucalypt forest, prefers edges where trees frequently covered with vines.	Low	Lack of suitable habitat on site.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Circus assimilis</i>	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Coracina lineata</i>	Barred Cuckoo-shrike	V	-	Rainforest, eucalypt woodlands, swamp woodlands and timber along watercourses.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-parrot	CE	E	Drier rainforests and adjacent wet eucalypt forest, wetter lowland also wetter lowland rainforests.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Low	Lack of suitable habitat on site.
<i>Erythrotriorchis radiatus</i>	Red Goshawk	CE	V	Open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water. Typically 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. Population in NSW is naturally small (probably only one pair), and lies at extreme of the natural range of the species in Australia.	Low	Lack of suitable habitat on site.
<i>Falco hypoleucos</i>	Grey Falcon	E	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	Forages in open Eucalyptus forest and woodland; also feeds on Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low	Lack of suitable habitat on site.
<i>Grantiella picta</i>	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema.	Low	Lack of suitable habitat on site.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	V	-	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean). Habitats may include freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds in addition to bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	Open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	Among vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Low	Lack of suitable habitat on site.
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-	Dense vegetation fringing and in streams, swamps, tidal creeks and mudflats, particularly amongst swamp sheoaks and mangroves.	Low	Lack of suitable habitat on site.
<i>Lathamus discolor</i>	Swift Parrot	E	CE	On mainland Australia foraging occurs where eucalypts are flowering profusely or where abundant lerp infestations occur. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Forest Red Gum E. tereticornis, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana, Blackbutt E. pilularis and Yellow Box E. melliodora.	Low	Lack of suitable habitat on site.
<i>Lophoictinia isura</i>	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home ranges can extend over at least 100 km <sup>2</sup> .	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Menura alberti</i>	Albert's Lyrebird	V	-	Mixed rainforest and open wet forest frequently dominated by Brush Box.	Low	Lack of suitable habitat on site.





Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Ninox connivens</i>	Barking Owl	V	-	Eucalypt woodland, open forest, swamp woodlands and timber along watercourses.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Ninox strenua</i>	Powerful Owl	V	-	Woodland and open forest to tall moist forest and rainforest. Requires large tracts of forest or woodland habitat but may also occur in fragmented landscapes.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	V	-	Rainforests, low-elevation moist eucalypt forest, and Brush Box forests.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Ptilinopus superbus</i>	Superb Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Sternula nereis nereis</i>	Australian Fairy Tern	-	V	Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. Feeds in Coastal waters.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Turnix melanogaster</i>	Black-breasted Button-quail	CE	V	Drier rainforests and vine scrubs, often in association with Hoop Pine and a deep moist leaf litter layer. During drought it may move to adjacent wetter rainforests.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-	Areas of tall grass, including tussocks in swampy areas, grassy plains, swampy heath, cane grass, sedges on flood plains.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	Dry eucalypt forest and woodlands.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	Dry, subtropical and warm temperate rainforests and wet eucalypt forests. Nest in large tree hollows.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<b>FISH</b>						
<i>Maccullochella ikei</i>	Eastern Freshwater Cod	E (FM Act)	E	Permanent clear rocky streams with instream cover and deep pools. Native to only the Clarence and Richmond Rivers in northern New South Wales.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Nannoperca oxleyana</i>	Oxleyan Pygmy Perch	E (FM Act)	E	Still or slow-moving acidic waterbodies with areas of dense aquatic vegetation and undercut banks in banksia dominated lowland heath.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<b>INSECTA</b>						
<i>Thersites mitchellae</i>	Mitchell's Rainforest Snail	E	CE	Remnant areas of lowland subtropical rainforest and swamp forest on alluvial soils, found amongst leaf litter on the forest floor.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Argynnis hyperbius</i>	Australian Fritillary	E	CE	Open swampy coastal habitat where the caterpillar's food plant, Arrowhead Violet ( <i>Viola betonicifolia</i> ) occurs.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Nurus atlas</i>	Atlas Rainforest Ground-beetle	E	-	Low elevation rainforest and wet eucalypt forest with well developed rainforest understorey, undisturbed old-growth on highly productive soils.	Low	Lack of suitable habitat on site.
<i>Phyllodes imperialis southern subspecies</i>	Pink Underwing Moth	E	E	Undisturbed subtropical rainforest below 600 m. Breeding habitat is restricted to areas where the caterpillar's food plant, a native rainforest vine, Carronia multisepalea, grows in a collapsed shrub-like form.	Low	Lack of suitable habitat on site.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
MAMMALS						
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Low	Lack of suitable habitat on site.
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V	-	Lowland subtropical rainforest and wet and swamp eucalypt forest, extending to adjacent moist eucalypt forest.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Petauroides volans</i>	Greater Glider	-	E	Ranges and coastal plains of eastern Australia, where it inhabits a variety of eucalypt forests and woodlands.	Low	Lack of suitable habitat on site.
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	V	V	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Dens in tree hollows of large trees, often in family groups. 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.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	Low	Lack of suitable habitat on site.
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	Low	Lack of suitable habitat on site.





Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPE Threatened Species Profiles)	Potential of occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
<i>Phascolarctos cinereus</i>	Koala	V	E	Appropriate food trees in forests and woodlands, and treed urban areas.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Planigale maculata</i>	Common Planigale	V	-	Rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas with surface cover close to water.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Potorous tridactylus</i>	Long-nosed Potoroo	V	V	Cool temperate rainforest, moist and dry forests, and wet heathland, inhabiting dense layers of grass, ferns, vines and shrubs.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Moderate	Marginal foraging habitat on site. An AoS may be required for a future development proposal on site.
<i>Thylogale stigmatica</i>	Red-legged Pademelon	V	-	Rainforest, vine scrub, moist eucalypt forest with dense understorey and ground cover.	Low	Lack of suitable habitat on site.
<i>Xeromys myoides</i>	False Water-rat	-	V	Primarily in habitats mangrove forests but has been recorded in a variety of well-watered habitats including, freshwater lagoons, sedged lakes close to foredunes, and swamps.	Low	Lack of suitable habitat on site. No BioNet records within the locality.
<b>REPTILIA</b>						
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	V	E	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	None	No suitable habitat occurs within study area. No recent records within the locality. No further assessment required.

V = Vulnerable; E = Endangered; CE = Critically Endangered